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What is This Document?

“We understand that some of our insights will never find their way into products, but we provide them in support of investors and the finance community.”

— ROB ARNOTT
CHAIRMAN & CEO

This is one in a series of plain-language white papers setting forth Research Affiliates’ building block approach to developing long-term capital market expectations by asset class. (For information about the objectives and guiding principles of our asset allocation initiative, please refer to “Capital Market Expectations: Methodology Overview,” the first of these white papers.) In working out our risk and return forecasts and making them publicly available, we keep three criteria in mind: transparency, robustness, and timeliness. By describing the conceptual framework and calculations behind the projected asset class risks, returns, and correlations in these papers, we hope to achieve a meaningful level of transparency without excessive details. By constructing simple, economically sound models for major asset classes, we strive to achieve a fitting standard of robustness for forecasting to a 10-year horizon. By initially refreshing our expectations on a quarterly basis, we seek to provide information that is updated with useful frequency. We will continue to refine our methods, extend the scope of our capital market expectations, and improve this documentation over time. The remainder of this document addresses how we think about REIT asset class returns from a building block perspective, and provides transparency into the methods employed to develop these return expectations.

Time Horizon

One of the major considerations when embarking on the journey to generate asset class return expectations is the issue of time horizon. Because the focus here is on generating capital market expectations for strategic asset allocation, and not tactical overlays, a significantly long time horizon of 10 years was selected.

The 10-year time horizon is not meant to imply a 10-year buy-and-hold strategy, but instead incorporates a strategy consisting of asset classes with constant duration targets. Said another way, asset classes with shorter durations (e.g., fixed income) need to be periodically rebalanced to maintain the constant duration. The rebalance period chosen here is one year which means that a two-year bond, for example, will be held for one year, at which time the bond with one year remaining to maturity would be sold and the proceeds used to purchase a new two-year bond. Asset classes with significantly long duration (e.g., equities) can be considered buy-and-hold because the change in duration from the passage of 1, 2, or even 10 years on these types of assets is minimal.
Real Estate Investment Trusts (REITs)

Asset Class Overview

The U.S. REIT industry started in 1960 when President Dwight D. Eisenhower signed the REIT ACT of the Cigar Excise Tax Extension and thus gave ordinary investors the ability to invest in real estate assets (REIT Industry Timeline: Celebrating 50 years of REITs and NAREIT, n.d.). The REIT tax status was historically used by mortgage companies but expanded to include firms investing in residential and commercial real estate assets. Coverage continues to expand today. In fact, from 1993 to 2006, the total equity REIT market capitalization increased 15-fold, from $26 billion to over $400 billion (Feng, Price, and Sirmans, 2011).

The so-called modern era of REITs began in 1992, and, from that time on, REIT managers have had an incentive to distribute as large a portion of taxable earnings as possible. In order to maintain REIT status (and the favorable tax standing it entails), a firm “is required to distribute dividends equal to at least: 90% of its REIT taxable income (excluding any dividends paid deduction and net capital gains), plus 90% of foreclosure income less the tax paid on that income, less certain excess noncash income” (Boudry, 2011). Any retained taxable income or net capital gains are then taxed at the corporate tax rate. In consequence retained earnings are not a major source of capital funding, as they are for many other financial services firms. Retained earnings account for only 7% of the capital used in REIT managers’ balance sheet expansion (Ott, Riddiough, and Yi, 2005).

From an investment perspective, there are three main categories of REITs in the marketplace today:

- **Equity REITS**
  Own real estate properties such as apartment complexes, shopping malls, storage facilities, office parks, etc.

- **Mortgage REITS**
  Make mortgage loans and create portfolios of mortgage-backed securities

- **Hybrid REITS**
  Combination of equity and mortgage REITs

There are a few hundred publically traded REITs today, with additional firms applying for REIT status all the time.

Because they are tied to real assets, namely real estate and other infrastructure, REITs should generate total returns that can be expected to keep up with inflation over time. Indeed, as Figure 1 shows, REIT total returns have provided inflation protection and much more. Since 1972, the FTSE NAREIT Index has grown roughly 10 times inflation.
There are a number of REIT indices that could be chosen to represent the REIT asset class. For the purpose of this modeling effort, the FTSE NAREIT All REIT Index was chosen and includes all REITs traded on the New York Stock Exchange, American Stock Exchange, and NASDAQ.

**Expected Return Methodology**

As an investment that represents real assets and trades on an equity exchange, the building blocks of REIT expected return are similar to both equities and real fixed income assets proxied by U.S. Treasury Inflation Protected bonds (U.S. TIPS). In particular the yield and growth building blocks are modeled similarly to equities, whereas the change in valuation is based on maintaining a valuation spread above other real assets.

