

Just the (Build)Fax: Property Intelligence from Building Permit Data

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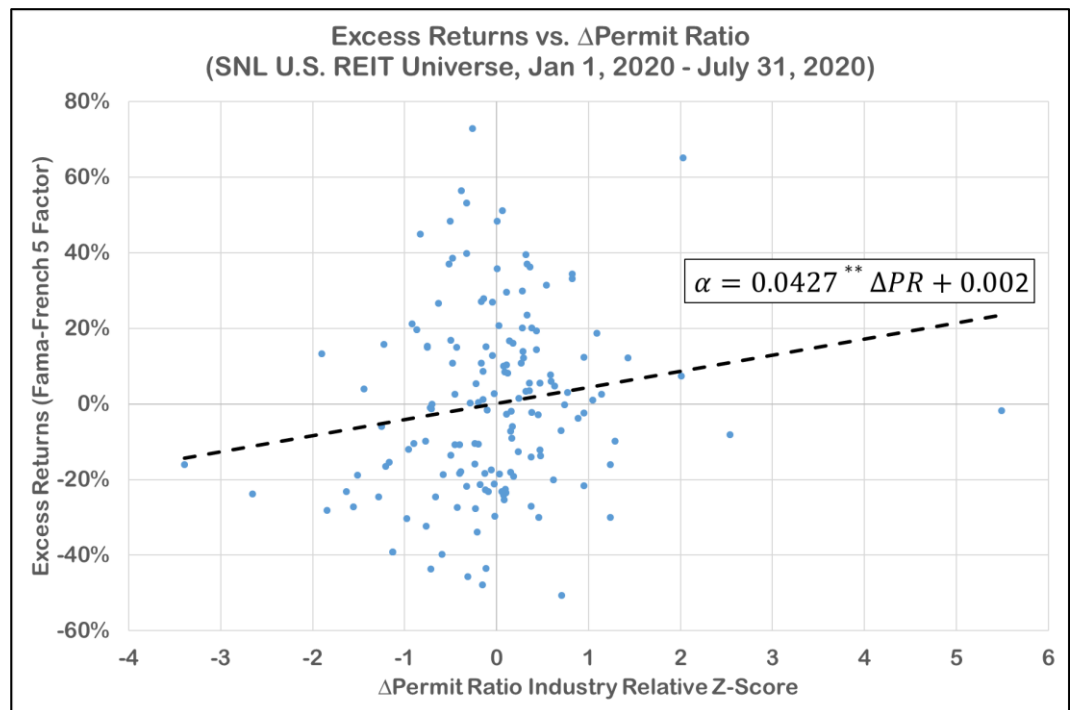
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Investors have struggled to price the uncertainties facing commercial Real Estate owners as tenants' businesses continue to be impacted by the economic lockdown following the COVID-19 global pandemic. Building permit¹ data has provided valuable transparency for investors of Real Estate Investment Trusts (REITs) during this time. **Publicly-traded REITs that have continued permit-requiring activities have outperformed their peers during and following the economic lockdown. A one standard deviation increase in a derived permit ratio, compared to the industry² average, is associated with 427 bps of excess return over the same period.**

Figure 1. REIT Returns vs. Year-on-Year Change in Permits. A Fama-French 5 factor framework was used to generate excess stock level returns for the universe of U.S.-based REITs within the SNL REIT dataset. These returns were plotted against the year-on-year change in the permit ratio as defined in equation 1.



Source: S&P Global Market Intelligence Quantamental Research. Data as of Sept 7, 2020.

Indices are unmanaged, statistical composites and their returns do not include payment of any sales charges or fees an investor would pay to purchase the securities they represent. Such costs would lower performance. It is not possible to invest directly in an index. Past performance is not a guarantee of future results.

** The regression slope coefficient has a t-stat of 2.00, which is statistically significant with a p-value of 0.024.

During the period ranging from February 21 to March 23, the S&P United States REIT Total Return Index fell 43.9%³ as market participants attempted to price the impact of the COVID-19 pandemic and consequential economic shutdown on real estate owners. The ability of businesses that rely heavily on storefront foot traffic, such as hotels and restaurants, to

¹ Throughout this work, the terms "Building Permit(s)" or "Permit(s)" refer to a type of authorization granted by a regulatory body and required before construction can occur of any new or on any existing building.

