

Better with Age

The Role of Global Real Estate Securities in a Mixed-Asset Portfolio

By Todd Canter and David Hemmings*

Introduction

Nearly 20 years ago, when REITs were in their infancy and very few investors even considered adding REITs to their mixed-asset portfolios, a team of researchers produced some ground-breaking research¹ that demonstrated global real estate securities were an excellent source for diversification for a traditional mixed-asset portfolio consisting of stocks and bonds. Now, nearly 20 years later, one of those authors, Todd Canter, has returned with a new research team to revisit the topic to see if the story still rings true. (Spoiler alert: it does!)

This study builds on the previous research by analysing the investment characteristics of global stocks, global bonds, and global real estate securities over the time period 2000 to 2016, a very dynamic period capturing the rise of technology stocks, the proliferation of the REIT structure around the globe, the impact of terror related events on global stock markets as well as the time before, during and after the Great Financial Crisis (GFC). Analysis to be presented includes a comparative risk and return profile for all asset classes, correlations between asset classes, country correlations between property and equity, and an illustration of the impact of global real estate securities on a mixed-asset portfolio through the construction of efficient frontiers.

Ten major findings were uncovered and are presented in this paper.

1. The listed property sector has widened and deepened over the past 20 years.
2. Real estate securities have generated twice the risk-adjusted returns of global equities.
3. Property has outperformed equities in most countries.
4. In most countries, property to equity correlations have actually declined.
5. Across countries, real estate markets are less correlated than equity markets.
6. Investors gain more diversification from property than equity.
7. REITs **are** real estate.
8. The Great Financial Crisis inspired a new approach to portfolio construction.
9. REITs add return to a mixed-asset portfolio without adding risk.
10. The role of private and public real estate, working together, is even more firmly established.

¹ The Effect of International Real Estate Securities on Portfolio Diversification, The Journal of Real Estate Portfolio Management, Gordon, Canter and Webb, 1998.



We found that global real estate securities continue to play an important role as a portfolio diversifier, namely adding returns without adding risk. We also found during the GFC, diversification benefits fell but rebounded in the years following. Overall, the diversification story remains strong. For your consideration, we created a portfolio that would be more resilient during capital market disruptions with significantly lower volatility and enhanced downside risk protection. Finally, to answer the perennial question, “Are REITs real estate?” we also examined the terms structure of real estate and found the relationship between private real estate and real estate securities to be strong over medium to longer time horizons.

Finding 1: The listed property sector has widened and deepened over the past 20 years

One of the most striking comparisons of the current market to that of 20 years ago is the diversity of sectors now represented in the listed market. In 1997, the REIT market was dominated by “the four food groups,” office, retail, industrial, and residential. Since then, many more product types have been added or expanded, including health care, lodging, timber, self-storage, data centers, communication towers, movie theaters, and outdoor advertising sites.

While the market has clearly become “wider,” it has at the same time grown “deeper.” Exhibit 1 illustrates the available market capitalization and number of companies in the FTSE EPR \NAREIT Developed Index and the MSCI World Index. The indices studied are stated gross of withholding taxes and are in local currencies. The global real estate securities index has 334 companies from 21 countries with an equity market cap of \$1.34 trillion. The global equity index has 1,654 companies from 23 countries with an equity market cap of \$33.5 trillion. Twenty years ago, global real estate securities represented less than 3% of the global equity market whereas today it represents 4%.

Exhibit 1: Summary Statistics by Country (Real Estate Securities and Equities)

Country	Real Estate Securities		Country	Equities	
	# of Constituents	Float-Adjusted		# of Constituents	Float-Adjusted
		Market Cap			Market Cap
	12/30/2016	(Billions of USD) 12/30/2016		12/30/2016	(Billions of USD) 12/30/2016
Australia	13	75.9	Australia	71	919.1
Austria	3	4.6	Austria	5	26.9
Belgium/Luxembourg	7	7.0	Belgium	10	151.5
Canada	19	37.7	Canada	94	1,266.1
Finland	3	3.3	Finland	12	118.9
France	7	22.0	France	77	1,243.4
Germany	13	40.6	Germany	58	1,127.4
Hong Kong	14	93.1	Hong Kong	45	401.2
Ireland	3	2.3	Ireland	5	72.9
Israel	1	1.6	Israel	13	84.7
Italy	2	0.9	Italy	23	262.4
Japan	40	149.7	Japan	319	2,977.0
Netherlands	5	28.6	Netherlands	24	415.0
New Zealand	1	1.2	New Zealand	7	20.8
Norway	2	1.0	Norway	10	71.6
Singapore	12	27.8	Singapore	27	150.9
Spain	5	10.5	Spain	25	394.1
Sweden	12	15.6	Sweden	31	329.5
Switzerland	4	11.7	Switzerland	38	1,065.4
United Kingdom	35	59.7	United Kingdom	110	2,219.3
United States	133	749.3	United States	630	20,004.9
Global	334	1,343.4	Global	1,654	33,542.8

