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Impact of Debt Flows on Valuation

Real estate values are seemingly super cyclical in terms of capital market crises. That is, their values fall and rebound more than most other assets. This is seemingly a puzzle, as real estate has a market beta of 0.5-0.7, suggesting relatively muted asset value swings. We believe that this phenomenon is due to the fact that the beta of “everything” but Treasuries and gold “jumps” to about 1 during flights to quality. This beta jump process is driven by people selling everything and jam-

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ming into gold and Treasuries when they fear the world (as they know it) is coming to an end. This jump for low-beta assets drives down their values to a greater extent than most assets, as their low-beta “insurance” disappears in such circumstances. For real estate, this deteriorated beta is accentuated by the fact

that real estate is so capital intensive. When there is widespread fear that the capital markets will no longer exist, values of capital-intensive assets plunge, as there is no assurance that capital will be available. This is true even if property cash flows are little changed.

This beta jump process makes real estate values super cyclical on the downside, but it also allows for

a super-charged sector recovery as real estate’s beta reverts back to 0.5-0.7. As the fears of a capital markets collapse recede people return to their normal investment patterns. This means that real estate’s valuation premium (due to its fundamentally low beta returns) causes values to rise more than the broader stock market. This is reinforced by the return of capital flows to this capital-intensive sector after a period of capital starvation. The most recent period of capital starvation occurred during the Great Recession and was apparent in the cyclical declines in the Linneman Real Estate Index. (See “Real Estate Capital Markets” in this issue). By the same token, the rebound in the LREI was associated with real estate capital flows returning to normal.

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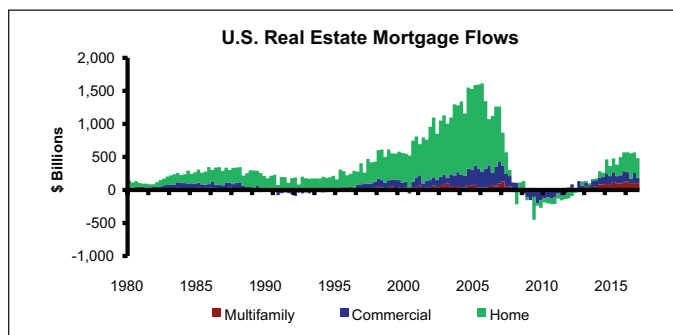


figure 1

These capital flights to safety and subsequent reversals are a major part of why our research finds no

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notable correlation between cap rates and interest rates, but rather finds a dramatic relationship between cap rates and capital flows as measured by the Linneman Real Estate Index. The lesson appears to be that when almost everything is viewed as equally

risky, capital-intensive assets previously perceived as safe havens particularly suffer.

In previous down cycles, when borrowers could not repay or service their debt due to recessionary pressures eroding their cash flows, banks had no capital adequacy cushion. As a result, banks were negatively impacted both in terms of cash flows and capital inadequacy when loans were not repaid. This not only depressed their earnings but also caused them to quickly rein in their lending activities in order to meet capital reserve regulatory standards. For example, in 2008, banks were at 100% lending capacity. Thus as systemic loan defaults occurred in 2008-2009, banks were forced to shrink their real estate loans by \$310 billion (18%) over 4 years.

In contrast, banks are at 39% lending capacity today. Thus, we believe the next capital downturn will play out differently (something we rarely say) from past recessions. When loans are not repaid, only the cash flow of banks will be affected, as meeting the capital adequacy stress test standards will not be an issue. Today's massive excess lending capacity should soften banks' retreat of capital that is usually triggered by a wave of loan repayments.

The impact of capital inadequacy has always been extremely punishing to capital-intensive sectors like real estate. This is because, on average, about 25% of outstanding mortgages mature each year. Imagine that initially, the loans coming due had a 70% LTV, and assume that the cost of debt and equity are 5% and 14%, respectively. As the economy dips, cash flow problems and systemic defaults occur. Capital reserve inadequacy causes banks to quickly reduce their loan book by as much as 20%. So if the banking system had roughly \$430 billion of its \$1.73 trillion total book of loans rolling in each year, this 20% adjustment requires banks to reduce outstanding loans by \$346 billion over about 2 years. As a result, only \$516 billion of the \$860 billion which matures will be refinanced. This means 40% less debt will be on offer for two years, with LTVs on new loans in the 40% range, rather than 70%. This capital gap is not only difficult to fill, but the difference between the capital cost of the first mortgage debt and equity is 900 bps (in our example). That is, the unfunded gap between the original mortgage balance and the new mortgage will be 900 bps more expensive than anticipated. Thus, the weighted cost of capital rises by roughly 250 bps, which is 25-50% of the original weighted cost of capital.

