



READINGS IN QUANTITATIVE RISK MANAGEMENT

MONITORING CREDIT MARKETS AMIDST COMMERCIAL REAL ESTATE (CRE) VOLATILITY

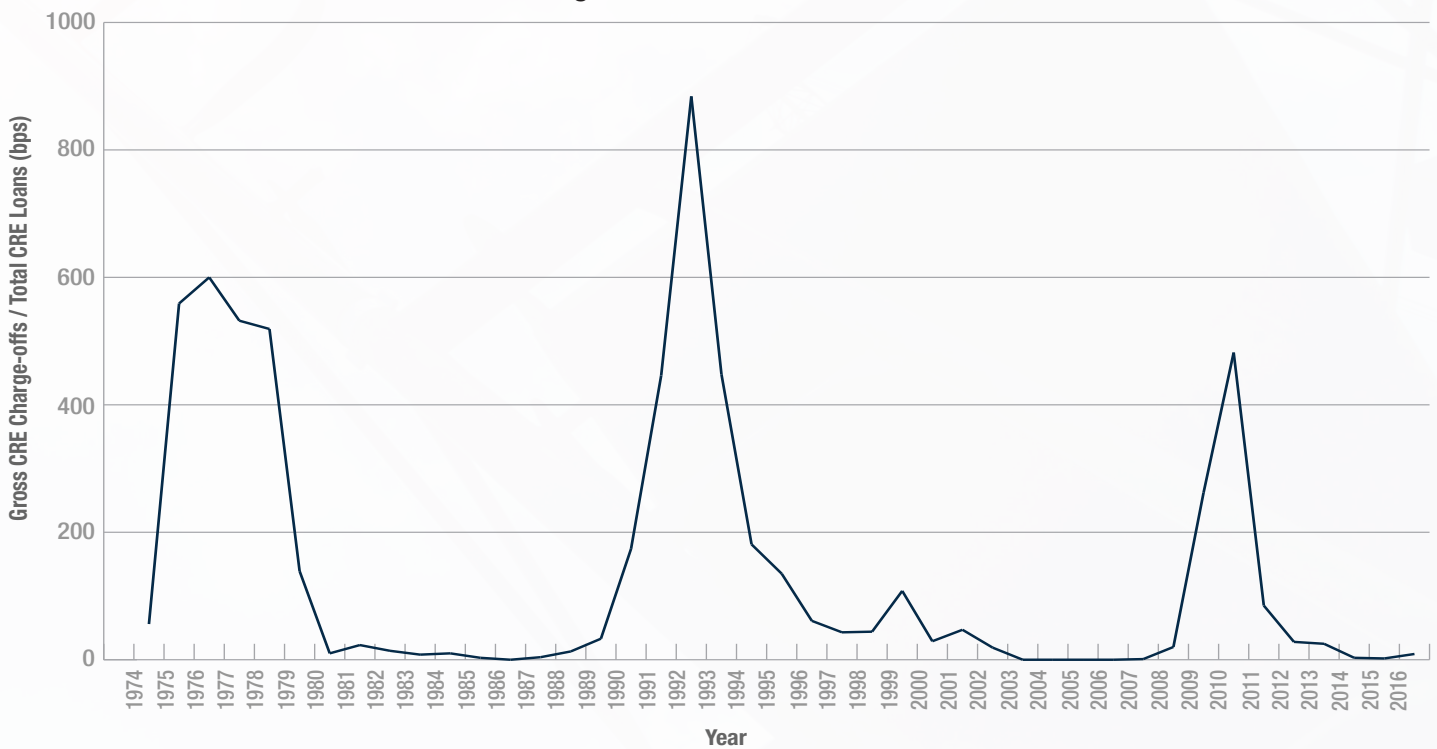
ALVAREZ & MARSAL



INTRODUCTION

Historically, commercial real estate (CRE) has shown itself to be a risky business with long periods of profitable growth interspersed with short periods of intense crisis. One needs only to look at the recent history of charge-offs on CRE loans at a money center bank based in New York to see that this is so (Figure 1). There are long periods in which charge-offs are low, typically less than 25 basis points (bps) of outstanding loans, punctuated by brief but intense periods in which charge-offs exceed four percent of outstanding loans and sometimes dramatically more.

