Risky Business:
Foot Traffic, Vacancy Rates, and Credit Risks

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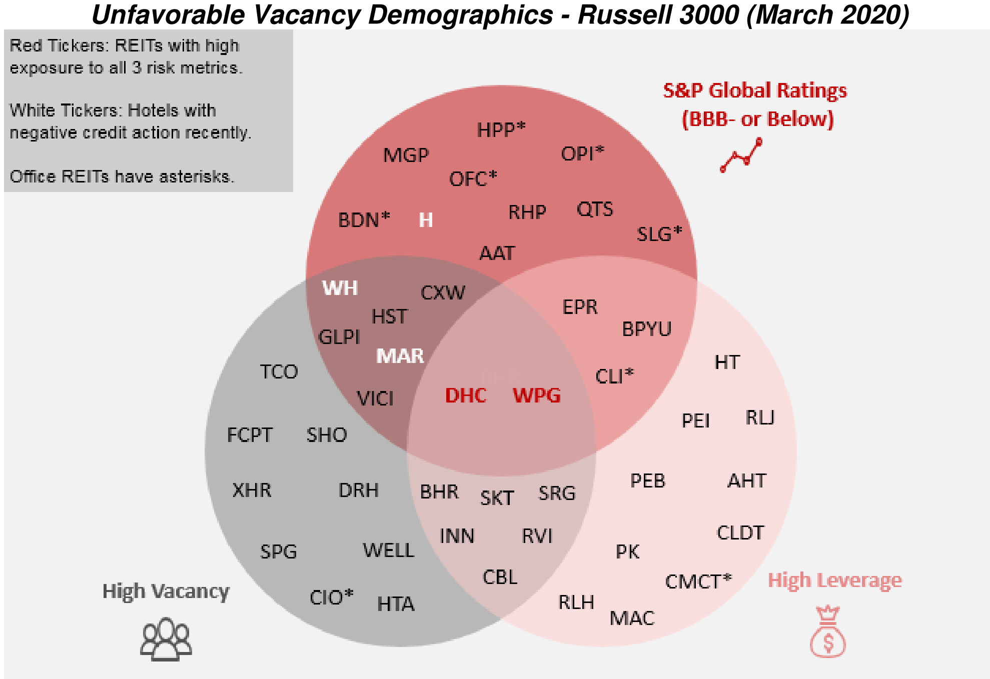
Foot traffic can be used by both lenders and investors as a proxy for business health - an increase in footfall may indicate business expansion, while a decline may suggest business contraction. Lenders can use this information combined with other factors to identify customers that require additional credit facilities to support growth, or companies where existing credit lines need to be reassessed given bleak prospects. For equity investors, foot traffic can help identify companies where revenues may be accelerating or firms that may have difficulty meeting financial obligations. An extended deterioration in footfall activity implies fewer customer visits, lower sales and reduced cash flows.

Figure 1 shows real estate investment trusts (REITs)[1] that saw large declines in foot traffic at their properties[2] and also had unfavorable exposures to the following measures of business risk:

1. **Vacancy Rates:** REITs managing properties in geographic locations with high vacancy rates will likely find it difficult leasing properties should retail tenants close locations or office tenants downsize.
2. **Leverage:** Raising additional debt to plug a shortfall in cash flow may not be an option for highly leveraged REITs, especially if they face strict debt covenant ratios.
3. **S&P Global Ratings:**[3] REITs with stretched balance sheets may incur higher borrowing costs, given the weak macro-economic environment backdrop.

Figure 1: REITs with the Largest Decline in Foot Traffic, Highest Credit Risk and Unfavorable Vacancy Demographics - Russell 3000 (March 2020)



Source: AirSage, S&P Global Market Intelligence Quantamental Research. Data as at 04/15/2020.

[1] See Appendix A for description of the sub-industries used in this paper.
[2] See Section 1 for the construction process of the screen.
[3] S&P Global Market Intelligence is an affiliate of S&P Global Ratings which is analytically and editorially independent from any other group at S&P Global. S&P Global Ratings grade BBB- is the last notch of investment grade.