This example illustrates why property values can quickly plummet by 25-50% in times of trouble, even though NOI declines are much smaller. It is important to understand that the full brunt of this reduction in lending falls on those borrowers whose loans mature during periods of tapered lending. But once banks have adjusted their loan books, they can resume 70% LTV lending, causing the weighted cost of capital and cap rates to revert. Most recently, by 2017, bank real estate lending was back to its normal peak of \$1.73 trillion, up 44% from its 2012 low and equal to the total in 2008. This recovery of nominal loan values is roughly a 20% real reduction, which serves a 33% larger nominal GDP.

The Fed has seemingly decided to run off their balance sheet over an undetermined period. The impacts of their extreme quantitative easing (QE) policies are largely unknown. The best studies show an impact of 10-50 bps in long-term interest rates, and no studies show any notable economic growth impact.

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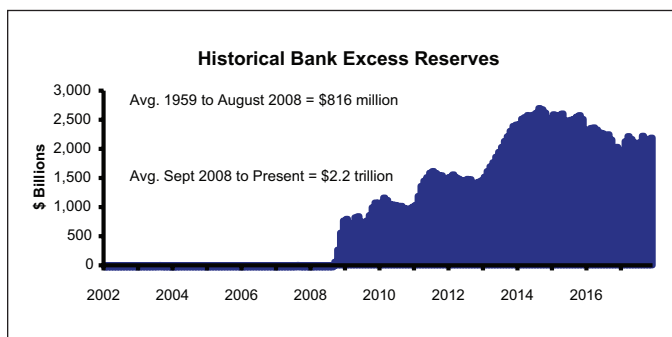


figure 2

QE has clearly distorted where money flows, favoring those whose assets are purchased. But QE is like cold medicine, treating symptoms and making you feel you are “doing something” rather than like an antibiotic that makes a clear difference when you have an infection. The Fed is now trying to extricate itself from a position no one dreamed would have existed prior to when “unconventional” monetary policies were implemented.

Asset values, including those for real estate, can continue to hold as the Fed has pumped in massive amounts of money. How much money was pumped in by the Fed? Before QE began, the monetary base was about \$840 billion. By the end of 2014, it was \$3.9 trillion, where it has essentially remained. The Fed’s game for this nearly five-fold increase was always to artificially pump values up with massive liquidity in order to give time for “profits”

to catch up. Thus, values could easily stay at current levels unless large amounts are withdrawn from the economy, which appears to be highly unlikely.

Real estate as an asset class reacts quite differently to global economic shocks than the broader stock market. During the Russian Ruble Crisis in 1998, the S&P 500 fell 14.6% during the month of August, while the DJIA and NASDAQ Indices fell 15.1% and 19.9%, respectively, and the DJ Equity REIT Index only fell by 10.0%. Following the terrorist attacks of September 11, 2001, the S&P fell 8.2% by the end of the month, while the DJIA, NASDAQ, and DJ Equity REIT Indices fell 11.1%, 17.0%, and 4.6%, respectively. This episode

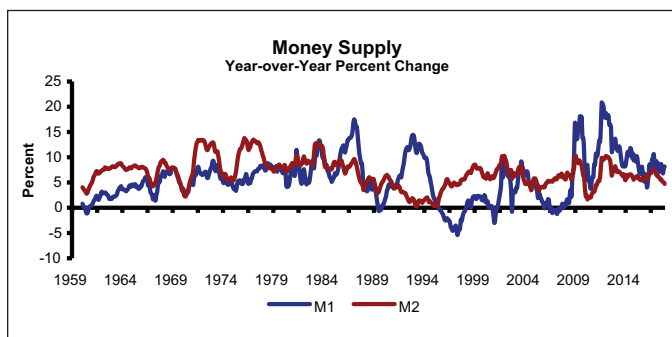


figure 3

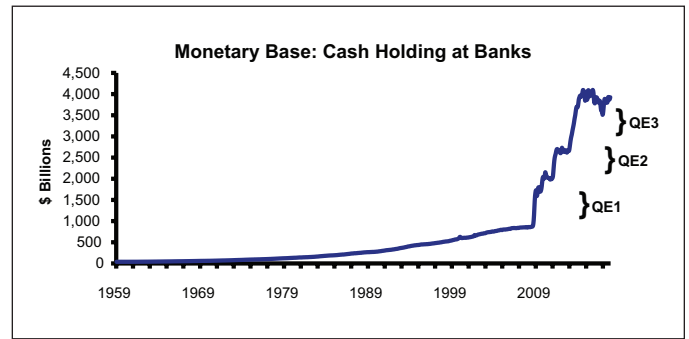


figure 4

was clearly a “beta jump” flight-to-safety result. At the lowest point of the Financial Crisis, the S&P had a peak year-over-year decline of 44.8% in February of 2009, as compared to declines of 42.4% for the DJIA, 39.3% for the NASDAQ, and 59.6% for the DJ Equity REIT. Thus, the NASDAQ declined the most in response to the external shocks of the Ruble Crisis and 9/11, but declined the least during the Financial Crisis. Alternatively, the DJ Equity REIT Index was the least vulnerable during the first two crises, but declined the most during the latest recession due to the implosion of the mortgage market. The S&P and the DJIA each experienced similar, middling declines after each crisis.