**Figure 1: New York Money Center Bank
North American Commercial Real Estate Portfolio
Gross Charge-off Incidence from 1974 to 2016**

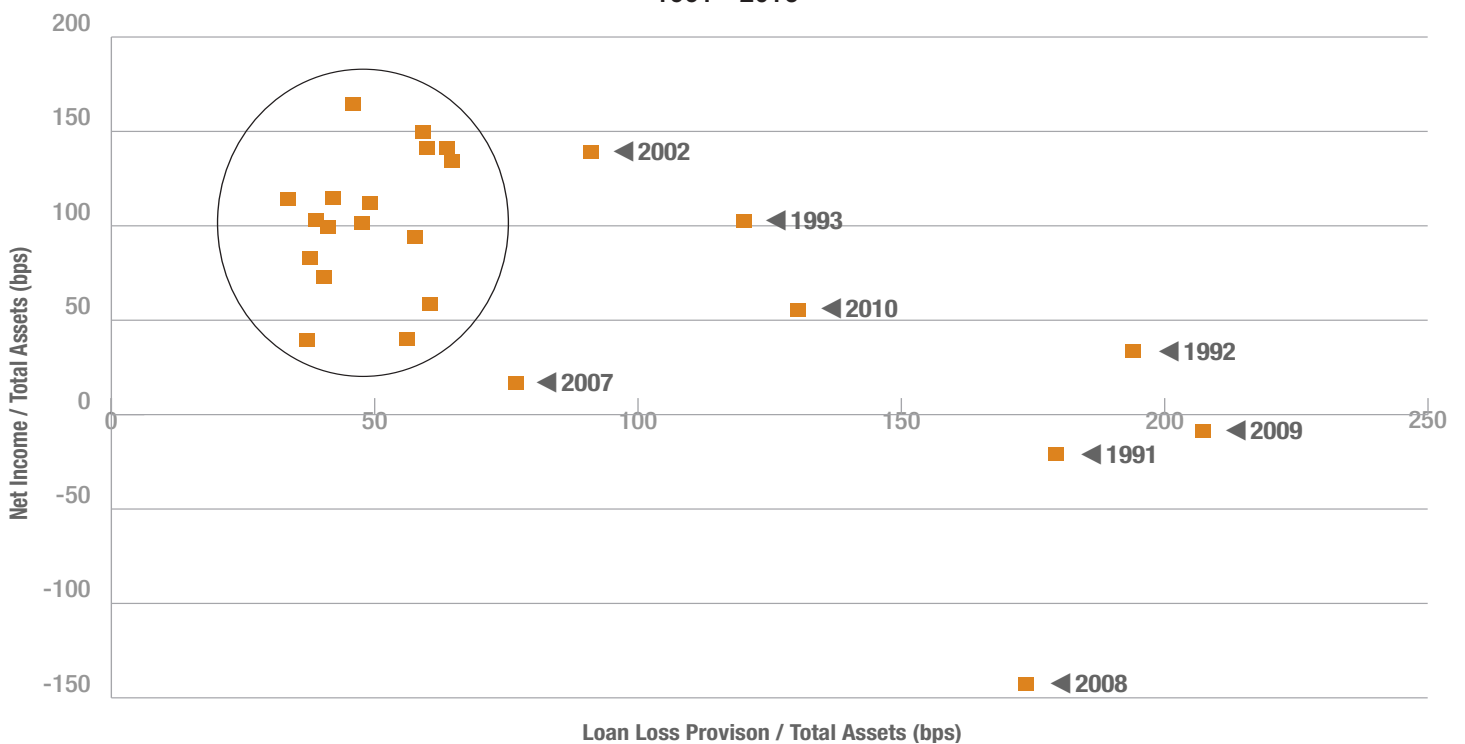


(Source: bank filings with SEC)



For this major CRE lender, profitability apparently is relatively consistent in the benign periods when charge-offs are low. For example, as shown in the oval in Figure 2, we see that firm-wide net income margin (firm-wide net income divided by firm-wide assets) ranges from 40 bps to 165 bps while firm-wide provisions for loan losses divided by firm-wide assets range from 33 bps to 65 bps in these “good” years.

**Figure 2: New York Money Center Bank
Profitability and Loan Loss Provisions
1991 - 2016**



However, when the CRE-related crises emerge, loan losses increase dramatically (tripling and even quadrupling) causing net income to fall significantly and, in some cases, turning negative. For example, the cumulative net losses in 2008 and 2009 wiped out the net income in 2007, 2006 and a portion of 2005. You can easily see that the right-hand portion of Figure 2 is dominated by the crisis years in which net income is weak or negative and loan loss provisions are high, as well as the years of recovery from those crises.



BANKING REGULATORS RECOGNIZE THE VOLATILITY OF CRE

Notwithstanding their willingness to permit “too big to fail,” U.S. banking regulators have long recognized the volatility of certain types of CRE loans. In the proposed rules for Basel III, “High Volatility Commercial Real Estate” (HVCRE) was defined as all acquisition, development and construction (ADC) CRE loans except: 1) one- to- four family residential ADC loans or 2) commercial real estate ADC loans that meet applicable regulatory loan-to-value (LTV) requirements; and for which the borrower has contributed cash to the project of at least 15 percent of the real estate’s “appraised as completed” value prior to the advancement of funds by the bank; and for which the borrower contributed capital is contractually required to remain in the project until the credit facility is converted to permanent financing, sold or paid in full.