Washington Prime Group (WPG) and Diversified Healthcare Trust (DHC)[4] lie at the intersection of all three risk metrics (Figure 1). WPG is a retail REIT with a national real estate portfolio focused on shopping centers. Foot traffic at properties owned by retail REITs was down by 67% in March 2020, one of the worst declines across all REIT property types.[5] Even when the nationwide lockdown eases, some retailers may close permanently or reduce their retail footprint. This poses an equity valuation risk for retail REITs because mall values can decline sharply if anchor tenants vacate and surrounding tenants lose the traffic that anchors attract. DHC owns office buildings leased to medical related businesses, wellness centers and senior living communities. Approximately 43% of DHC's net operating income is from properties that house seniors, and this demographic has been the most impacted by the COVID-19 disease.[6] DHC also recently reported that operators of senior living communities are experiencing significant challenges in attracting new residents to their communities.[7]

Many office REITs in Figure 1 do not own properties in locations with high vacancy rates. However, a majority of them are either highly levered (CMCT) or rated below the last notch of investment grade (BBB-). Businesses may need less office space in the future if more of their employees decide to work from home. Leverage and fixed charge coverage ratios of office REITS may be further stretched if they struggle to find new tenants to absorb the space given up by existing tenants.

Marriot International (MAR), Hyatt Hotels (H) and Wyndham Hotels (WH) all had recent issuer credit rating downgrades by S&P Global Ratings, with a negative outlook or the rating being put on CreditWatch with negative implications (Figure 1). All three have announced measures to deal with the financial impact of the COVID-19 pandemic including temporarily closing locations, furloughs and pay cuts. A slow return of business and leisure travel may impact the ability of these three hotels to repair their balance sheets quickly.

1. Screen Construction

The screen was constructed using the following steps:

1. Calculate the year-on-year change in average daily foot traffic using March 2019 and March 2020 data for each property owned by a REIT, in one of the sub-industries shown in Appendix A. Aggregate this value across all locations of a REIT using an equal-weight approach.
2. Using the results from step 1, divide the universe into two equal parts. Keep the half with REITs that had the largest year-on-year decline in foot traffic.
3. Determine values for risk measures:
   i) Vacancy: Assign a Metropolitan Statistical Area (MSA)[8] code to each property location and the associated vacancy rate for that MSA. Calculate the aggregate vacancy rate for each REIT by taking the average across all its properties. The vacancy metric (gray circle) in Figure 1 shows the 50% of REITs in the universe with the highest vacancy rates.

[4] See Appendix B for table linking tickers to company names and sub-industry.
[5] See Quantamental Research Brief for year-on-year change in foot traffic across eight REIT property types.
[6] Source: Diversified Healthcare Trust, net operating income data for Q4 2019. Data sourced on 5/13/2020 from DHC's web portal.
[7] Source: Diversified Healthcare Trust, press release dated 04/02/2020.
[8] Metropolitan Statistical Areas (MSA) are delineated by the U.S. Office of Management and Budget (OMB) and are composed of whole counties or county equivalents.

ii) Leverage: Leverage is calculated as market capitalization divided by the sum of total debt and preferred equity. The leverage metric (light red circle) shows the 25% of REITs with the worst leverage values.

iii) S&P Global Ratings: The credit rating metric (dark red circle) show all REITs rated BBB- (last notch of investment grade) or lower.

2. Data

Foot traffic data is sourced from AirSage, a leader in mobile location data for visitation insights and population movement. AirSage foot traffic data is now available through S&P Global Market Intelligence's Data Marketplace, with history available from January 2017. The data is aggregated and covers mobile device sightings at over 27,000 property locations owned by REITs in the US. AirSage uses data from the U.S. Census Bureau to provide demographic characteristics of visitors at each property location.

REIT property location data is sourced from the S&P Global Market Intelligence Global Real Estate database. The database covers 110,000+ properties owned by over 1,000 companies operating in 46 countries.

S&P Capital IQ Premium Financials and Compustat® North America packages were the sources of fundamental data for this study and both are point-in-time data.