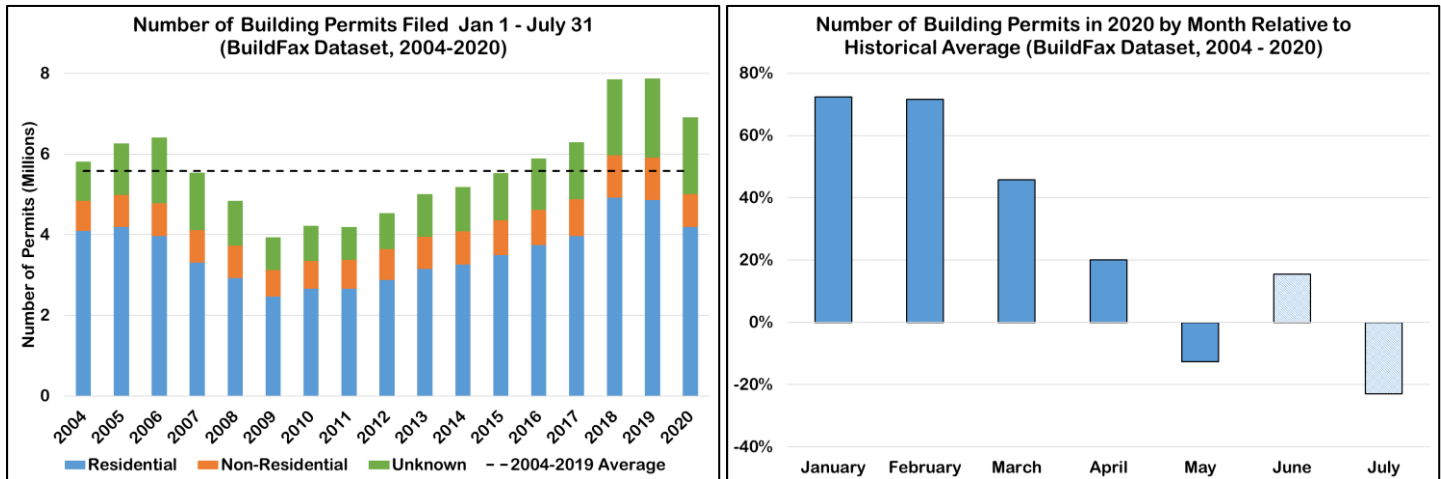
² Industries were assigned to REITs based on the Global Industry Classification Standard (GICS) Level 3.

³ Index values of 1,579.13 and 885.73 for February 21, 2020 and March 23, 2020, respectively, were obtained from <https://www.spglobal.com/spdji/en/indices/equity/sp-united-states-reit/#overview> on 9/8/2020.

continue paying rent to property owners was called into question after several state governments legislated a halt on so-called “non-essential” activities.

In response to less favorable market conditions, property owners curtailed construction and renovation projects, evinced by the relative⁴ decline in permits⁵ (Figure 2, right) following the lockdown period in the United States. After a strong start to 2020 in January and February, where permits were more than 70% higher than the historical average over the same months, permit-requiring activity declined to more modest levels in March and April before falling below average in May. Preliminary data⁶ for June and July suggest that totals are likely in line with historic averages. The permit activity for the first 7 months of 2020 is at least 23% higher than the historical average (Figure 2, left).

Figure 2. Permit Counts. (Left) A count of all permits filed in the months of January to July for each year from 2004 to 2020 is shown, along with the average annual permits over the same months for the years of 2004 to 2019. (Right) The number of permits in each month of 2020 from January to July is represented as a percentage of the average number of permits filed in the same month from 2004 to 2019. June and July values include only the jurisdictions that have reported as of Sept 7, 2020 and values may change as additional data are collected.



Source: S&P Global Market Intelligence Quantamental Research. Data as of Sept 7, 2020.

However, not all Real Estate Investment Trusts (REITs) were impacted equally. Some REITs held properties in less affected areas outside of viral epicenters. REITs that were able to maintain sufficient cash flow or had sufficient cash on the balance sheet also used the regional shutdowns as an opportunity to renovate properties located in a shutdown area.

