What Triggers Investment into Retail, and How Sensitive Are Investors to the Triggers?

Research Paper with Executive Summary
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Executive Summary

We develop methods and programs to analyze the triggers for retail investment in the US, with a focus on economically and financially distressed submarkets. We model demand, supply and financial explanations for retail investment. We use exploratory techniques, factor analysis and parallel analysis, to reduce the dimensionality of the data. Specifically, we extract latent variables where low scores result from low values for asking rent, low growth in rent and/or high cap rates in a submarket. We show that these variables can be combined into useful summary variables.

Using new CoStar panel data for retail submarkets we divide CoStar submarkets into three tiers, which mainly follows the classification of gateway, secondary and tertiary used by the S&P Global Market Intelligence, CoStar and National Association of Real Estate Investment Trusts (NAREIT). Our results are consistent when we use alternative classifications such as the one used by Invesco and in Eppli and Tu (2018).

We find a much lower proportion of distressed submarkets in Tier 1 (e.g., gateway) markets relative to Tier 2 and 3. In addition, we find relatively little influence of financial factors after controlling for growth in demand, except for some significant positive association in secondary and tertiary submarkets: this finding only holds for the subsample with low financial distress (i.e., high values for the rent variables and/or low cap rates).

Short and long-term changes in CoStar's demand and supply variables are influenced by common factors, implying that their correlation provides useful information after complex interactions resolve and the variables are observed.

Case studies document some oversupplied retail submarkets and others with high economic and financial volatility over 10-years in supply and demand indicators. These two factors, oversupply and high volatility appear to be major drivers of distress. However, many CoStar retail submarkets do not have a sufficient number of retail properties to be of interest to institutional investors.

An overall conclusion is that changes in submarket demand is a more important trigger for retail investment than changes in financial variables. Financial variables matter to the classification of submarkets by degree of financial distress. Sizes of demand coefficients measure the sensitivity to this investment trigger: these coefficients vary substantially across market tiers and financial distress categories.

Deliverables from this project include:

- A method to merge publicly available data with CoStar data. We can make the public data and the STATA merge code available to anyone with access to the CoStar data.
- Our factor analysis methods and regression models of triggers for investment into retail space by submarket.
- STATA code produces lists of distressed submarkets with the financial distress factor. This can be used to find the most distressed submarkets.
- A list of MSAs that contain financially distressed submarkets.

1. Introduction

As of 2017, 166 million sf (about .6 sf per capita) of US retail space was vacant based on CoStar data. These large investment properties (all over 30,000 sf and built before 2010) are nearly 5% of all investment grade retail. This is driven by national and regional chains that are closing stores as part of retrenchment or bankruptcy. Fundamental causes include too much retail construction over the past 40 years (Urban Land Institute and PWC, 2019; Clapp, Ross and Zhou, 2019; Clapp and Zhou, 2019) and the movement of retail sales to online vendors that use warehouse space instead of retail storefronts. The traditional format of shopping malls anchored by department stores is no longer generating sufficient profits in many cases (Leung, Liu, and Zhou, 2019). This results in over retailing: a recent industry report by Cowen and Company, ICSC and Cushman & Wakefield points out that the US has over 23.5 ft² of retail per capita whereas advanced European economies have less the 5 ft².[1]

The failure of shopping centers and large free-standing retail is now common in the US. With massive store closings and bankruptcies of large retail chains, vacant space is likely to increase dramatically during the next recession in the general economy. Much of the vacant space is well-located with respect to highway networks and concentrations of population which implies the potential for reinvestment in retail properties and conversion in all or part to residential, office, industrial or other uses. We quantify the triggers encouraging investors to invest into retail space in financially distressed submarkets, and compare to strong financial submarkets.

We evaluate triggers to the exercise of the option (the right but not the obligation) to invest into retail. Our study emphasizes option exercise in financially distressed submarkets defined as low growth in rents and high cap rates (Zhou and Clapp, 2015, 2016; Clapp, Jou and Lee, 2012). We seek to quantify market fundamentals (supply and demand) and financial variables that trigger investment in markets classified as distressed, and we compare these results to markets with different levels of risk and financial conditions. A model structured in this way has value as a tool aiding difficult investment and lending decisions: i.e., those in distressed submarkets.

We apply our framework to a new database recently developed by CoStar for approximately 2,700 retail submarkets in 390 MSAs. The new data contain quarterly time series

[1] https://www.businessinsider.com/retail-apocalypse-is-still-in-early-innings-cowen-says-2018-10 (last access: 3/26/2019)

for each retail submarket from 2008Q4 through the present for most submarkets. We obtained the data through 2019Q2. This panel database enables us to better evaluate underlying financial distress and changes in supply-demand balance at the submarket level.

Our method for evaluating triggers contains several parts. We begin with factor analysis, as an exploratory technique, to identify underlying relationships with the observed important market indicators. The purpose of this was to identify variables with complete data which would allow us to analyze financial and economic factors contributing to investment in retail. Meanwhile, we separate submarkets into three tiers (Tier 1, 2 and 3) based on NAREIT's classification on gateway, secondary or tertiary cities. Next, we conduct univariate and regression analyses to compare risk levels, demand- and supply-side factors. The purpose is to identify useful reduced form associations between economic and financial variables. This analysis was performed by level of distress and by market tier.

In our factor analysis, we test a large number of variables, but rejected many because they had incomplete data, or they could not easily be classified as financial variables or they did not perform well statistically as part of the index. In addition, we impose our preference for a simple, clear interpretation of the latent index (i.e., the financial distress factor), meaning that we cannot include variables that load on the index in a way that obscures interpretation. Based on numerous experiments, we identify four financial variables to construct our financial distress factor: (1) the asking rent index is the cumulative change in asking rents from 2009: i.e., it is the current level of submarket asking rents relative to the level in 2009; (2) the index includes five-year growth in rents for each submarket; (3) the index includes one-year growth in rents as a more current indicator of financial distress; (4) the index includes the current cap rate.

We also identify three economic fundamental variables for further analysis using criteria similar to those for financial distress: (1) retail completions within each submarket over the past 12 months as a percent of the retail stock, (2) growth in the retail stock over the past 5 years, (3) changes in retail demand (i.e., occupied inventory) over the past 5 years. Given that these variables are associated with the two sides (supply and demand) of the market we chose to model these three variables separately when we conducted regression analysis.

Regression analysis models short-term and intermediate-term investment outcomes (i.e., retail completions over 12 months or 5-year growth in the stock of retail space) as a function of

demand and financial factors. We apply our model to a three-by-three grid of submarket observations: three market tiers and three financial groups: high financial distress, medium and low distress where the low distress group has relatively strong financial conditions.

We find that investment triggers differ depending on whether cities are high or low tiers. The demand variable is more important than financial variables such as asking rent and cap rate in all three market tiers. Specifically, in Tier 1 markets, net completions are much more responsive (positively) to demand growth than tier 2 which in turn is much more responsive than tier 3. The three tiers have a more equal relationship between 5-year supply growth and demand growth. The financial distress factor has small positive or largely insignificant associations over all tiers. The financial distress factor is positively related to 5-year stock growth within low financial distress submarkets, but only within second and third tier cities after controlling for the demand growth. Among these submarkets, all 3 tiers are strongly responsive to demand growth.

The supply (stock of space) and demand (occupied space) variables we study are related to each other through numerous macroeconomic and local market conditions determining decisions to invest in construction and occupancy of space. Our analysis of these variables is useful because it reveals associations among observed behaviors. Construction of retail space and occupancy of that space involve major investment decisions, implying that the statistical associations we find provide useful information about the decision-making process.

Our study improves our understanding of the dynamics of the retail industry. Hortacsu and Syverson (2015) point out that the future of the retail sector might be a "bricks-and-clicks" hybrid that combines the traditional "one-stop shopping" at physical stores and online shopping through e-commerce. We expect to see enormous restructuring in terms of construction of new retail spaces, abandonment of nearby space and redevelopment of dark spaces. We are the first in studying the triggers of retail redevelopment. The identified triggers will help researchers, practitioners and policy makers understand demolition and rebuilding decisions by landlords.