3. Conclusion

The COVID-19 pandemic has led to widespread closures of retail stores, offices and hotels. Foot traffic data can be combined with traditional financial ratios to provide a more holistic view of business health for both credit and equity investors. This report extends our prior analysis of foot-traffic data by setting foot traffic figures in the context of a screen for identifying where risks may be highest. In a subsequent report, we will examine how these dynamics change once markets reopen.

APPENDIX A: Global Industry Classification System for REITs & Non-REIT Hotels

25301020 Hotels, Resorts & Cruise Lines	Owners and operators of hotels, resorts and cruise-ships. Includes travel agencies, tour operators and related services not classified elsewhere . Excludes casino-hotels classified in the Casinos & Gaming Sub-Industry.
60101010 Diversified REITs	A company or Trust with significantly diversified operations across two or more property types.
60101020 Industrial REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of industrial properties. Includes companies operating industrial warehouses and distribution properties.
60101030 Hotel & Resort REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of hotel and resort properties.
60101040 Office REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of office properties.
60101050 Health Care REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of properties serving the health care industry, including hospitals, nursing homes, and assisted living properties.
60101070 Retail REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of shopping malls, outlet malls, neighborhood and
60101080 Specialized REITs	Companies or Trusts engaged in the acquisition, development, ownership, leasing, management and operation of properties not classified elsewhere. Includes trusts that

Source: S&P Global Market Intelligence Quantamental Research. Data as at 04/15/2020.

APPENDIX B: Company Names, Tickers and GICS Sub-Industry

Company Name	Ticker	GICS Sub-Industry
Hyatt Hotels Corporation	H	Hotels, Resorts & Cruise Lines
Marriott International, Inc.	MAR	Hotels, Resorts & Cruise Lines
Red Lion Hotels Corporation	RLH	Hotels, Resorts & Cruise Lines
Wyndham Hotels & Resorts, Inc.	WH	Hotels, Resorts & Cruise Lines
American Assets Trust, Inc.	AAT	Diversified REITs
Ashford Hospitality Trust, Inc.	AHT	Hotel & Resort REITs
Braemar Hotels & Resorts, Inc.	BHR	Hotel & Resort REITs
Chatham Lodging Trust	CLDT	Hotel & Resort REITs
DiamondRock Hospitality Company	DRH	Hotel & Resort REITs
Hersha Hospitality Trust	HT	Hotel & Resort REITs
Host Hotels & Resorts, Inc.	HST	Hotel & Resort REITs
MGM Growth Properties LLC	MGP	Hotel & Resort REITs
Park Hotels & Resorts Inc.	PK	Hotel & Resort REITs
Pebblebrook Hotel Trust	PEB	Hotel & Resort REITs
RLJ Lodging Trust	RLJ	Hotel & Resort REITs
Ryman Hospitality Properties, Inc.	RHP	Hotel & Resort REITs
Summit Hotel Properties, Inc.	INN	Hotel & Resort REITs
Sunstone Hotel Investors, Inc.	SHO	Hotel & Resort REITs
Xenia Hotels & Resorts, Inc.	XHR	Hotel & Resort REITs
Brandywine Realty Trust	BDN	Office REITs
CIM Commercial Trust Corporation	CMCT	Office REITs
City Office REIT, Inc.	CIO	Office REITs
Corporate Office Properties Trust	OFC	Office REITs
Hudson Pacific Properties, Inc.	HPP	Office REITs
Mack-Cali Realty Corporation	CLI	Office REITs
Office Properties Income Trust	OPI	Office REITs
SL Green Realty Corp.	SLG	Office REITs
Diversified Healthcare Trust	DHC	Healthcare REITs
Healthcare Trust of America, Inc.	HTA	Healthcare REITs
Welltower Inc.	WELL	Healthcare REITs
Brookfield Property REIT Inc.	BPYU	Retail REITs
CBL & Associates Properties, Inc.	CBL	Retail REITs
Pennsylvania Real Estate Investment Trust	PEI	Retail REITs
Retail Value Inc.	RVI	Retail REITs
Seritage Growth Properties	SRG	Retail REITs
Simon Property Group, Inc.	SPG	Retail REITs
Tanger Factory Outlet Centers, Inc.	SKT	Retail REITs
Taubman Centers, Inc.	TCO	Retail REITs
The Macerich Company	MAC	Retail REITs
Washington Prime Group Inc.	WPG	Retail REITs
CoreCivic, Inc.	CXW	Specialized REITs
EPR Properties	EPR	Specialized REITs
Four Corners Property Trust, Inc.	FCPT	Specialized REITs
Gaming and Leisure Properties, Inc.	GLPI	Specialized REITs
QTS Realty Trust, Inc.	QTS	Specialized REITs
VICI Properties Inc.	VICI	Specialized REITs