Each HVCRE loan meeting the definition in a bank’s portfolio would be assigned a 150 percent risk weight under the proposed rule. Under current rules, these loans are risk-weighted at 100 percent. The intent of this rule, of course, is to ensure that banks lending to HVCRE have sufficient capital to absorb losses comparable to those seen in the crisis periods in Figures 1 and 2.

CREDIT RISK APPEARS TO BE INCREASING IN THE U.S. CRE MARKETS

Notwithstanding the historical volatility of CRE and the significant losses that accompany crises in CRE, institutions continue to lend aggressively in CRE with loan volumes surging in 2016 and 2017. The CBRE Lending Momentum Index¹ reached record levels at the end of 2016 and, while it has contracted slightly in 2017, the level at 3Q2017 is nearly 17 percent higher than a year prior.

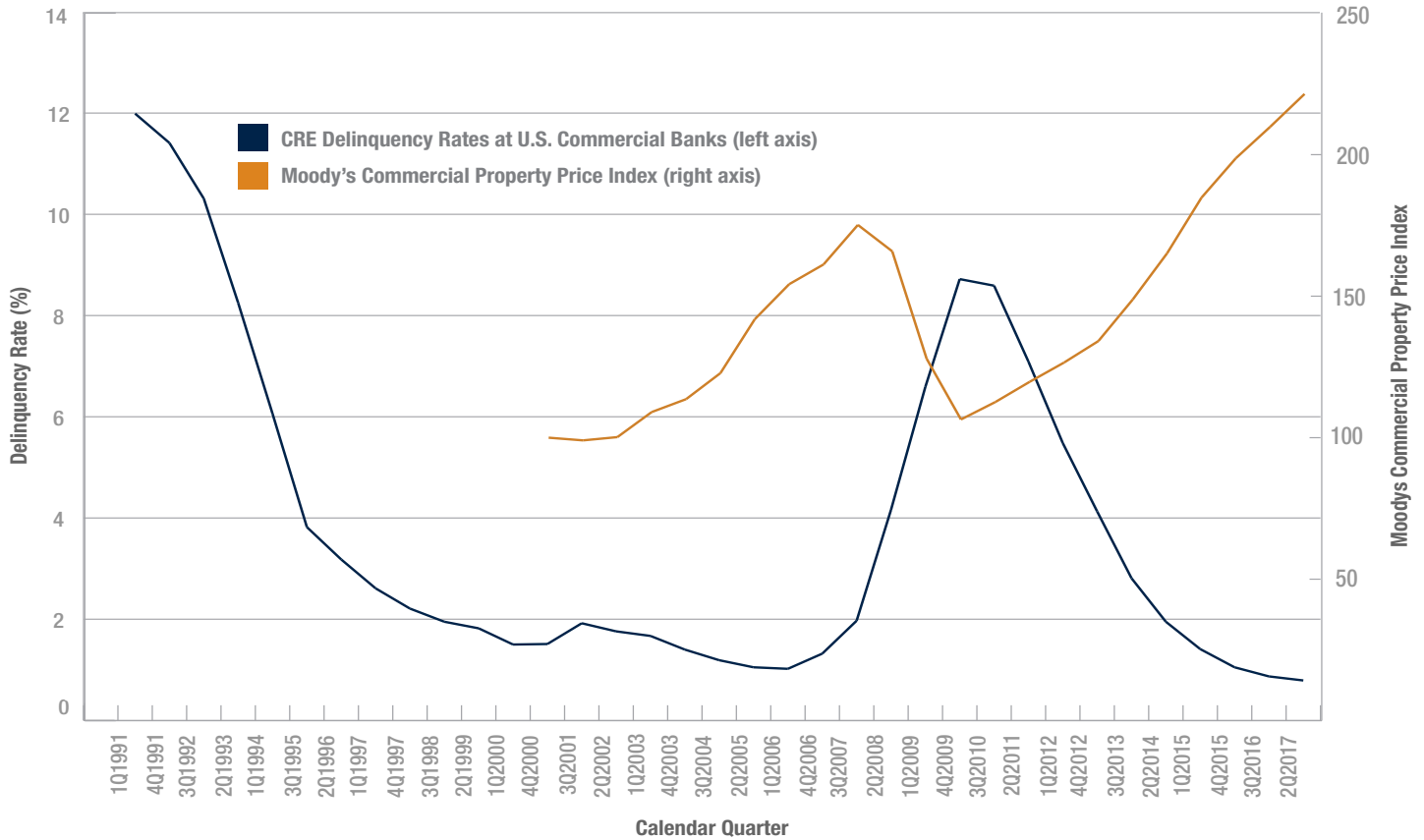
CRE remains attractive to lenders as prices on commercial properties continue to increase and delinquencies remain low (Figure 3). The surge in property values since 2009 is in part driven by inexpensive debt. The Moody’s Commercial Property Price Index, shown in Figure 3, suggests that the current increase in CRE prices is larger than the increase that preceded the Financial Crisis.