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Similarly, each index experienced different recoveries following each crisis. After the Ruble Crisis, the indices bounced back rather quickly, boosted by the dot-com boom. The S&P posted a 20.9% gain in the fourth quarter of 1998, while the DJIA grew by 17.1%,

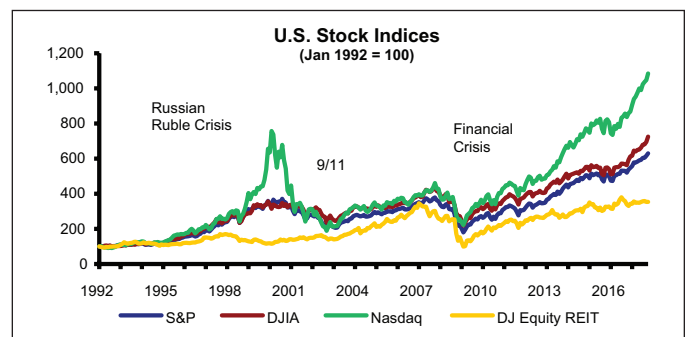


figure 5

and the NASDAQ soared 29.5%. The DJ Equity REIT, on the other hand, declined 4.2% over the quarter, and would continue to fall into the year 2000. There was no immediate recovery for any of the indices following 9/11, as it occurred while the dot-com bubble was bursting. The S&P, DJIA, and NASDAQ bottomed out in the third quarter of 2002, while the DJ Equity REIT continued its slide for another quarter. Following the bust, the S&P posted a 32.2% gain during 2003, while the DJIA, NASDAQ, and DJ Equity REIT grew 30.2%, 56.4%, and 37.7%, respectively. After bottoming out from the Financial Crisis in February 2009, the S&P would subsequently post a 50.3% year-over-year gain over the next 12 months, as compared to 46.2%, 62.4%, and 84.5% gains for the DJIA, NASDAQ, and DJ Equity REIT Indices, respectively. The superior REIT performance during this recovery reflected a normalization of its beta.

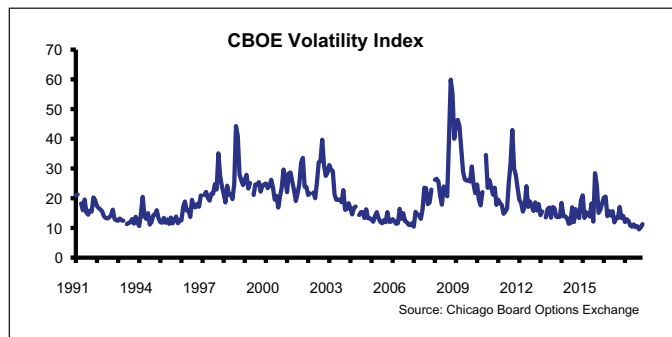


figure 6

About Dr. Peter Linneman

Dr. Linneman, who holds both Masters and Doctorate degrees in economics from the University of Chicago, is the Principal of Linneman Associates. For over 30 years he has provided strategic and financial advice to leading corporations. Through Linneman Associates, he provides strategic and M&A analysis, market studies, and feasibility analysis to a number of leading U.S. and international companies. In addition, he serves as an advisor to and a board member of several public and private firms.

Dr. Linneman is the author of the leading real estate finance textbook, *Real Estate Finance and Investments: Risks and Opportunities*, now in its fourth edition. His teaching and research focuses on real estate and investment strategies, mergers and acquisitions, and international markets. He has published over 100 articles during his career. He is widely recognized as one of the leading strategic thinkers in the real estate industry, and was named among the top 30 “Most Influential People in Real Estate” by Commercial Property Executive in 2013.

He also served as the Albert Sussman Professor of Real Estate, Finance, and Business and Public Policy at the Wharton School of Business at the University of Pennsylvania until his retirement in 2011. A member of Wharton’s faculty since 1979, he served as the founding chairman of Wharton’s Real Estate Department and the Director of Wharton’s Zell-Lurie Real Estate Center for 13 years. He is the founding co-editor of *The Wharton Real Estate Review*.

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