Real REIT Return = Dividend Yield + Dividend Dilution + ΔValuation Based on TIPS Spread
REITs are long-maturity assets modeled using the current dividend yield. Due to the nature of the industry, REITs incur large non-cash expenses on their income statements to account for things like depreciation of capital assets. Because these non-cash expenses are so large in relation to other expenses, changes in earnings do not provide a good estimate of the growth of a REIT. Therefore, in lieu of modeling earnings-per-share growth, we project the growth of dividends per share (DPS). It turns out that DPS growth has historically been negative due to debt expansion and share proliferation used to pay for less profitable expansion. The result is a negative growth rate (also known as a dilution rate). The valuation component is based on maintaining a spread above long maturity U.S. TIPS.

**YIELD**

As mentioned in the asset class overview above, in order to maintain REIT status, firms must return a large portion of their taxable income to investors in the form of dividends. Even with this restriction, firms still have some flexibility in deciding the total amount of dividends to pay out. The difference between total dividends paid and IRS mandatory dividends, sometimes called excess dividends (Hardin and Hill, 2008), arises from the fact that large non-cash expenses such as depreciation cause taxable income to be far less than annual funds from operations (FFO).

It has been estimated that between 18% and 35% of REIT dividends fall into this excess category (Boudry, 2011). This means that although REIT boards of directors and executives, like their equity counterparts, will attempt to smooth dividends over time, there is a risk they could cut dividends significantly during crises without breaching the minimum 90% threshold.

As with equities, because REITs are an extremely long-lived asset, current dividend yield is a good measure to use when forecasting yield because an investor can retain a near constant time-based exposure without rebalancing. Changes in yield are then captured through the other building blocks.

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1 Investment firms often look at funds from operations (FFO) and adjusted funds from operations (AFFO) when estimating the value of REIT companies. FFO and AFFO could be used as alternatives to DPS growth.
As Figure 2 shows, historically, the FTSE NAREIT All REIT Index has had an average annual yield of 7.5%. Yield has been falling over the past decade because prices have appreciated faster than dividends. As of Summer 2014, the dividend yield of the REIT index is below 5%.

DIVIDEND DILUTION

Although REITs on average have high dividend yields, nominal DPS have not grown as fast as inflation. In fact, as Figure 3 shows, nominal DPS have been roughly flat over the last 40 years, while the underlying price level has risen.
Although total dividends of the REIT indices have been increasing, the major driver of flat nominal DPS has been an increase in the denominator, the number of shares outstanding. As previously mentioned, only 7% of capital expenditures are funded through retained earnings; the remaining 93% are funded through the debt and equity security markets. As REITs look to upgrade existing properties, or purchase new ones, they access funding sources by issuing both debt and new shares. When capital expenditures generate income at a lower rate than the pre-existing portfolio, existing shareholder value is diluted. Total value is shared with the new shareholders.
Figure 4 displays real annual DPS since the start of the REIT index, along with a long-term and a shorter-term trend line. The long-term trend line shows an annual reduction in dividends per share of -3.7% per year. Much of the drop in real DPS comes from the early 1970s, with slower negative growth in more recent times. The shorter-term trend line shows that since 1990 real DPS payouts have fallen at a slower rate of -2.2% annually. This is the best estimate of forward dilution (negative growth).²

Real DPS Growth = Historical DPS Growth_{1990–Present} = –2.2%

**VALUATION CHANGE**

REITs, like other assets, have historically shown strong returns when prices are low and weaker returns (or losses) when prices are high. The key is to define prices as being high or low relative to some benchmark or reference.

² For comparison purposes, the FTSE NAREIT ALL Equity REIT Index has annual real DPS dilution of 1.75% since 1990.
point. Because REITs represent holdings of real assets, and should therefore appreciate in line with the price level, the benchmark level should also be based in real assets. The benchmark real asset used in this case is U.S. TIPS, specifically, the spread of REITs over U.S. TIPS. As Figure 5 shows, there is a positive correlation between the spread of the REIT dividend yield to 30-year U.S. TIPS and the annualized future 10-year return. Wide spreads lead to large returns and narrow spreads lead to smaller returns. Because narrow spreads mean high prices, this can also be expressed in more familiar terms: High prices lead to lower future 10-year returns.

**FIGURE 5**

*Average Spread to TIPS vs. Future 10-Year Return*

Translating this method into practical mathematics gives the log-form equation below. The coefficient of -0.05 represents a valuation reversion of 50% over a 10-year period.

\[
\Delta \text{Valuation} = -0.05 \times \ln \left( \text{TIPS Level}_{\text{Forecast}} + \text{Avg REIT Spread} \right) - \ln \left( \text{TIPS Level + REIT Spread} \right)_{\text{Current}}
\]

Readers of the white paper on equity methodology will note that equities are also real assets, but have a different valuation benchmark. This is because the value of equities in relation to inflation is dependent on the firm’s ability to pass along higher input costs to customers. A direct way to measure this is through the P/E ratio. In the case of REITs, rent increases to account for rising inflation are often built into long-term leases, making REITs act in a similar manner to TIPS, which also have automatic adjustments for changes in inflation.
Thirty-year TIPS, the longest duration TIPS commonly available, were chosen to match up with the long duration holdings in a REIT portfolio. Historically the average spread of REITs to 30-year TIPS has been about 3.5%. This average spread becomes the best long-term spread forecast (see Figure 6).