¹The CBRE Lending Momentum Index track loans originated or brokered by CBRE Capital Markets.



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**Figure 3: Prices of and Delinquency Rates on Commercial Real Estate Loans
Loans Booked by U.S. Commercial Real Estate Industry
1Q1991 - 3Q2017**



Importantly, Figure 3 suggests an inverse relationship between CRE prices and delinquencies. After periods of rapid price increases accompanied by low levels of delinquencies, rising delinquencies are associated with falling prices. Prices recover when delinquencies peak and begin falling².

Several market participants have suggested that there is a “bubble” in the CRE markets associated with the record-setting lending activity, the price increases in CRE and the low levels of delinquencies. In fact, in October 2015, U.S. banking regulators warned of increasing credit risk in U.S. markets, and an asset bubble in CRE³.

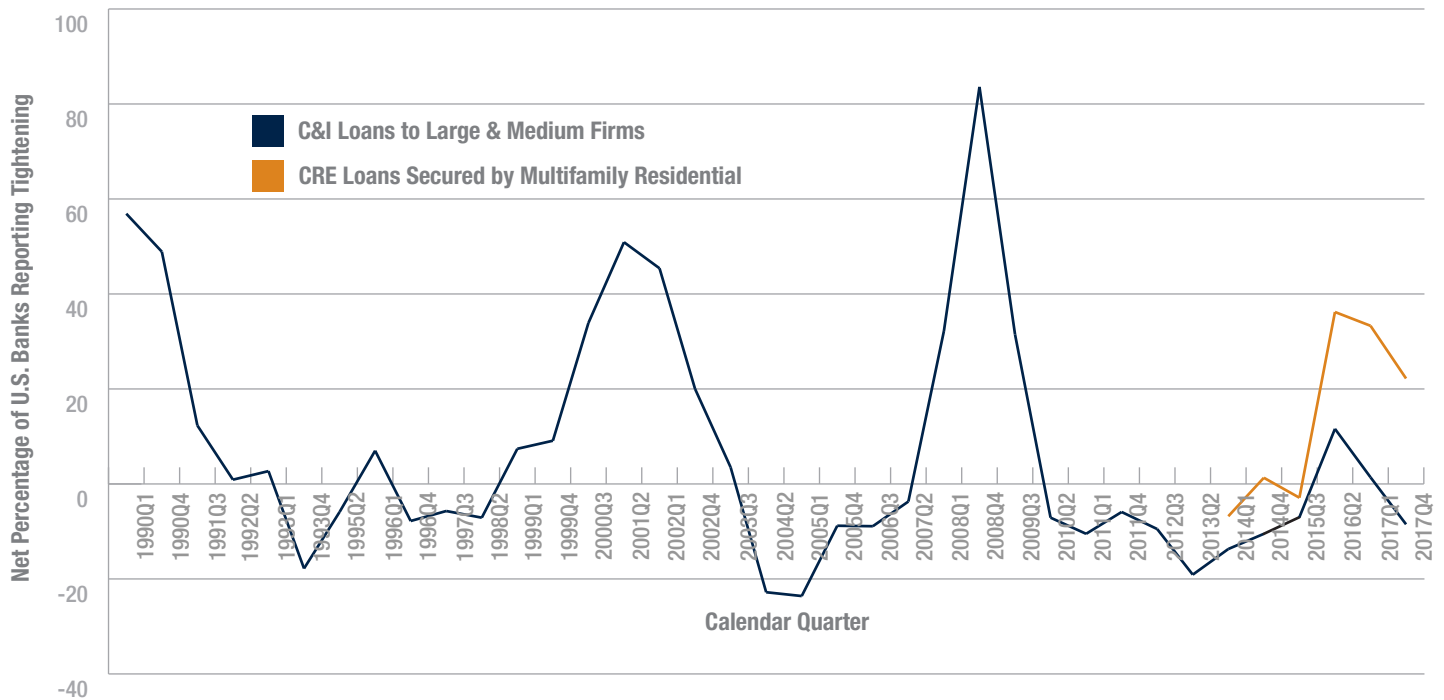
In response, bank lending officers have tightened their underwriting standards for CRE (Figure 4). This tightening followed several years of relaxed underwriting standards on most types of loans and it is noteworthy that the most significant tightening occurred on CRE. However, this tightening will withdraw capital from the CRE markets at precisely the time (2017) that \$90 billion of commercial mortgages are maturing. There may be emerging issues with refinancing if debt capital is withdrawn from CRE markets.