Our study also contributes to the literature on investment risk and return differences across MSAs. Hartzell, Shulman and Wurtzebach (1987) find that different risk exposure within commercial real estate markets are driven by differences in an MSA's economic base. In a related study, Cotter, Gabriel and Roll (2015) find significant differences in the exposure to macro risk factors across metropolitan residential real estate markets. Riddiough, Moriarty and Yeatman

(2005) suggest that the differences in the riskiness of assets held in larger MSAs versus those owned in smaller and lower tier MSAs might be a reason behind the differences between public and private real estate returns. In particular, assets located in larger MSAs have lower risk than those located in smaller and lower tier MSAs.[2]

Ling et al. (2018) suggest that the lower risk profile of larger MSAs comes from the constraints that developers face in adding new supply. In other words, supply elasticities (Saiz, 2010) could be positively correlated with ex ante required rates of returns. Gateway markets have relatively inelastic supplies and have lower ex ante risk premiums than non-gateway markets. In addition, gateway markets are more liquid and transparent due to the size and depth, which could drive down risk premiums. Interesting, relative to public investors, private investors have higher preference on gateway retail.[3] They also find that gateway markets outperform non-gateway markets for all property types. In particular, the gateway retail outperformed non-gateway retail investments by 30 basis points quarterly.

Our findings are consistent with this strand of literature. If gateway cities have low supply elasticity than non-gateway, the retail supply (especially the short-term supply) is not as responsive to financial distress as in the non-gateway cities. It is consistent with low availability rate, low absorption rate and low stock growth in Tier 1 submarkets. In addition, the low risk premium in gateway cities documented in the literature is consistent with our finding of low cap rate, high rental rate and price level in Tier 1 submarkets. This could explain the different coefficients we obtain from our regression analysis for gateway cities. The absence of a significant relationship with financial distress, even within the low financial distress subsample, is likely due to low supply elasticity.

[2] They propose that adjusting the location differences might be important to reconcile the differences between private and public real estate returns as the NCREIF index is biased toward larger assets located in first-tier markets while REITs have a large percentage of assets located in lower tier markets.

[3] Ling et al. (2018) compare the geographic concentrations of private (NCREIF) and public (equity REIT) commercial real estate portfolios in gateway cities for each of the property types in 1996-2013. Their Figure 2 suggests that retail shows a quite different pattern than apartment, industrial and office properties: NCREIF investors hold larger proportion of retail than equity REITs in gateway cities while the opposite is true for the other three property types.

2. Data and Sample Construction

The main dataset used in this study is from CoStar, one of the largest and most comprehensive databases of commercial real estate in the US. The data are cross-sectional time series covering 2,897 retail submarkets in 390 US metropolitan statistical areas (MSAs). CoStar data begin in 2009 for most submarkets, allowing us to construct 5-year growth variables in each year starting in 2015. We construct annual observations by taking observations in Q2 from 2015 to 2019 because our sample period ends in 2019Q2 and some variables are constructed using the past 4 or 20 quarters (e.g., rent growth and stock growth). The final data include 14,460 submarket-year observations.

CoStar provides variables for retail market performance, including cap rate, rent, asking price index, stock, net absorption etc. We merge the CoStar dataset with additional economic and demographic variables American Community Survey 5-year 2005-2009; American Community Survey 5-year 2013-2017; Current Population Survey 2015; Current Population Survey 2017; Economic Census 2007; and Economic Census 2012; and Saiz (2010)'s supply elasticity measures.

Table 1 summaries our key variables. Our proxies for retail redevelopment include (1) *Net Completion %*, net retail completions during the most recent 12 months as a percentage of total stock and (2) *Stock Growth (5-year)*, the growth in retail spaces within the past five years. Our measure of demand is the 5-year growth in retail demand (*Demand Growth (5-year)*) estimated by CoStar. The demand variable is estimated using occupied inventory which equals occupancy rate multiplied by total stock. To measure financial distress, we employ factor analysis to extract the main latent factor, *Financial Distress Factor*, using observed covariates, including cap rate (*Cap Rate*), rent growth in the past 12 months (*Rent Growth (1-year)*), asking rent (*Asking Rent Index*), asking rent growth in the past five years (*Asking Rent growth (5-year)*). The factor analysis procedure is described in the next session.

CoStar defines its own submarkets by property type. A submarket is defined by similar property types (e.g., office, industrial, retail, etc.) and constitutes a generally accepted primary competitive set of areas. We divide the 2,897 retail submarkets into three groups based on the classification of gateway, secondary and tertiary by the S&P Global Market Intelligence, CoStar and National Association of Real Estate Investment Trusts (NAREIT). "Tier 1" submarkets are those in gateway cities, including Atlanta, Boston, Chicago, Los Angeles, New York, San

Francisco, and Washington DC. "Tier 2" includes submarkets in secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The other submarkets are classified as "Tier 3".

We also run robustness tests using alternative market classifications. For example, Invesco, one of leading investment management firms, divides markets into four categories: gateway, primary, secondary and tertiary.[4] In a recent white paper by Eppli and Tu (2018), the authors delineate all the MSAs covered by the National Council of Real Estate Investment Fiduciaries (NCREIF) into four tiers based on an interactive variable of employment growth and employment size by MSA for the period of 1990-2017.[5] In Section 4 we show that our results are similar using different classifications. In fact, the correlation of *Financial Distress Factor* among these three classifications is 0.84. Given that these three groups are closely correlated, we perform our analysis in terms of the three NAREIT categories.

3. Results

3.1 Identify financial distress level

Our first task is to identify financial distress level for each retail submarket. As the financial distress level cannot be directly measured, we employ factor analysis to explore the observed retail market outcomes. Factor analysis provides a convenient way to summarize the data and identify easily interpreted combinations of variables. The purpose is to remove redundancy from a set of

[4] According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. We thank Tim Bellman for sharing the market classification.

[5] Specifically, Tier 1 includes Boston, Chicago, Los Angeles, New York, San Francisco and Washington DC. Tier 2 includes Atlanta, Austin, Dallas, Houston, Las Vegas, Phoenix, Miami and Orlando. Tier 3 includes Seattle, Denver, San Antonio, Charlotte, Minneapolis, Raleigh, Nashville, Tampa, San Diego, Salt Lake City, Portland. Tier 4 includes Sacramento, Indianapolis, Columbus, Philadelphia, Jacksonville, Kansas City, San Jose, Cincinnati, Baltimore, Richmond, St. Louis, Memphis, Pittsburgh, Detroit Cleveland, Norfolk and Hartford. We thank Mark Eppli for sharing the market classification.

observed and correlated variables and derive a latent variable to represent the level of financial distress.

Factor analysis is an exploratory analysis that facilitates the choice of covariates to be included and the choice of number of factors to be identified. We carefully explored many financial and economic fundamental (supply and demand) variables listed in Tables 1 and 2. The problem with including a lot of variables in factor analysis is that each variable loads on all factors. We did extensive analysis based on factors that loaded heavily on particular groups of variables. But the interpretation of these factors remains unclear. Therefore, we decided that we could simplify to a factor based only on four financial variables. We worked with several groups of financial variables before settling on the four variables. We illustrate two experiments in Table 2.

The choice of covariates to be included is guided by both theory and statistical analysis. Panel A of Table 2 illustrates two experiments of our exploratory process. We start with a set of variables that represent the outcomes driven by supply and demand forces. In Experiment 1, we include five covariates (cap rate, rent, price growth, net absorption and rent growth) and set the number of factors equals to two. In Column (1), only one factor has Eigenvalue greater than one, suggesting only one factor should be retained. This conclusion is confirmed by over 100% of variance explained by the first factor (Column (3)). Next, we screen the loadings of Factor 1. Column (5) suggests a very low factor loading from *Net absorption %* compared with the other covariates (-0.019 versus >=0.5). In addition, the uniqueness of *Net absorption %* is high. Together, the low loading and high uniqueness suggests that *Net absorption %* should be dropped from the list of covariates. To check this conclusion, we perform Experiment 2 by including four covariates and one factor. The factor loadings of cap rate, rent, price growth and rent growth are relatively stable compared with those in Experiment 1.