**FIGURE 6**

Spread of REITs to 30-Year TIPS

![Spread of REITs to 30-Year TIPS](image)

Source: Research Affiliates, based on data from REIT.com and Bloomberg

**Results**

Figure 7 shows the realized annual decomposition of returns from 1972 to 2014 versus the forecast as of Summer 2014 for the next 10 years. Clearly, the future looks much different than the past with an expected decline of 4.3% in total real return. The majority of this difference comes from the change in realized versus expected yields; the latter reflect lower expected interest rates than have been experienced in the past. Additional information on cash rate expectations can be found in the “Domestic & Foreign Cash Methodology Overview” document in this series.

4 The return decomposition shows a growth value of -3.9% versus -3.7% detailed earlier in this document. The difference is due to the fact that the -3.7% value is based on the trend of dividend growth over the period, whereas the -3.9% value comes from comparing the starting and ending values only.
FIGURE 7
Realized vs. Forecasted Real Returns

Source: Research Affiliates, based on data from REIT.com and Bloomberg
REFERENCES


REAL ESTATE INVESTMENT TRUSTS

Income from municipal securities is generally free from federal taxes and state taxes for residents of the issuing state. While subject to greater volatility, all fixed-income investments may be worth less than original cost upon redemption or maturity. Bond prices fluctuate inversely to changes in interest rates. Therefore, a general rise in interest rates can result in the decline of the value of your investment. High-yield bonds, also known as junk bonds, are subject to greater risk of loss of principal and interest, including default risk, than higher-rated bonds. Investing in fixed-income securities involves certain risks such as market risk if sold prior to maturity and credit risk especially if investing in high-yield bonds which have lower ratings and are subject to greater volatility. All fixed-income investments may be worth less than original cost upon redemption or maturity. Income from municipal securities is generally free from federal taxes and state taxes for residents of the issuing state. While the interest income is tax-free, capital gains, if any, will be subject to taxes. Income for some investors may be subject to the
There are special risks associated with an investment in real estate, including credit risk, interest-rate fluctuations and the impact of varied economic conditions. Distributions from REIT investments are taxed at the owner’s tax bracket.

Hedge funds or alternative investments are complex, speculative investment vehicles and are not suitable for all investors. They are generally open to qualified investors only and carry high costs and substantial risks and may be highly volatile. There is often limited (or even nonexistent) liquidity and a lack of transparency regarding the underlying assets. They do not represent a complete investment program. The investment returns may fluctuate and are subject to market volatility so that an investor’s shares, when redeemed or sold, may be worth more or less than their original cost. Hedge funds are not required to provide investors with periodic pricing or valuation and are not subject to the same regulatory requirements as mutual funds. Investing in hedge funds may also involve tax consequences. Speak to your tax advisor before investing. Investors in funds of hedge funds will incur asset-based fees and expenses at the fund level and indirect fees, expenses and asset-based compensation of investment funds in which these funds invest. An investment in a hedge fund involves the risks inherent in an investment in securities as well as specific risks associated with limited liquidity, the use of leverage, short sales, options, futures, derivative instruments, investments in non-U.S. securities, junk bonds and illiquid investments. There can be no assurances that a manager’s strategy (hedging or otherwise) will be successful or that a manager will use these strategies with respect to all or any portion of a portfolio. Please carefully review the Private Placement Memorandum or other offering documents for complete information regarding terms, including all applicable fees, as well as other factors you should consider before investing.

Buying commodities allows for a source of diversification for those sophisticated persons who wish to add commodities to their portfolios and who are prepared to assume the risks inherent in the commodities market. Any purchase represents a transaction in a non-income-producing commodity and is highly speculative. Therefore, commodities should not represent a significant portion of an individual’s portfolio. Buying gold, silver, platinum and palladium allows for a source of diversification for those sophisticated persons who wish to add precious metals to their portfolios and who are prepared to assume the risks inherent in the bullion market. Any bullion or coin purchase represents a transaction in a non-income-producing commodity and is highly speculative. Therefore, precious metals should not represent a significant portion of an individual’s portfolio.

Trading foreign exchange involves a high degree of risk. Exchange rates between foreign currencies change rapidly do to a wide range of economic, political and other conditions, exposing one to risk of exchange rate losses in addition to the inherent risk of loss from trading the underlying financial product. If one deposits funds in a currency to trade products denominated in a different currency, one’s gains or losses on the underlying investment therefore may be affected by changes in the exchange rate between the currencies. If one is trading on margin, the impact of currency fluctuation on that person’s gains or losses may be even greater.

Investments that are concentrated in a specific sector or industry increase their vulnerability to any single economic, political or regulatory development. This may result in greater price volatility.

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