²The correlation between these two-data series from 4Q2007 to 1Q2017 is -0.931.

³A joint statement of all U.S. bank regulatory agencies on the Prudent Risk Management for Commercial Real Estate Lending. FIL-62-2015, (December 2015). More recently, outgoing Chairman of the Federal Reserve Janet Yellen indicated that she felt that prices of CRE were high but she stopped short of saying the CRE markets were in a bubble (source: Bloomberg, February 4, 2018).

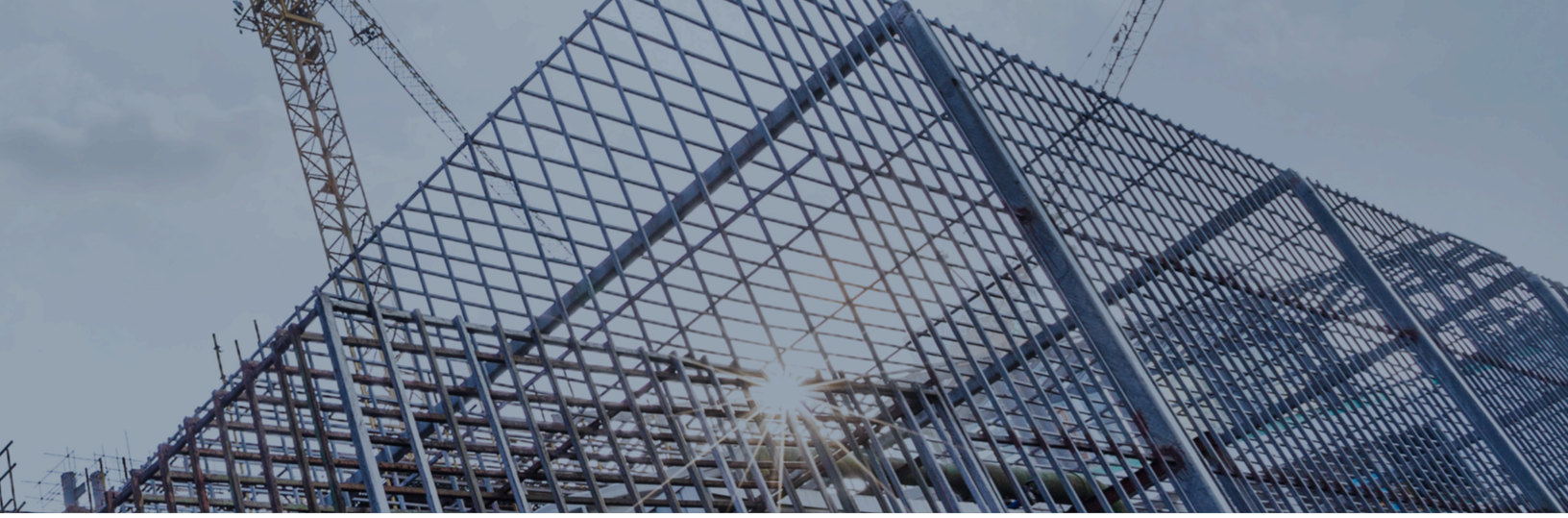


Figure 4: U.S. Commercial Banking Industry
Percent of Loan Officers Reporting Tightening of Underwriting Standards
1Q1990 - 4Q2017



However, this tightening can be a mixed blessing for several reasons. For example, historical patterns of relaxed lending standards typically lead to increased leverage for individual borrowers and for the economy. A consequence has been that non-investment grade (sub-prime) borrowers get access to capital that, in equilibrium conditions, would be denied to them⁴. Tightening of underwriting standards is a leading indicator of loan losses since tightening has the effect of taking capital out of the economy and marginal borrowers default in response.

However, in the current market, tightening by banks may not necessarily take capital out of the markets. According to CBRE Capital Markets, life companies and other institutions increased their lending to CRE in 2016 and early 2017⁵. As such, weaker borrowers may still have access to capital and the most recent information on delinquencies suggests that withdrawal of capital by banks has not created a credit crisis.