Based on numerous experiments from factor analysis, we identify *Financial Distress Factor* as the main latent factor extracted based on a set of four observed covariates, including

1. The asking rent index is the cumulative change in asking rents from 2009: i.e., it is the current level of submarket asking rents relative to the level in 2009.
2. The index includes five-year growth in rents for each submarket.
3. The index includes one-year growth in rents as a more current indicator of financial distress.

4. The index includes the current cap rate.

Table 1 summarizes variable descriptions. We use the term "Financial Distress" instead of "Financial Success" to emphasize our interest in the most challenging development decisions, those in submarkets that are not experiencing favorable capital market conditions. The correlations between *Financial Distress Factor* and the four covariates (i.e., loadings) suggest that our measure of financial distress is a positive function of the rent variables and a negative function of cap rates: i.e., high values of financial distress factor indicate high levels of financial success. We perform factor analysis for all submarkets combined because interest centers on how each tier responds to a common financial variable, measured the same way for each tier. In other words, we do not expect as high a percentage of Gateway submarkets to be distressed as for the other tiers.

Results from Panel A of Table 2 provides suggestive evidence that only one factor should be retained. To further investigate this decision, we perform parallel analysis (PA), a well-recognized method for determining the number of components or factors to retain from factor analysis (Horn, 1965; Glorfeld, 1995). Specifically, PA employs a Monte-Carlo based simulation method that compares the observed eigenvalues with those obtained from uncorrelated variables. We choose 10 replications as suggested by Dinno (2009). A factor is suggested to be retained if the associated eigenvalues is greater than the average eigenvalues obtained from a certain number of replications. If the eigenvalues from the random data are larger than those from the factor analysis, then that factor is considered random noise. The two experiments in Panel B of Table 2 confirm the choice of one factor because only one of the eigenvalues in the PCA columns are greater than the average eigenvalues in the PA columns.

We also identify three economic variables for further analysis using criteria similar to those for financial distress: (1) retail completions within each submarket over the past 12 months as a percent of the retail stock, (2) growth in the retail stock over the past 5 years, (3) growth in CoStar's measure of retail demand (occupied stock) over the past 5 years. Given that these variables are associated with the two sides (supply and demand) of the market we chose to model these three variables separately when we conducted regression analysis.

3.2 Summary Statistics

Panel A of Table 3 shows summary statistics of our key variables for all the submarkets. An average submarket has a cap rate of 0.72, sale price growth of 4%, rent growth of 2.2%, net completion of 0.6%, availability rate of 6.2%. On a five-year basis, the growth of stock, occupied inventory (demand) and asking rent is 3.6%, 5.6% and 8.9%, respectively. Most of the variables are negative skewed as means are larger than medians.

In Panel B, we examine these variables by market tier. Tier 1 (Tier 3) submarkets have the lowest (highest) cap rate and the lowest (highest) availability rate. Tier 2 (Tier 3) submarkets have the highest (lowest) growth in terms of price, rent, asking rent and demand and the lowest (highest) financial distress level. Together, all the indicators suggest that Tier 3 submarkets underperform Tier 1 and Tier 2.

In Table 4, we divide submarkets in two ways, by three levels of financial distress (high, mid and low) and then by three tiers. Note that we do factor analysis for all submarkets, not by tier. This is because interest centers on how each tier responds to a common financial variable, measured the same way for each tier. We do not expect as high a percentage of Gateway submarkets to be distressed as for the other tiers. Results in Table 4 support this expectation: only 18% and 11% of submarkets in Tier 1 and Tier 2 markets fall in the high distress category, respectively; in contrast, 64% of Tier 3 submarkets are highly distressed.

The comparison between the supply-side variables reveals divergent patterns among three tiers. Due to the low risk and high cap rate in tier 1 (gateway), there is no difference between net completion and 5-year stock growth between high and low distress groups. However, in tier 2 and 3, compared with high-distress submarkets, low-distress ones have higher completion rate and higher stock growth, as expected. This simple bivariate analysis suggests that gateway markets behave differently than other tiers and that regression analysis is warranted to further investigate the significant differences found for tier 2 and 3 submarkets.

3.3 Regression Analysis

We use reduced form models to model outcomes as statistical associations instead of causation. These reduced form relationships give the result after complex interactions and dynamic relationships work their way through the economic system, resulting in observed variables. Reduced form models can produce useful empirical patterns even though they do not establish causal relationships.

Specifically, we estimate the following OLS regression model:

$$Redevelopment_{i,t} = \beta Distress\ Factor_{i,t} + \gamma Demand_{i,t} + Year_t + MSA_m + \varepsilon_{i,t} \qquad (1)$$

where $Redevelopment_{i,t}$ is one of the proxies for retail redevelopment in submarket *i* in year *t*, (1) a short-term measure of retail completions within each submarket over the past 12 months as a percent of the retail stock or (2) an intermediate-term measure of growth in the retail stock over the past 5 years. $Distress\ Factor_{i,t}$ is the financial distress factor from factor analysis. $Demand_{i,t}$ is a proxy for retail demand based on changes in occupied inventory in the past five years. In each model specification, we include year fixed effect and MSA fixed effect. Robust standard errors are clustered at MSA level.

Why do we include five-year growth in demand and supply but only the current financial factor in our regression analysis? The reason is that long term changes in financial variables are imbedded in the financial factor. Recall that the four financial variables in the financial distress index include (1) the asking rent index is the cumulative change in asking rents from 2009: i.e., it is the current level of submarket asking rents relative to the level in 2009, (2) the index includes five-year growth in rents for each submarket, (3) the index includes one-year growth in rents as a more current indicator of financial distress, (4) the index includes the current cap rate. Long term changes are incorporated in the levels of these indices.

Due to data availability, we do not specifically evaluate redevelopment from retail to office or multifamily or industrial. As changes in square footage on a retail property is classified as a retail investment by CoStar even if the new space is for a non-retail purpose, our analysis will pick this up as the response to a trigger.

In Table 5, we focus on the high financial distress sample, in which the most challenging development decisions lies because these submarkets are not experiencing favorable capital market conditions. Panel A uses *Net Completion %* as our dependent variable, whereas Panel B uses *Stock growth (5-year)*. This allow us to evaluate short and intermediate term supply changes as a function of financial and demand variables. This specification establishes the relative relationships between supply and demand fundamentals after controlling for financial outcomes.

In Panel A, most of the coefficient estimates of *Financial Distress Factor* are statistically insignificant. In contrast, the coefficients of demand growth are positive and highly significant, suggesting changes in demand are the main drivers for changes in retail supply. In terms of economic significance, a one-percentage-point in demand growth is associated with 0.45–0.04 percentage points increase in short-term supply (Column 4-6 in Panel A) and 0.74-0.51 percentage points increase in intermediate term supply (Column 4-6 in Panel B). Coefficients of *Financial Distress Factor* are positive and marginally significant only in Tier 3 submarkets, suggesting that less-distressed submarkets have higher short-term supply (as the factor is negatively associated with the level of distress). Results in Panel B are highly consistent: intermediate term supply changes are positively correlated with demand changes. Again, there is no statistical association between supply and distress factor.

In addition, the magnitudes of the demand coefficients on intermediate-term supply are larger than those on short-term supply. For example, for Tier 1 cities, the demand coefficient on net completion is 0.452 in Column (4) of Panel A, compared with 0.738 in Column (4) of Panel B. We find similar pattern for Tier 2 and Tier 3 cities (0.172 versus 0.510 in Columns (5), 0.044 versus 0.711 in Columns (6)). This finding is consistent with the expectation that the correlation should be stronger for an intermediate-on-intermediate response than a short-term-to- intermediate response.

Results in Table 6 and 7 are based on low- and mid-financial distress sample, respectively. The results are highly consistent with those in Table 5: there is little evidence that retail supply correlates with financial distress factor; in contrast, there is a strong and positively relationship between retail supply and demand changes. We observe a positive association between five-year stock growth and the distress factor only when we include demand in the Tier 2 and the Tier 3

subsamples, as shown in Columns (5) and (6) of Panel B, Table 6. Again, the magnitudes of demand coefficients are larger in intermediate term than short-term.