To quantify permit activity, the *Permit_Ratio* was calculated for each U.S. REIT in the SNL REIT dataset, defined in equation 1A as the percentage of properties held by a REIT with at

⁴ Values are considered relative to the historical average. Monthly values in 2020 are compared to the average in the same month from 2004 to 2019. Annual values in 2020 are calculated for the first 7 months of the year and are compared to the average in the first 7 months from 2004 to 2019.

⁵ Throughout this work, the terms “Building Permit(s)” or “Permit(s)” refer to a type of authorization granted by a regulatory body and required before construction can occur of any new or on any existing building.

⁶ Not all permit granting jurisdictions update their data with a monthly cadence. Total permit counts are expected to increase in June and July as more jurisdictions report.

least one building permit in our dataset during the first 7 months of the year. Excess returns are correlated to the year-on-year change in this ratio (equation 1B).

$$\text{Permit_Ratio} = \frac{\text{Number of Properties in REIT Portfolio with at least one Building Permit}}{\text{Total Number of Properties in REIT Portfolio}}$$

Eq. 1A

$$\Delta\text{Permit_Ratio} = \text{Permit_Ratio}_{2020} - \text{Permit_Ratio}_{2019}$$

Eq. 1B

Returns were adjusted for common factors that drive returns including market beta, company market capitalization, book-to-price ratio, capital expenditures-to-sales, and cash flow-to-assets (the common Fama-French 5 factor model⁷). The adjusted returns were then winsorized at the 3 standard deviation level to minimize the impact of outliers.⁸

Data

The analyses presented in this paper were derived from the [BuildFax building permit dataset](#) and the [SNL REIT dataset](#). BuildFax⁹ is a leading provider of property condition and building permit data for financial institutions and is available on S&P Global Market Intelligence's Alternative Data Marketplace. The BuildFax database aggregates and standardizes content delivered by more than 2,700 permit-granting jurisdictions covering 98% of the US towns and cities with a population more than 50,000. The 84 billion data points inform on 100 million structures. The S&P Global SNL REIT property data informs on more than 110,000 properties owned by over 1,000 companies operating in 46 countries. The SNL industry specific content includes granular information including tenant lease information, occupancy rates, and demographic information. Combined, the two datasets provide powerful insights into 41,800 properties including 4.1 million permits granted since 1998.

Conclusion

Real Estate Investment Trusts have struggled non-uniformly following the economic lockdown due to the COVID-19 global pandemic. After hitting a 52-week high on February 21, the S&P United States REIT Total Return Index fell more than 43% over the next month. We find that REITs that have continued permit-requiring activities have outperformed their peers. Specifically, we document 427 bps of excess return over the first 7 months of 2020 per unit standard deviation increase in our derived permit ratio. As the coronavirus pandemic evolves and many brace for a potential "second wave", REIT investors may find value in the inclusion of permit data in their analyses.

⁷ The interested reader can find more information about Fama-French adjustments at https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

⁸ Without adjustment or winsorization, economic significance improves to 534 bps per 1 standard deviation increase in permit ratio and statistical significance increases to the 99% level. We chose here to present the more conservative results.

⁹ BuildFax is a Verisk business.