STRUCTURAL CHANGES ACCOMPANY THIS CRE BUBBLE

Further, structural changes are taking place in the U.S. economy. For examples, the rise of online shopping has put pressure on retail vendors tied to physical buildings. There is nationwide pressure on shopping centers and retail malls. Many malls in marginal areas have lost key anchor tenants, while many of the smaller and weaker malls have closed. Key anchor tenant companies, such as Macy's, Sears and J.C. Penney, are pulling out of marginal malls and investing heavily in successful ones.

Office properties remain exposed to structural changes given technology that permits employees to work remotely. It is unclear whether demand for office space will experience contraction given the continued growth in the service sector.

LOCATION, LOCATION, LOCATION

Even with these structural changes and the portfolio-level evidence of increasing prices for CRE accompanied by the ebb and flow of underwriting standards, real estate remains local. Investors typically have exposure to individual properties and the markets and submarkets of those properties are the relevant units for considering risk and return.

For example, the dramatic increase in CRE prices is not uniform across the nation but concentrated in select large metropolitan areas (e.g., New York City, Washington, D.C., Boston, Miami, etc.). However, markets surrounding New York City are showing signs of weakness including high vacancy rates for strip shopping malls and sub-A class office space and softness in apartments rents.

Alvarez & Marsal (A&M) has developed a new service, called Market Analytics & Risk Screening (MARS) to help banks address the increasing risk environment of CRE lending. MARS simply *identifies tomorrow's CRE risks and opportunities today* by integrating applied real estate cycle models, urban economic and demographic trends and spatial analysis using geographic information systems (GIS) to quantify current and future CRE risks.

⁴Stevenson, B. G. 2010. Credit crises: The excess capital hypothesis. Bank Accounting & Finance, October-November: 39-51 and B. G. Stevenson. 1995. Capital flows and the cycles of losses in commercial real estate. Real Estate Review 25 (2): 43-49.

⁵According to CBRE, life companies were very active in 4Q2017 with slightly more than 30 percent of the CRE lending market and leading all other major nonagency lenders. In 2017, life insurers have been very active lending to CRE projects and borrowers with lower loan to value.

SPACE AVAILABLE

Geography matters and small geographies matter more. Because real estate is local, no longer is it prudent to only identify CRE risks at a metropolitan or market level; it is even more important to quantify and mitigate CRE risks at smaller geographies such as submarkets for several reasons:

- **Research confirms that an individual submarket may behave differently than the overall market:** correlations between a submarket and the market may be insignificant particularly if the submarket's real estate cycle, measured by the historical amplitude of vacancy rates, has a higher variance than the market
- **Submarkets do not necessarily have similar real estate cycle trends as other submarkets within the same market:** correlations between submarket vacancy rates or rental rate growth rates are not necessarily significant or positive with other submarkets
- **Submarkets do not mature at the same duration nor follow the same evolutionary growth pattern:** while some older submarkets may stabilize, other mature submarkets may experience a Schumpeterian '*creative destruction*' period when many properties are demolished or redeveloped into other uses; history teaches us, for example, that there is an ebb and flow between central business districts and suburban submarkets in office, retail and multifamily property sectors
- **Submarkets have unique economic and demographic qualities:** these qualities include total population, population densities, total number of households, homeownership rates, affordability, median household incomes, daytime employment, total area (square miles) and household growth rates
- **Typically, there is a lack of homogeneity across submarkets:** this is true of zoning regulations, land uses, building codes and public policies impacting new development or redevelopment activities
- **The distribution of property types varies across submarkets in a market:** for example, one submarket may have significant agglomeration of office buildings whereas another submarket is defined by a large cluster of retail or multifamily property types
- **Submarkets do not equally share in the growth of a city or market:** if the market grows three percent in a year, it does not necessarily indicate that all submarkets grow at three percent; furthermore, the share of occupied stock for a submarket (submarket occupied stock/market occupied stock) can increase or decrease over time due to various factors as new construction, changes in rental rates relative to the market, or an exogenous shock in a submarket such as a new headquarter for a large multinational or significant corporate relocations

The future of CRE risk analytics and quantification will be in the details of the market, where lenders increasingly recognize submarket differences. We at A&M agree that global, national and metropolitan CRE trends are vital to understand, explain and predict to equity investors and lenders alike. Capitalization rates, interest rates, capital flows and structural changes such as the decrease in homeownership rates, migration of millennials, retail disruption and aging of the population are factors that impact CRE risks across markets.