3.4 Results Using Alternative Classifications of Market Tiers

In Appendix 1-5, we repeat the analyses using a different market classification based on Invesco, one of leading investment management firms. Invesco classifies markets into five groups: (1) "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC, (2) "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle, (3) "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach, (4) "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura, (5) the others. To make results comparable to those using NAREIT classifications, we re-define "Tier 1" to include gateway and primary, "Tier 2" to include secondary and tertiary, "Tier 3" to include the rest of the submarkets.

The advantage of Invesco's classification is that the numbers of submarkets are more evenly distributed across the three tiers. For example, in Appendix 1, the number of observations is 3,045 in Tier 1, 4,370 in Tier 2, and 7,045 in Tier 3 (as compared with 1,830 in Tier 1, 1,525 in Tier 2 and 11,105 in Tier 3 using NAREIT). This robustness check could mitigate the concern that our previous results are driven by the imbalance of subsamples which could bias up (or down) the statistical power of the analyses.

Our main findings are highly consistent. Results in Appendix 1 suggest that Tier 1 markets have lower cap rate, lower growth rates and lower distress levels than Tier 2 and 3. The results of mean differences (in Appendix 2) suggest that there is no statistical difference in supply between the high-distress and low-distressed group for Tier 1 submarkets. In contrast, for Tier 3, submarkets with lower distress have higher short-term and intermediate term supply. The regression analyses in Appendix 3-5 suggest relatively little influence of financial factors on retail

supply. However, the coefficients on demand variable suggest that both short-term and long-term changes in supply respond strongly to changes in demand. In other words, changes in demand are more important triggers for retail investment than financial variables. In addition, the magnitudes of the demand coefficients on intermediate-term supply (in Panel B) are larger than those on short-term supply (in Panel A).

4. Case studies of randomly selected submarkets and shopping centers

4.1 Methodology

Within each NAREIT MSA category we randomly selected three CoStar submarkets from the group of submarkets our factor analysis model identified as distressed. Within each of the three distressed submarket we randomly selected retail properties in the 100k to 200k square foot range for further review.

4.2 Brief summary of conclusions

Table 8 summarizes our case studies of randomly selected submarkets and shopping centers. Details are disguised to protect the confidentiality of CoStar data. These case studies document some oversupplied retail submarkets and others with high volatility over 10-years in supply and demand indicators such as vacancy, absorption and delivered square footage. Oversupply influences the level of distress and volatility influences risks associated with distress. Our most important conclusion is that, these two factors, oversupply and high volatility appear to be major drivers of distress.

However, a limitation of our case study analysis is that many CoStar retail submarkets do not have a sufficient number of retail properties to be of interest to institutional investors. For example, most submarkets in NAREIT category 2 MSA's are not primarily retail markets. Users of our factor analysis model should be careful to focus on those submarkets with a sufficient number of shopping centers within the required size range.

5. Conclusions

The new CoStar panel data for retail submarkets provides useful information about the triggers for retail investment. We use an exploratory technique, factor analysis, to reduce the

dimensionality of the data. This results in a financial distress factor where low scores result from low values for asking rent, low growth in rent and/or high cap rates in the submarket. We model the financial factor as an explanation for investment into retail space in the submarket.

We find relatively little influence of the financial factor after controlling for growth in demand fundamentals, except for some significant positive association in Tier 2 and 3 submarkets: this finding only holds for the subsample with low financial distress (i.e., high values for the rent variables and/or low cap rates).

In contrast, short-term and long-term changes in supply respond strongly to changes in demand. Values for coefficients indicate the amount of response to demand growth. An overall conclusion is that changes in demand are more important triggers for retail investment than financial variables. Sizes of demand coefficients measure the sensitivity to this investment trigger: these coefficients vary substantially across market tiers and financial distress categories.

Case studies of randomly chosen distressed submarkets, and of randomly chosen shopping centers within these markets, suggest that distress is related to oversupply and to variability over a 10-year period in vacancy, absorption and delivered square footage.

Appendix 6 provides a list of MSAs with financially distressed submarket for gateway, secondary and tertiary cities as defined by NAREIT.

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T**able 1: Variable Descriptions**

This table summaries key variables and definitions.

Variable Name	**Definition**
Proxies for Retail Redevelopment	
Net Completion %	Net retail completions during the most recent 12 months as a percentage of total stock
Stock Growth (5-year)	5-year growth in the stock of retail square footage
Proxies for Financial Distress	
Financial Distress Factor	The main latent factor extracted from factor analysis using observed covariates
Observed Covariates Used in Factor Analysis	
Asking Rent Index	Asking rent index with base 100 in 2009
Asking Rent growth (5-year)	The most recent five-year growth of asking rent
Rent Growth (1-year)	Rent growth in the past year
Cap Rate	Cap rate
Proxies for Demand (fundamental)	
Demand Growth (5-year)	5-year growth in retail demand measured by occupied inventory

Table 2: Factor Analysis

This table shows results of factor analysis to extract financial distress factor in retail markets from observed outcomes derived from supply and demand forces. The purpose of Panel A is to identify observed covariates. We compare results retaining five variables and two factors ("Experiment 1") and those retaining four variables and one factor ("Experiment 2"). The purpose of Panel B is to identify number of factors. We compare results retaining five variables ("Experiment 1") and those retaining four variables ("Experiment 2").

Panel A: Identify Observed Covariates

Experiment 1: Retaining Five Variables and Two Factors

Factor	Eigenvalue	Difference	Proportion	Cumulative
	(1)	(2)	(3)	(4)
1	2.036	1.900	1.037	1.037
2	0.136	0.132	0.069	1.106
3	0.004	0.052	0.002	1.108
4	-0.049	0.115	-0.025	1.083
5	-0.164	.	-0.083	1

Variable	Factor1	Factor2	Uniqueness
	(5)	(6)	(7)
Asking Rent Index	0.820	-0.211	0.283
Cap Rate	-0.487	-0.069	0.759
Net absorption %	-0.019	0.123	0.985
Rent Growth (1-year)	0.533	0.268	0.644
Asking Rent growth (5-year)	0.918	-0.001	0.158

Experiment 2: Retaining Four Variables and One Factor

Factor	Eigenvalue	Difference	Proportion	Cumulative
	(1)	(2)	(3)	(4)
1	2.035	1.916	1.040	1.040
2	0.119	0.154	0.061	1.101
3	-0.035	0.127	-0.018	1.083
4	-0.162	.	-0.083	1

Variable	Factor1	Uniqueness
	(5)	(6)
Asking Rent Index	0.820	0.328
Cap Rate	-0.487	0.763
Rent Growth (1-year)	0.533	0.716
Asking Rent growth (5-year)	0.917	0.158

Panel B: Identify the Number of Factors

Experiment 1: Retaining Five Variables

	PCA	PA	Diff
	(1)	(2)	(3)
1	2.455	1.024	1.430
2	1.009	1.012	-0.002
3	0.712	1.000	-0.288
4	0.671	0.988	-0.316
5	0.153	0.976	-0.823

Experiment 2: Retaining Four Variables

	PCA	PA	Diff
	(4)	(5)	(6)
1	2.454	1.019	1.435
2	0.717	1.004	-0.288
3	0.676	0.993	-0.316
4	0.153	0.984	-0.831

Table 3: Summary Statistics

This table shows summary statistics for full sample in Panel A and for sub-sample by market tier in Panel B, respectively. Unit of observations is retail submarket defined by CoStar. Tier 1 includes submarkets in gateway cities (Atlanta, Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC). Tier 2 includes submarkets in secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The other submarkets are classified as Tier 3. The classification of gateway and secondary is based on S&P Global Market Intelligence, CoStar and National Association of Real Estate Investment Trusts (NAREIT).