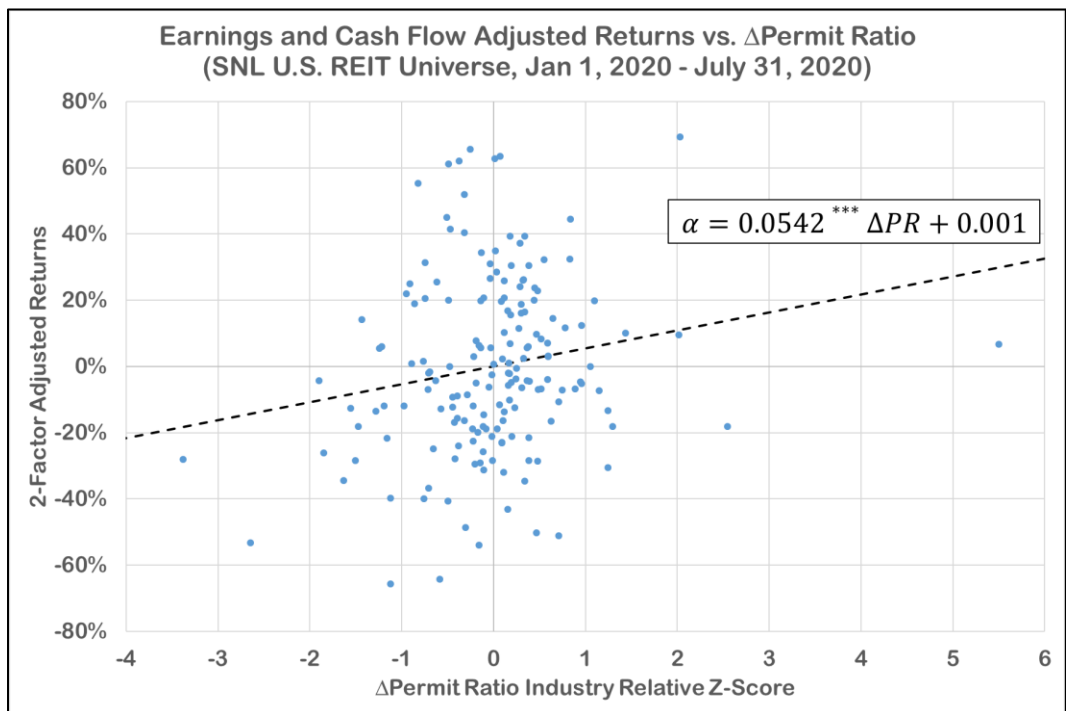
Appendix I. BuildFAX Permit Scores

The Δ Permit_Ratio was derived directly in SQL via the front-end to the Snowflake Xpresscloud database.

Code to generate the scores can be found on Github: <https://github.com/S-P-Quantamental/Just-the-Build-Fax-Property-Intelligence-from-Building-Permit-Data/tree/master>, in the README.md file.

Appendix II. Contemporaneous Return Adjustment

As noted in the literature,¹⁰ contemporaneous returns should be deflated by the year-on-year change in net income or cash flow. In this appendix, we show the regression results after adjusting returns for both factors in a 2-factor contemporaneously adjusted model. As shown below, the permit ratio score returns 542 bps per 1 standard deviation change in score and is statistically significant at the 99% level. Similar results were obtained when adjusting for either factor individually.



Source: S&P Global Market Intelligence Quantamental Research. Data as of Sept 16, 2020.

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*** The regression slope coefficient has a t-stat of 2.39, which is statistically significant with a p-value of 0.009.

¹⁰ Tortoriello, Richard, 2009. "Quantitative Strategies for Achieving Alpha." McGraw-Hill Finance & Investing.

Our Recent Research

July 2020: The Analyst Matrix: Profiting from Sell-Side Analyst's Coverage Networks

This report uses sell-side analysts' coverage data to build a connected-firm network (CFN) - a portfolio of companies that are covered by analyst(s) that follow a focal firm. This network has three broad applications: measuring the "strength" of economic relationships between companies; forecasting fundamentals of companies in the network; and as a stock selection signal. Key insights include:

- Connected-firm networks quantify the strength of relationships between companies in the network (Figure 1), unlike sector relationships which are binary
- The alpha signal constructed from the network is effective across most developed markets, with long-short returns ranging from 4.08% (Europe ex-UK) to 7.78% (US). Performance is also stronger within a universe of firms with the most complex networks (9.69%), vs. 6.02% for a universe of stocks with simple networks
- Models used to forecast EPS estimate revisions can be improved by incorporating the prior month's estimate revisions for all the stocks in the company's connected-firm network

May 2020 Research Brief: The Information Supply Chain Begins Recovering From COVID

May 2020 Research Brief: Never Waste a Crisis - Following the Smart Money through Beneficial Ownership Filings

May 2020 Research Brief: Risky Business - Foot Traffic, Vacancy Rates, and Credit Risks

May 2020 Research Brief: Finding the Healthy Stocks in Health Care During Lockdown

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

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

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

April 2020 Research Brief: Data North Star - Navigating Through Information Darkness

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

Examines the relationship between yield-oriented strategies (dividend yield, buyback yield, and combined shareholder yield) and future stock return, across multiple countries/regions. Also provides insights into two additional topics:

- Which company fundamental characteristics support and enhance future shareholder payouts?
- Under which interest rate environment should investors favor yield-oriented 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

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