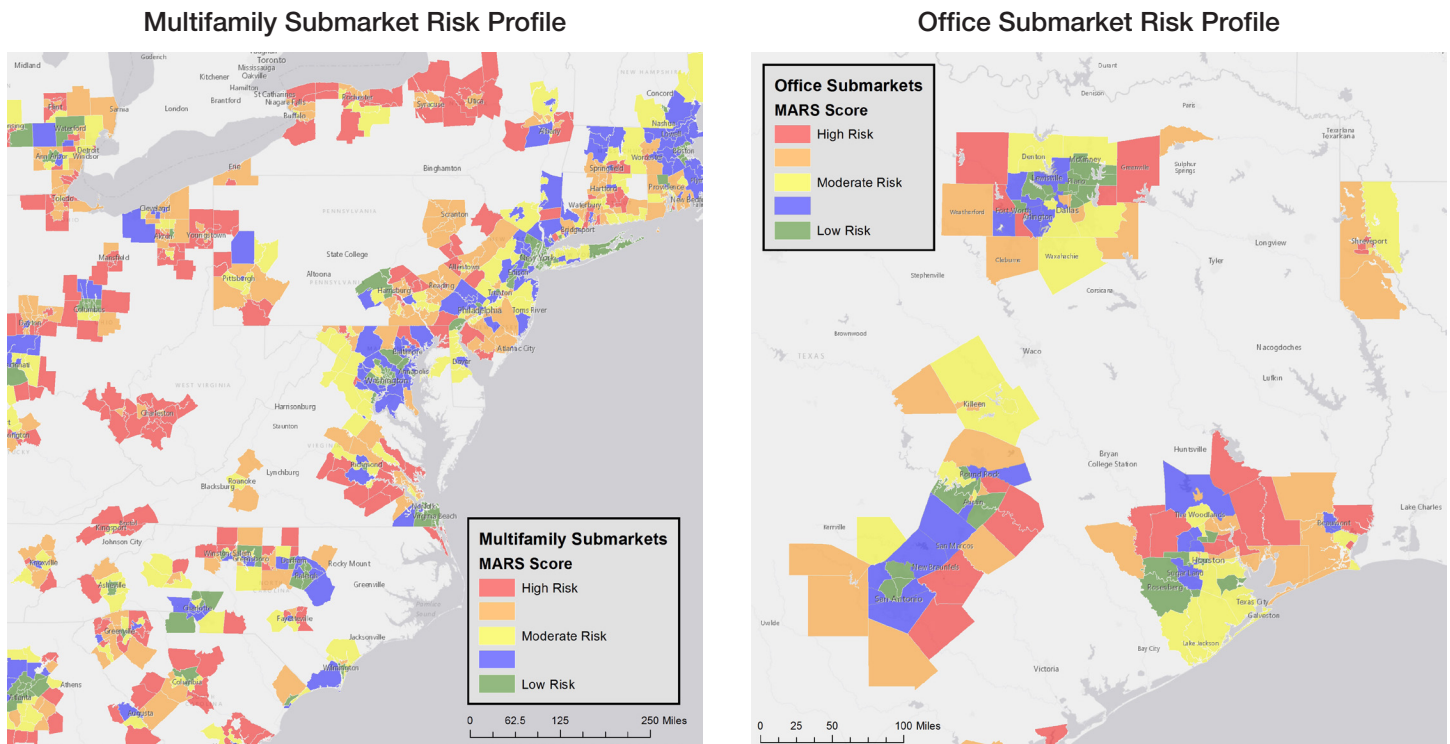
MARS addresses and quantifies submarket CRE risk factors previously described above. Using MARS, a bank can supplement prudent and existing underwriting practices for CRE loans in Chicago or Los Angeles, but also efficiently and effectively underwrite loans in Schaumburg or Melrose Park submarkets (Chicago), or Thousand Oaks or Santa Monica submarkets (Los Angeles).



MARS provides a highly visual and holistic view of risk factors that may negatively impact net operating incomes, LTV ratios, and debt service coverage ratios (DSCR) of: a) an existing loan, b) a loan under consideration or c) a portfolio of CRE loans. On a quarterly basis, MARS integrates submarket economic, demographic and CRE data for over 2,000 submarkets across the nation and four property types (office, industrial, retail and multifamily residential) with the assigned risk rating between one (low risk) to five (high risk).

Figure 5 illustrates the results for multifamily and office submarkets using data as of 2Q2017 as a sample. Submarkets are color-coded to identify risks over the next three years and range from red (high risk), orange (medium-high risk), yellow (medium risk), blue (medium-low risk) and green (low risk). Both maps highlight the risk landscape and profiles for the northeast corridor and several Texas office markets. Superimposing the location of individual CRE loans on these maps is an excellent first step to quantifying risk. MARS offers another step in the CRE risk process.

Figure 5



(Source: Alvarez & Marsal MARS)



In addition to quantifying risks for submarkets, MARS also quantifies risk for individual property loans. Using property level data such as address, property type, as well as loan-specific information such as loan amount, LTV, current balance and DSCR, MARS quantifies each loan and assigns property rating similar to submarket ratings, e.g., one (low risk) to five (high risk). If additional performance data is available (net operating income, lease turnover rates over the next year, occupancy rate or average rent), property ratings are more robust.