Panel A: Full Sample

	N	Mean	Q1	Median	Q3
	(1)	(2)	(3)	(4)	(5)
Net Completion %	14,460	0.006	0.000	0.001	0.006
Asking Rent Index	14,460	101.692	95.640	100.291	106.648
Cap Rate	14,460	0.072	0.067	0.073	0.079
Price Growth	14,460	0.040	0.009	0.028	0.058
Rent growth (1-year)	14,460	0.022	0.013	0.020	0.031
Available Percent %	14,041	0.062	0.039	0.057	0.078
Net absorption %	14,460	0.009	-0.002	0.006	0.016
Stock growth (5-year)	14,457	0.036	0.002	0.015	0.040
Demand growth (5-year)	14,456	0.056	0.013	0.039	0.072
Asking Rent growth (5-year)	14,460	0.089	0.044	0.081	0.131
Financial Distress Factor	14,460	0.000	-0.596	-0.173	0.547

Panel B: By Market Tier

	N	Mean	Q1	Median	Q3
	(1)	(2)	(3)	(4)	(5)
Tier 1					
Net Completion %	1,830	0.003	0.000	0.000	0.004
Asking Rent Index	1,830	106.491	101.721	107.748	113.145
Cap Rate	1,830	0.061	0.052	0.061	0.069
Price Growth	1,830	0.043	0.009	0.031	0.065
Rent growth (1-year)	1,830	0.023	0.013	0.022	0.032
Available Percent %	1,773	0.060	0.036	0.055	0.076
Net absorption %	1,830	0.005	-0.004	0.003	0.012
Stock growth (5-year)	1,830	0.023	0.000	0.008	0.027
Demand growth (5-year)	1,830	0.038	0.000	0.028	0.055
Asking Rent growth (5-year)	1,830	0.117	0.082	0.122	0.155
Financial Distress Factor	1,830	0.453	-0.035	0.518	1.008
Tier 2					
Net Completion %	1,525	0.010	0.000	0.002	0.011
Asking Rent Index	1,525	110.173	104.437	112.400	119.745
Cap Rate	1,525	0.066	0.062	0.068	0.071
Price Growth	1,525	0.053	0.024	0.041	0.070
Rent growth (1-year)	1,525	0.038	0.029	0.037	0.046
Available Percent %	1,450	0.060	0.038	0.056	0.077

Net absorption %	1,525	0.013	0.000	0.008	0.019
Stock growth (5-year)	1,525	0.061	0.001	0.021	0.059
Demand growth (5-year)	1,525	0.087	0.024	0.052	0.090
Asking Rent growth (5-year)	1,525	0.160	0.125	0.165	0.207
Financial Distress Factor	1,525	0.962	0.419	1.090	1.602
Tier 3					
Net Completion %	11,105	0.006	0.000	0.001	0.006
Asking Rent Index	11,105	99.736	95.204	99.133	102.969
Cap Rate	11,105	0.074	0.070	0.075	0.080
Price Growth	11,105	0.037	0.007	0.026	0.056
Rent growth (1-year)	11,105	0.020	0.012	0.018	0.027
Available Percent %	10,818	0.062	0.039	0.057	0.079
Net absorption %	11,105	0.009	-0.001	0.006	0.016
Stock growth (5-year)	11,105	0.034	0.003	0.015	0.039
Demand growth (5-year)	11,105	0.055	0.014	0.039	0.072
Asking Rent growth (5-year)	11,105	0.075	0.035	0.070	0.103
Financial Distress Factor	11,105	-0.207	-0.686	-0.308	0.127

Table 4: Univariate Tests

This table summarizes the results of univariate tests for differences in key variables between "High Distressed" and "Low Distressed" submarkets for Tier 1, Tier 2 and Tier 3 submarkets. Unit of observations is retail submarket defined by CoStar. The classification of "distress level" is based on the main latent factor, financial distress factor, extracted from factor analysis using observed market variables, including cap rate, rent growth in the past 12 months, asking rent index and asking rent growth in the past five years. Submarkets are classified into three groups (high, mid and low) of distress level using the financial distress factor. Tier 1 includes gateway markets (Atlanta, Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC.). Tier 2 includes secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The others are classified as Tier 3. The classification of gateway and secondary is based on S&P Global Market Intelligence, CoStar, National Association of Real Estate Investment Trusts (NAREIT). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	High Distress	Low Distress	*t*-test for mean differences
	(1)	(2)	(3)
Tier 1 Submarkets			
Number of obs.	264	1,182	
% of total	18%	82%	
Net Completion %	0.00052	0.00276	-0.59
Stock growth (5-year)	0.02165	0.01967	0.39
Tier 2 Submarkets			
Number of obs.	145	1,202	
% of total	11%	89%	
Net Completion %	0.00648	0.01041	-2.13**
Stock growth (5-year)	0.02420	0.06932	-4.28***
Tier 3 Submarkets			
Number of obs.	4,411	2,436	
% of total	64%	36%	
Net Completion %	0.00537	0.00676	-2.12**
Stock growth (5-year)	0.03089	0.04020	-2.79***

Table 5: Regression Tests for Triggers: High Financial Distress Sample

This table summarizes OLS regression results for the submarkets with high financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Tier 1 includes gateway markets (Atlanta, Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC.). Tier 2 includes secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The others are classified as Tier 3. The classification of gateway and secondary is based on S&P Global Market Intelligence, CoStar, National Association of Real Estate Investment Trusts (NAREIT). All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.002	0.006	0.002*	-0.015	0.004	0.002*
	(-0.28)	(1.80)	(1.81)	(-1.65)	(1.21)	(1.88)
Demand growth (5-year)				0.452**	0.172**	0.044***
				(5.13)	(3.35)	(4.42)
Constant	-0.002	0.017*	0.007***	-0.042	0.004	0.005***
	(-0.16)	(2.58)	(5.60)	(-2.56)	(0.59)	(3.80)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.028	0.045	0.106	0.376	0.376	0.184
# Obs	264	145	4,411	264	143	4,410

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	0.007	0.014	0.003	-0.014	0.005	0.004
	(0.72)	(1.37)	(0.64)	(-1.18)	(0.71)	(0.61)
Demand growth (5-year)				0.738***	0.510***	0.711***
				(12.74)	(6.51)	(3.43)
Constant	0.034	0.050*	0.032***	-0.032	0.005	0.003
	(2.06)	(2.48)	(5.88)	(-1.87)	(0.33)	(0.18)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.028	0.041	0.540	0.810	0.576	0.870
# Obs	264	145	4,411	264	143	4,410

Table 6: Regression Tests for Triggers: Low Financial Distress Sample

This table summarizes OLS regression results for the submarkets with low financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Tier 1 includes gateway markets (Atlanta, Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC.). Tier 2 includes secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The others are classified as Tier 3. The classification of gateway and secondary is based on S&P Global Market Intelligence, CoStar, National Association of Real Estate Investment Trusts (NAREIT). All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.012**	-0.003	0.003	-0.007	-0.000	0.003
	(-2.52)	(-1.19)	(0.98)	(-1.71)	(-0.25)	(1.60)
Demand growth (5-year)				0.134***	0.075***	0.160***
				(11.62)	(25.27)	(9.85)
Constant	0.005	0.013***	0.004**	-0.001	0.005	-0.005**
	(1.44)	(3.96)	(2.58)	(-0.21)	(1.31)	(-2.14)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.023	0.025	0.031	0.198	0.339	0.485
# Obs	1,182	1,202	2,436	1,182	1,202	2,436

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.029***	-0.029**	0.006	0.003	0.008***	0.006***
	(-4.92)	(-2.32)	(0.55)	(0.46)	(3.54)	(2.72)
Demand growth (5-year)				0.809***	1.015***	0.933***
				(9.37)	(83.69)	(17.30)
Constant	0.024***	0.069***	0.026***	-0.012**	-0.045***	-0.023***
	(3.83)	(6.49)	(3.37)	(-2.52)	(-7.16)	(-3.72)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.025	0.020	0.039	0.856	0.983	0.914
# Obs	1,182	1,202	2,436	1,182	1,202	2,436