Source: AirSage, S&P Global Market Intelligence Quantamental Research. Data as at 04/15/2020.

Our Recent Research

May 2020: No More Walks in the (Office) Park: Tying Foot Traffic Data to REITs

Foot traffic data provides investors and corporate managers with key insights on the level of activity at properties and the demographic profile of visitors to these locations. Corporate managers can use this information to pinpoint properties at greater risk of tenant defaults, while investors can use foot traffic data to identify REITs managing properties where activity remains robust. More importantly, once the nationwide lockdown eases, foot traffic can serve as a leading indicator of a return of economic activity across industries.

May 2020: Do Markets Yearn for the Dog Days of Summer: COVID, Climate and Consternation

Stakeholders are turning to untraditional data sources to quantify the impact of the COVID-19 shutdown. While no single variable can forecast which locations will be most susceptible to the virus, mounting scientific literature suggests that there is a correlation between temperature and viral propagation. If correct, regions in the temperature 'target zone' may need to implement more stringent lockdown policies for a longer period to achieve comparable mitigation.

Investors can combine weather data with property data, to expose one dimension of risk for Real Estate Investment Trusts (REITs) of prolonged closures, as well as areas that may see a resurgence of the virus later this year.

April 2020: Cold Turkey - Navigating Guidance Withdrawal Using Supply Chain Data

A recent surge in corporate earnings guidance withdrawals has left decision-makers missing a wrench in their toolbox. Corporate guidance was already declining, in 2018, when the number of companies in the Russell 3000 providing guidance peaked at 1,721, dropping 6.9% year over year in 2019 to 1,632 companies. Guidance has been further impacted by the Coronavirus pandemic – 173 companies withdrew their previous guidance in the first quarter. This leaves decision-makers looking for alternative forward-looking information on a company's prospects.

Shipping data can provide a near real-time view into a firm's activities. Declines in shipping activity could indicate the rate at which a company's underlying business is slowing. Alternatively, if shipments remain largely unchanged, a company's underlying health may also be unchanged. Increased international trade activity could indicate an increase in corporate inventories and associated activity. A buildup in inventories often occurs as firms hope to turn imports into sales, or plan for an anticipated supply disruption. Firms and industries that show a decrease in international trade may suggest 1) inventory levels are over-stocked 2) demand forecasts are unfavorable, or 3) significant supply chain shifts are underway.

April 2020: Data North Star - Navigating Through Information Darkness

Crisis creates uncertainty. Familiar landmarks lose their value and decision makers are left to navigate on partial information. Following the outbreak of the COVID-19 pandemic, this is the environment in which investors and corporate decision-makers now suddenly find themselves. The S&P Global Quantamental Research team has launched a series of research briefs that will aid decision-makers in navigating this uncertain environment. Utilizing non-traditional datasets across the entire S&P Global Market Intelligence product suite, these briefs will provide market participants with analysis on COVID-19's impact to the financial markets geared to fill the current information gap.