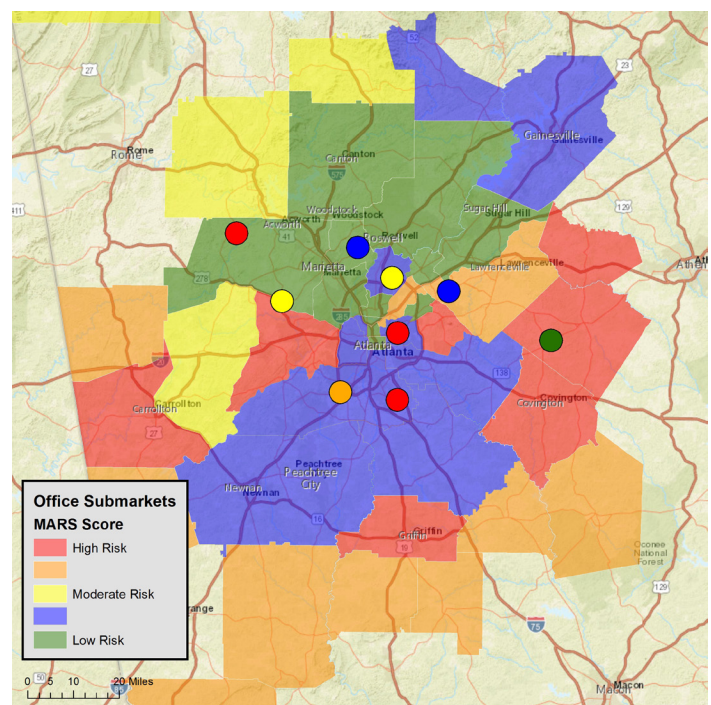
Figure 6 combines submarket and property ratings and illustrates the visual analysis and insights of MARS. There are nine hypothetical loans shown as circles on the map for the Atlanta office market. Submarket and property ratings are color-coded to reflect risks based on five risk ranges: red (high risk), orange (medium-high risk), yellow (medium risk), blue (medium-low risk) and green (low risk).

The combination of submarket and property risk ratings as shown in Figure 6 fulfills the primary objective of MARS (i.e., *identify tomorrow's risks and opportunities today*).

- **Where are tomorrow's highest risks?** A red property rating in a red submarket followed by a red property in an orange submarket.
- **Where are tomorrow's lowest risks?** A green property in a green submarket followed by a blue property in a blue submarket.
- **Where are tomorrow's opportunities?** There are several green and blue submarkets without any loans which may offer diversification for existing loans in the red or orange submarkets.

Figure 6 also highlights two loans that will require increased monitoring and risk management: 1) an orange property in a green submarket indicating that the property has a medium-risk rating in a green submarket with a low risk rating and 2) a green property in an orange submarket. If the orange property has significant lease turnover in the coming year, perhaps the borrower can re-lease at higher rental rates thus improving NOI, LTV and DSCR. Alternatively, low lease turnover for the green property may maintain a low risk property profile until the submarket recovers and improves its risk rating.

Figure 6



(Source: Alvarez & Marsal MARS)

The background of the page is a photograph of a construction site during sunset. A large yellow crane is visible on the left side, and a multi-story building is under construction in the center. The sky is a mix of blue and orange, and the overall scene is bathed in the warm light of the setting sun.

CONCLUSION

CRE lenders should assess the strength and scope of their monitoring of credit markets especially CRE markets. A&M recommends the MARS tool for this purpose, especially in the context of the local markets for each CRE loan in the portfolio.

Specifically, CRE lenders should re-assess the quality and strength of their underwriting standards and evaluate if other lenders are tightening standards more significantly and more rapidly. Careful attention should be given to loans originated or re-approved since 2015 when the banking industry began “re-tightening” underwriting standards. Considerations of “exit strategies” on marginal borrowers/loan exposures are a critical part of this review. This recommendation is especially true if an institution is lending outside of its geographic footprint. The MARS tool will be helpful to understand the local market context of each loan.

CRE lenders should consider structural changes taking place in retail and ensure that they are banking only class-A+ malls and shopping centers with established and stable trade areas.





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With over 3000 people across four continents, we deliver tangible results for corporates, boards, private equity firms, law firms and government agencies facing complex challenges. Our senior leaders, and their teams, help organizations transform operations, catapult growth and accelerate results through decisive action. Comprised of experienced operators, world-class consultants, former regulators and industry authorities, A&M leverages its restructuring heritage to turn change into a strategic business asset, manage risk and unlock value at every stage of growth.

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