Table 7: Regression Tests for Triggers: Mid Financial Distress Sample

This table summarizes OLS regression results for the submarkets with mid financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Tier 1 includes gateway markets (Atlanta, Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC.). Tier 2 includes secondary markets (Austin, Dallas, Denver, Houston, Nashville, Phoenix, San Jose, Seattle, and Tampa). The others are classified as Tier 3. The classification of gateway and secondary is based on S&P Global Market Intelligence, CoStar, National Association of Real Estate Investment Trusts (NAREIT). All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.005	0.004	0.005*	-0.004	0.010	0.002
	(-1.22)	(0.48)	(1.97)	(-0.83)	(1.39)	(1.29)
Demand growth (5-year)				0.102***	0.184***	0.060***
				(8.29)	(7.36)	(6.67)
Constant	0.006***	0.014***	0.008***	0.001	0.002	0.004
	(4.83)	(5.74)	(3.16)	(0.74)	(0.71)	(1.51)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.018	0.046	0.076	0.210	0.411	0.257
# Obs	384	178	4,258	384	177	4,258

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.003	-0.006	0.033	0.003	0.016	-0.007
	(-0.30)	(-0.14)	(1.19)	(0.47)	(0.58)	(-1.50)
Demand growth (5-year)				0.834***	0.698***	0.911***
				(6.81)	(9.18)	(16.03)
Constant	0.031***	0.035**	0.044***	-0.008	-0.015	-0.021***
	(27.89)	(3.02)	(3.80)	(-1.95)	(-2.00)	(-4.33)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.026	0.101	0.068	0.808	0.739	0.933
# Obs	384	178	4,258	384	177	4,258

Table 8: Case Studies of Randomly Chosen Submarkets and Shopping Centers

This table summarizes case studies of randomly chosen submarkets and shopping centers. In Panel A, within each NAREIT MSA category we randomly selected three CoStar submarkets from the group of submarkets our factor analysis model identified as distressed. In Panel B, within each of the three distressed submarket we randomly selected retail properties in the 100k to 200k square foot range. "N.A." means missing information or not enough observations meeting our criteria.

Panel A: Case Studies of Randomly Chosen Submarkets by Market Tier

MSA	Submarket	Number of Retail Properties	Cap Rate	Stock (SF)	Rent Growth	Vacancy Rate	Delivered SF (Net)
Tier 1							
Chicago, IL	Outer part of MSA	>1500	>7%	<70 million	< -3%	> 7%	> 130,000
Washington D.C.	Outer part of MSA	<15	N.A.	< 160,000	N.A.	N.A.	N.A.
Atlanta, GA	Inner suburban ring	>400	>7%	< 6 million	> 4%	> 5%	< -5,000
Tier 2							
Tampa, FL	Northwest Tampa	<30	N.A.	N.A.	N.A.	N.A.	N.A.
Dallas/Ft Worth TX	Delta County Ret	<31	N.A.	N.A.	N.A.	N.A.	N.A.
Seattle, WA	Dupont - Seattle/Puget Sound	<32	N.A.	N.A.	N.A.	N.A.	N.A.
Tier 3							
Iowa City - IA	Central	<100	>8%	>1.5 million	Near 0	Near 0	Near 0
Albuquerque - NM	Suburban	<120	>7%	<7,000	Near 0	<5%	Near 0
Tucson - AZ	Suburban	<300	>7%	<4 million	>2%	<5%	>40,000

Panel B: Case Studies of Randomly Chosen Shopping Centers in Each Market Tier

MSA	Qualitative Evaluation	Individual Shopping Centers, 100k-200k SF range, randomly chosen
Tier 1		
Chicago, IL	Oversupplied market	1) An older center, anchored with junior department store, has had limited renovation. Rents less than $10 psf. 2) A shopper center slated for demolition and redevelopment, remaining retail. 3) A successful power center with low vacancy rate and above market rent.
Washington D.C.	N.A.	N.A.
Atlanta, GA	Absorption and delivery were highly variable over 10 years. New center is much more successful than old ones.	1) An old center anchored with a medium-sized discount store, a grocery store and a furniture store. 2) A newer center with more than 90% occupancy is anchored with a supermarket chain. Other tenants are restaurants, medical and fitness.
Tier 2		
Tampa, FL	N.A.	N.A. (only few mostly small retail properties all along commercial strip)
Dallas/Ft Worth TX	N.A.	N.A. (only few mostly small retail properties all along commercial strip)
Seattle, WA	N.A.	N.A. (only few mostly small retail properties in a cluster)
Tier 3		
Iowa City - IA	Vacancy and rents were highly variable over 10 years. The distress is mostly among many storefront retail.	An older center with health-related stores and community retail
Albuquerque - NM	Truck stop and strip centers	The biggest retail property has less than 50K sf.
Tucson - AZ	A lot of variation over 10 years in vacancy, absorption and rent growth. Recently, the submarket has strengthened.	Several shopping centers have 100K+ sq. A fully leased community center.

Appendix 1 Summary Statistics Using Alternative Market Classifications

This table shows summary statistics for full sample in Panel A and for sub-sample by market tier in Panel B, respectively. Unit of observations is retail submarket defined by CoStar. Market tier classification is based on Invesco. According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. Tier 1 includes gateway and primary markets. Tier 2 includes secondary and tertiary markets. Tier 3 includes the rest of markets.

Tier 1	N	Mean	Q1	Median	Q3
	(1)	(2)	(3)	(4)	(5)
Net Completion %	3,045	0.006	0.000	0.001	0.006
Asking Rent Index	3,045	106.770	101.286	108.381	114.261
Cap Rate	3,045	0.064	0.059	0.067	0.071
Price Growth	3,045	0.044	0.014	0.032	0.062
Rent growth (1-year)	3,045	0.027	0.017	0.027	0.037
Available Percent %	2,954	0.062	0.039	0.058	0.078
Net absorption %	3,045	0.008	-0.002	0.005	0.015
Stock growth (5-year)	3,042	0.036	0.000	0.012	0.039
Demand growth (5-year)	3,042	0.055	0.008	0.036	0.070
Asking Rent growth (5-year)	3,045	0.123	0.086	0.130	0.166
Financial Distress Factor	3,045	0.513	0.012	0.612	1.100
Tier 2					
Net Completion %	4,370	0.006	0.000	0.001	0.007
Asking Rent Index	4,370	102.862	95.271	102.309	109.060
Cap Rate	4,370	0.071	0.065	0.072	0.078
Price Growth	4,370	0.043	0.014	0.032	0.062
Rent growth (1-year)	4,370	0.027	0.015	0.026	0.040
Available Percent %	4,250	0.063	0.040	0.058	0.079
Net absorption %	4,370	0.009	-0.001	0.006	0.016
Stock growth (5-year)	4,370	0.038	0.003	0.016	0.043
Demand growth (5-year)	4,369	0.060	0.018	0.044	0.077
Asking Rent growth (5-year)	4,370	0.104	0.046	0.094	0.160
Financial Distress Factor	4,370	0.188	-0.546	0.063	0.896

Appendix 1 (con't)

Tier 3					
Net Completion %	7,045	0.006	0.000	0.001	0.006
Asking Rent Index	7,045	98.771	95.304	98.422	101.285
Cap Rate	7,045	0.076	0.072	0.077	0.081
Price Growth	7,045	0.035	0.005	0.023	0.055
Rent growth (1-year)	7,045	0.017	0.012	0.017	0.023
Available Percent %	6,837	0.061	0.038	0.055	0.077
Net absorption %	7,045	0.009	-0.002	0.006	0.016
Stock growth (5-year)	7,045	0.034	0.003	0.015	0.039
Demand growth (5-year)	7,045	0.053	0.013	0.037	0.070
Asking Rent growth (5-year)	7,045	0.065	0.031	0.064	0.091
Financial Distress Factor	7,045	-0.339	-0.718	-0.372	-0.082