March 2020: Long Road to Recovery: Coronavirus Lessons from Supply Chain and Financial Data

COVID-19 continues to disrupt global supply chains in unprecedented ways. Leveraging maritime shipping data from Panjiva, this report includes a review of trade and financial data to analyze the impact of the SARS-CoV-2 / COVID-19 coronavirus outbreak. Findings include:

- Second-order supply chain effects are also emerging with the apparel industry now seeing a shortage of materials globally due to earlier outages in China.
- Retailers including Costco and Target are gaining from increased sales of health- and personal care products. Yet, supply shortages are rapidly emerging in part due to medical supply export restrictions in several countries.
- There is a notable, but not statistically significant, relationship with firms with higher exposure to Asia having seen a weaker sector neutral stock price performance.

February 2020: Ship to Shore: Mapping the Global Supply Chain with Panjiva Shipping Data in Xpressfeed™

World merchandise trade accounted for an estimated $19.7 trillion in 2018, about 90% of which is by sea. While financial data tells us “how a company has done in the past,” shipping data provides a closer-to-real time indicator of “what a company is doing now.” Panjiva’s shipping data allows investors to track trends, identify anomalies, and assess risks for companies engaged in international trade. This paper illustrates how to find investment insights in Panjiva’s US seaborne and Mexican datasets using the US auto parts industry as a case study.

Findings include:

- Shipment trends often lead fundamentals: Rising shipments amid flat or declining fundamentals may signal future financial trend reversal
- Growth in the number of a company's suppliers and in the types of products it imports may signal strengthening demand and/or product line diversification.
- Tracking industry-level product-line trends can help identify companies with significant exposure to rising or declining product lines.

January 2020: Natural Language Processing – Part III: Feature Engineering Applying NLP Using Domain Knowledge to Capture Alpha from Transcripts

Unstructured data is largely underexplored in equity investing due to its higher costs. One particularly valuable unstructured data set is S&P Global Market Intelligence’s machine readable earnings call transcripts.

- Topic Identification – Firms that referenced the most positive descriptors around their financials outperformed historically.

- Transparency – Firms that provided greater call transparency exhibited by executives' behaviors and decisions outperformed historically.
- Weighted Average Sentiment – Quantifying call sentiment using a weighted average construct led to better returns and less volatility historically.
- Additive Forecasting Power – The newly introduced signals demonstrated additive forecasting power above commonly used alpha and risk signals historically.

December 2019: The "Trucost" of Climate Investing: Managing Climate Risks in Equity Portfolios
Does sustainable investing come at a "cost", and is the fear of investors around the performance concessions of "green" portfolios warranted? Our latest research suggests investors' fears are misplaced – carbon-sensitive portfolios have similar returns and significantly better climate characteristics than portfolios constructed without carbon emission considerations. Other findings include:

- Highly profitable firms are likely to be leaders in reducing their carbon emission levels.
- There is no degradation in fundamental characteristics for the carbon-sensitive portfolios compared to the baseline portfolio, even though the difference in constituents can be as high as 20%.
- Carbon-sensitive portfolios were observed as having significant reductions in water use, air pollutants released and waste generated.

October 2019: #ChangePays: There Were More Male CEOs Named John than Female CEOs
This report examines the performance of firms that have made female appointments to their CEO and CFO positions. Our research finds that firms with female CEOs and/or CFOs:.

- Are more profitable and generated excess profits of $1.8 trillion over the study horizon.
- Have produced superior stock price performance, compared to the market average.
- Have a demonstrated culture of Diversity and Inclusion, evinced by more females on the company's board of directors.

June 2019: Looking Beyond Dividend Yield: Finding Value in Cash Distribution Strategies
June 2019: The Dating Game: Decrypting the Signals in Earnings Report Dates
May 2019: Bridges for Sale: Finding Value in Sell-Side Estimates, Recommendations, and Target Prices

February 2019: U.S Stock Selection Model Performance Review

February 2019: International Small Cap Investing: Unlocking Alpha Opportunities in an Underutilized Asset Class

January 2019: Value and Momentum: Everywhere, But Not All the Time

November 2018: Forging Stronger Links: Using Supply Chain Data in the Investing Process

September 2018: Their Sentiment Exactly: Sentiment Signal Diversity Creates Alpha Opportunity

September 2018: Natural Language Processing – Part II: Stock Selection: Alpha Unscripted: The Message within the Message in Earnings Calls

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