Appendix 2 Univariate Tests Using Alternative Market Classifications

This table summarizes the results of univariate tests for differences in key variables between "High Distressed" and "Low Distressed" submarkets for Tier 1, Tier 2 and Tier 3 submarkets. Unit of observations is retail submarket defined by CoStar. Market tier classification is based on Invesco. According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. Tier 1 includes gateway and primary markets. Tier 2 includes secondary and tertiary markets. Tier 3 includes the rest of markets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	High Distress (1)	Low Distress (2)	*t*-test for mean differences (3)
Tier 1 Submarkets			
Number of obs.	442	2,004	
% of total			
Net Completion %	0.00260	0.00650	-1.61
Stock growth (5-year)	0.02185	0.04065	-3.08***
Tier 2 Submarkets			
Number of obs.	1,279	1,928	
% of total			
Net Completion %	0.00600	0.00053	-0.51
Stock growth (5-year)	0.03453	0.04340	-1.25
Tier 3 Submarkets			
Number of obs.	3,099	888	
% of total			
Net Completion %	0.00514	0.00761	-2.49**
Stock growth (5-year)	0.02957	0.04433	-4.24***

Appendix 3 Regression Tests for Triggers: High Financial Distress Sample Using Alternative Market Classifications

This table summarizes OLS regression results for the submarkets with high financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Market tier classification is based on Invesco. According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. Tier 1 includes gateway and primary markets. Tier 2 includes secondary and tertiary markets. Tier 3 includes the rest of markets. All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	0.000	0.002	0.002	-0.006	0.004***	0.001
	(0.09)	(1.48)	(1.03)	(-1.09)	(3.02)	(0.74)
Demand growth (5-year)				0.385***	0.119***	0.039***
				(4.75)	(4.83)	(4.56)
Constant	0.003	0.007***	0.007***	-0.024*	0.003**	0.005**
	(0.74)	(4.24)	(3.61)	(-2.16)	(2.11)	(2.35)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.031	0.218	0.062	0.343	0.354	0.140
# Obs	442	1,279	3,099	440	1,278	3,099

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	0.008	-0.004	0.010	-0.003	0.005	0.001
	(1.63)	(-0.71)	(1.28)	(-0.49)	(1.31)	(0.07)
Demand growth (5-year)				0.678***	0.610***	0.719***
				(10.01)	(11.63)	(3.22)
Constant	0.034***	0.027***	0.037***	-0.015	0.006	-0.000
	(4.00)	(3.08)	(5.00)	(-1.44)	(1.19)	(-0.01)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.029	0.949	0.073	0.743	0.980	0.747
# Obs	440	1,279	3,099	440	1,278	3,099

Appendix 4 Regression Tests for Triggers: Low Financial Distress Sample Using Alternative Market Classifications

This table summarizes OLS regression results for the submarkets with low financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Market tier classification is based on Invesco. According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. Tier 1 includes gateway and primary markets. Tier 2 includes secondary and tertiary markets. Tier 3 includes the rest of markets. All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.005*	-0.003	0.006	-0.004	-0.000	0.004*
	(-1.98)	(-0.89)	(1.56)	(-1.37)	(-0.23)	(1.90)
Demand growth (5-year)				0.083***	0.115***	0.181***
				(7.05)	(3.89)	(3.84)
Constant	0.007**	0.006***	0.003***	0.003	-0.002	-0.008**
	(2.70)	(4.73)	(2.67)	(0.86)	(-0.99)	(-2.16)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.034	0.017	0.060	0.280	0.380	0.349
# Obs	2,004	1,928	888	2,004	1,928	888

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.009	-0.017	0.016	0.009***	0.007*	0.007**
	(-1.42)	(-1.02)	(1.46)	(3.79)	(1.83)	(2.10)
Demand growth (5-year)				0.975***	1.002***	0.829***
				(30.14)	(32.62)	(22.03)
Constant	0.026**	0.041***	0.029***	-0.027***	-0.033***	-0.021***
	(2.92)	(5.32)	(5.03)	(-9.82)	(-3.38)	(-5.58)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.031	0.017	0.156	0.971	0.942	0.861
# Obs	2,004	1,928	888	2,004	1,928	888

Appendix 5 Regression Tests for Triggers: Mid Financial Distress Sample Using Alternative Market Classifications

This table summarizes OLS regression results for the submarkets with mid financial distress level. Unit of observations is retail submarket defined by CoStar. The dependent variable is proxies for retail redevelopment, including *Net Completion %* in Panel A and *Stock growth (5-year)* in Panel B. The test variables include demand-side factor, *Demand growth (5-year)*, and proxy for financial distress, *Financial Distress Factor*. Results in Column (1) and (4) are based on submarket in Tier 1 cities. Results in Column (2) and (5) are based on submarket in Tier 2 cities. Results in Column (3) and (6) are based on submarket in Tier 3 cities. Market tier classification is based on Invesco. According to Invesco, "Gateway" includes Boston, Chicago, Los Angeles, New York, San Francisco, and Washington DC. "Primary" markets include Atlanta, Chicago, Dallas, Denver, Houston, Philadelphia, Phoenix and Seattle. "Secondary" includes Austin, Baltimore, Charlotte, Detroit, Fort Lauderdale, Las Vegas, Miami, Minneapolis, Nashville, Riverside, Newark, Orange County, Orlando, Portland, Salt Lake City, San Antonio, San Diego, San Jose, Tampa and Palm Beach. "Tertiary" includes Albuquerque, Birmingham, Cincinnati, Cleveland, Columbus, Fresno, Honolulu, Indianapolis, Jacksonville, Kansas City, Long Island, Louisville, Memphis, Pittsburgh, Providence, Richmond, Sacramento, St. Louis, Tucson, Tulsa, Ventura. Tier 1 includes gateway and primary markets. Tier 2 includes secondary and tertiary markets. Tier 3 includes the rest of markets. All models include MSA and year fixed effects. Robust standard errors are clustered at MSA level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent Variable = Net Completion %

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.005	0.004	0.006	-0.003	0.002	0.002
	(-1.32)	(1.12)	(1.64)	(-0.68)	(0.73)	(1.02)
Demand growth (5-year)				0.120***	0.096***	0.057***
				(6.71)	(3.98)	(7.95)
Constant	0.006***	0.006**	0.012***	0.001	-0.001	0.007**
	(5.12)	(2.08)	(2.87)	(0.58)	(-0.18)	(1.99)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.034	0.043	0.088	0.266	0.167	0.295
# Obs	599	1,163	3,058	598	1,163	3,058

Panel B: Dependent Variable = Stock growth (5-year)

	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Distress Factor	-0.004	0.005	0.048	0.010	-0.006	-0.008
	(-0.39)	(0.50)	(1.12)	(1.72)	(-0.71)	(-1.65)
Demand growth (5-year)				0.800***	0.599***	0.935***
				(7.40)	(5.33)	(23.88)
Constant	0.030***	0.032***	0.049**	-0.005	-0.008	-0.020***
	(21.61)	(4.00)	(2.54)	(-1.18)	(-0.99)	(-3.79)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.039	0.100	0.067	0.791	0.609	0.959
# Obs	598	1,163	3,058	598	1,163	3,058

Appendix 6 List of MSAs with Distressed Submarkets

MSA	mktcat_ NAREIT	Count of MSAs by Category	# sub-markets		Tier 3 list (continued)
Atlanta - GA	1	3	90		Burlington - NC
Chicago - IL	1				Burlington - VT
Washington - DC	1				California-Lexington Park - MD
Dallas-Fort Worth - TX	2	5	69		Canton - OH
Phoenix - AZ	2				Cape Girardeau - MO
San Jose - CA	2				Carbondale-Marion - IL
Seattle - WA	2				Carson City - NV
Tampa - FL	2				Casper - WY
Akron - OH	3	261	1843		Cedar Rapids - IA
Albany - GA	3				Chambersburg-Waynesboro - PA
Albany - NY	3				Champaign-Urbana - IL
Albany - OR	3				Charleston - SC
Albuquerque - NM	3				Charleston - WV
Alexandria - LA	3				Charlotte - NC
Altoona - PA	3				Charlottesville - VA
Ames - IA	3				Chattanooga - TN
Anchorage - AK	3				Cheyenne - WY
Ann Arbor - MI	3				Chico - CA
Anniston-Oxford - AL	3				Cincinnati - OH
Appleton - WI	3				Clarksville - TN
Asheville - NC	3				Cleveland - OH
Athens - GA	3				Cleveland - TN
Atlantic City - NJ	3				Coeur d'Alene - ID
Auburn-Opelika - AL	3				College Station-Bryan - TX
Augusta - GA	3				Colorado Springs - CO
Bakersfield - CA	3				Columbia - MO
Baltimore - MD	3				Columbia - SC
Bangor - ME	3				Columbus - GA
Barnstable Town - MA	3				Columbus - IN
Baton Rouge - LA	3				Columbus - OH
Battle Creek - MI	3				Corpus Christi - TX
Bay City - MI	3				Corvallis - OR
Beaumont - TX	3				Cumberland - MD
Beckley - WV	3				Dalton - GA
Bellingham - WA	3				Danville - IL
Bend - OR	3				Daphne-Fairhope-Foley - AL
Billings - MT	3				Davenport - IA
Binghamton - NY	3				Dayton - OH
Birmingham - AL	3				Daytona Beach - FL
Bismarck - ND	3				Decatur - AL
Blacksburg - VA	3				Decatur - IL
Bloomington - IL	3				Des Moines - IA
Bloomington - IN	3				Detroit - MI
Bloomsburg-Berwick - PA	3				Dothan - AL
Boise - ID	3				Dover - DE
Bowling Green - KY	3				Dubuque - IA
Bremerton - WA	3				Duluth - MN
Brownsville-Harlingen - TX	3				Durham - NC
Brunswick - GA	3				East Stroudsburg - PA
Buffalo - NY	3				Eau Claire - WI

Tier 3 list (continued)	page 2 of 4
El Centro - CA	Hinesville - GA
El Paso - TX	Homosassa Springs - FL
Elizabethtown-Fort Knox - KY	Honolulu - HI
Elkhart - IN	Hot Springs - AR
Elmira - NY	Houma-Thibodaux - LA
Enid - OK	Huntington - WV
Erie - PA	Huntsville - AL
Eugene - OR	Idaho Falls - ID
Evansville - IN	Indianapolis - IN
Fairbanks - AK	Inland Empire - CA
Fargo - ND	Iowa City - IA
Farmington - NM	Ithaca - NY
Fayetteville - NC	Jackson - MI
Flagstaff - AZ	Jackson - MS
Flint - MI	Jackson - TN
Florence - SC	Jacksonville - FL
Florence-Muscle Shoals - AL	Jacksonville - NC
Fond du Lac - WI	Janesville-Beloit - WI
Fort Collins - CO	Jefferson City - MO
Fort Myers - FL	Johnson City - TN
Fort Smith - AR	Johnstown - PA
Fort Wayne - IN	Jonesboro - AR
Fresno - CA	Joplin - MO
Ft Walton Beach - FL	Kahului-Wailuku-Lahaina - HI
Gadsden - AL	Kalamazoo - MI
Gainesville - FL	Kankakee - IL
Gainesville - GA	Kansas City - MO
Gettysburg - PA	Kennewick-Richland - WA
Glens Falls - NY	Killeen - TX
Goldsboro - NC	Kingsport - TN
Grand Forks - ND	Kingston - NY
Grand Island - NE	Knoxville - TN
Grand Junction - CO	Kokomo - IN
Grand Rapids - MI	La Crosse-Onalaska - WI
Grants Pass - OR	Lafayette - LA
Great Falls - MT	Lafayette-West Lafayette - IN
Green Bay - WI	Lake Charles - LA
Greensboro - NC	Lake Havasu - AZ
Greenville - NC	Lakeland - FL
Greenville - SC	Lancaster - PA
Gulfport-Biloxi-Pascagoula - MS	Lansing - MI
Hagerstown - MD	Las Cruces - NM
Hammond - LA	Las Vegas - NV
Hanford-Corcoran - CA	Lawrence - KS
Harrisburg - PA	Lawton - OK
Harrisonburg - VA	Lebanon - PA
Hartford - CT	Lehigh Valley - PA
Hattiesburg - MS	Lewiston - ID
Hickory - NC	Lewiston-Auburn - ME
Hilton Head Island - SC	Lexington - KY

Tier 3 list (continued)	page 3 of 4
Lima - OH	Olympia - WA
Lincoln - NE	Omaha - NE
Little Rock - AR	Orange County - CA
Logan - UT	Orlando - FL
Longview - TX	Oshkosh-Neenah - WI
Longview - WA	Owensboro - KY
Louisville - KY	Oxnard - CA
Lubbock - TX	Panama City - FL
Lynchburg - VA	Parkersburg - WV
Macon - GA	Pensacola - FL
Madera - CA	Peoria - IL
Madison - WI	Philadelphia - PA
Manchester - NH	Pine Bluff - AR
Manhattan - KS	Pittsburgh - PA
Mankato - MN	Pittsfield - MA
Mansfield - OH	Pocatello - ID
McAllen - TX	Port St. Lucie - FL
Medford - OR	Portland - ME
Melbourne - FL	Portland - OR
Memphis - TN	Poughkeepsie - NY
Merced - CA	Prescott - AZ
Michigan City-La Porte - IN	Providence - RI
Midland - MI	Provo - UT
Milwaukee - WI	Pueblo - CO
Minneapolis - MN	Punta Gorda - FL
Missoula - MT	Racine - WI
Mobile - AL	Raleigh - NC
Modesto - CA	Rapid City - SD
Monroe - LA	Reading - PA
Monroe - MI	Redding - CA
Montgomery - AL	Reno - NV
Morgantown - WV	Richmond - VA
Morristown - TN	Roanoke - VA
Mount Vernon - WA	Rochester - MN
Muncie - IN	Rochester - NY
Muskegon - MI	Rockford - IL
Myrtle Beach - SC	Rocky Mount - NC
Napa - CA	Rome - GA
Naples - FL	Sacramento - CA
New Bern - NC	Saginaw - MI
New Haven - CT	Saint Louis - MO
New Orleans - LA	Salem - OR
Niles-Benton Harbor - MI	Salinas - CA
Norfolk - VA	Salisbury - MD
Northern New Jersey - NJ	Salt Lake City - UT
Northwest Arkansas - AR	San Angelo - TX
Norwich - CT	San Antonio - TX
Ocala - FL	San Diego - CA
Ocean City - NJ	San Luis Obispo - CA
Ogden - UT	San Rafael - CA

Tier 3 list (continued)	page 4 of 4
Santa Barbara - CA	Warner Robins - GA
Santa Cruz - CA	Waterloo-Cedar Falls - IA
Santa Fe - NM	Watertown-Fort Drum - NY
Santa Rosa - CA	Wausau - WI
Sarasota - FL	Weirton-Steubenville - WV
Savannah - GA	Wenatchee - WA
Scranton - PA	Wheeling - WV
Sebastian-Vero Beach - FL	Wichita - KS
Sebring - FL	Wichita Falls - TX
Sheboygan - WI	Williamsport - PA
Sherman-Denison - TX	Wilmington - NC
Shreveport - LA	Winchester - VA
Sierra Vista-Douglas - AZ	Winston-Salem - NC
Sioux City - IA	Worcester - MA
Sioux Falls - SD	Yakima - WA
South Bend - IN	York - PA
Spartanburg - SC	Youngstown - OH
Spokane - WA	Yuba City - CA
Springfield - IL	
Springfield - MA	
Springfield - MO	
Springfield - OH	
St. Cloud - MN	
St. George - UT	
St. Joseph - MO	
Stamford - CT	
State College - PA	
Staunton-Waynesboro - VA	
Stockton - CA	
Sumter - SC	
Syracuse - NY	
Tallahassee - FL	
Terre Haute - IN	
Texarkana - TX	
The Villages - FL	
Toledo - OH	
Topeka - KS	
Trenton - NJ	
Tucson - AZ	
Tulsa - OK	
Tuscaloosa - AL	
Tyler - TX	
Utica - NY	
Valdosta - GA	
Vallejo-Fairfield - CA	
Victoria - TX	
Vineland - NJ	
Visalia - CA	
Waco - TX	
Walla Walla - WA	