Source: Bloomberg, FTSE Russell, MSCI



Finding 2: Real estate stocks have generated more than twice the risk-adjusted returns of global equities

In our previous study, it was stated “that property markets tend to be more volatile and offer lower risk-adjusted returns than equity markets.” Although the risk relationship over the time period 2000 to 2016 is similar to our previous study, with real estate securities having higher risk than equities, the return relationship is quite different. As illustrated in Exhibit 2, the average annual returns for real estate securities is much higher at 8.9% versus equities at 3.6%. Real estate securities therefore offer a much higher risk-adjusted return, at 0.53, versus equities, at 0.25. During a time frame that included the events surrounding 9/11 and the Great Financial Crisis, global real estate stocks delivered a risk-adjusted return twice that of global equities. It would appear that the underlying lease structure associated with hard assets provided a more durable and reliable income stream for listed property companies, particularly in times of economic dislocations, which this time frame would have captured. It should be noted that the asset class offering the highest risk-adjusted return over this time period was neither global property securities nor global equities but rather global government bonds, at 1.40. In the most recent five year period, standard deviations for real estate securities have fallen to pre GFC levels, averaging 11.8%.

Exhibit 2: Return, Standard Deviation and Risk-Adjusted Return by Global Asset Class

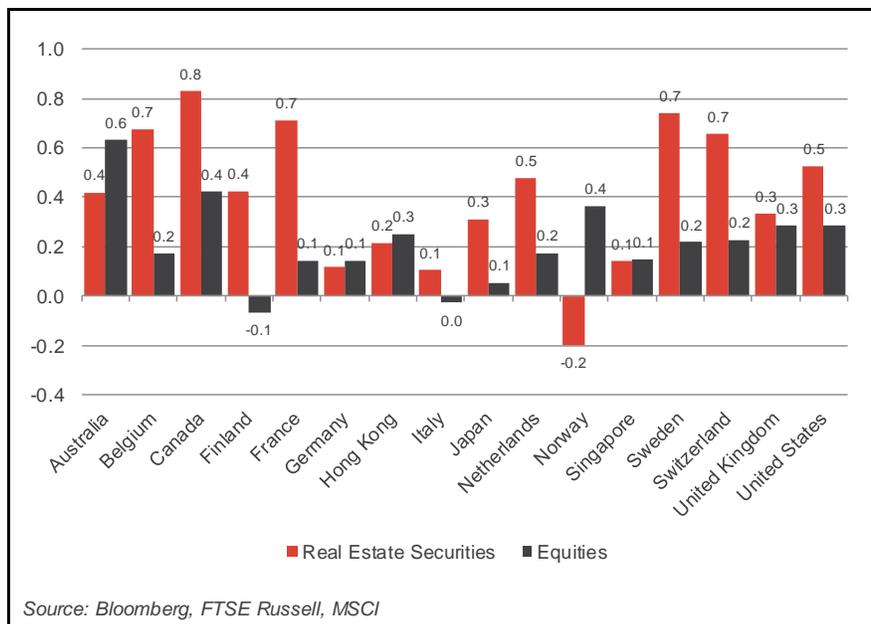
Global Asset Class	Average Annualized Return 2000-2016	Annualized Standard Deviation 2000-2016	Risk-Adjusted Annualized Return 2000-2016
Real Estate Securities	8.93%	16.98%	0.526
Equities	3.58%	14.12%	0.254
Bonds	4.34%	3.11%	1.396

Source: Bloomberg, EPRA, FTSE Russell, J.P. Morgan, MSCI

Finding 3: Property has outperformed equity in most countries

On a country by country level, as illustrated in Exhibit 3, real estate securities beat their corresponding broader equity markets by 2 to 1, on a risk-adjusted returns basis. This is demonstrably different from our previous study when, at a country level, broader equities beat their corresponding real estate securities sectors by a ratio of 6 to 1. Perhaps the proliferation of the REIT structure during this time period, with its reliance on reliable income streams and the distribution of income in the form of dividends, accounts for the difference in performance from our earlier study. In 1998 only a handful of countries had a working REIT structure in place and most non-REITs, particularly in Asia, were development companies with more volatile income streams. This is an issue left for further study.

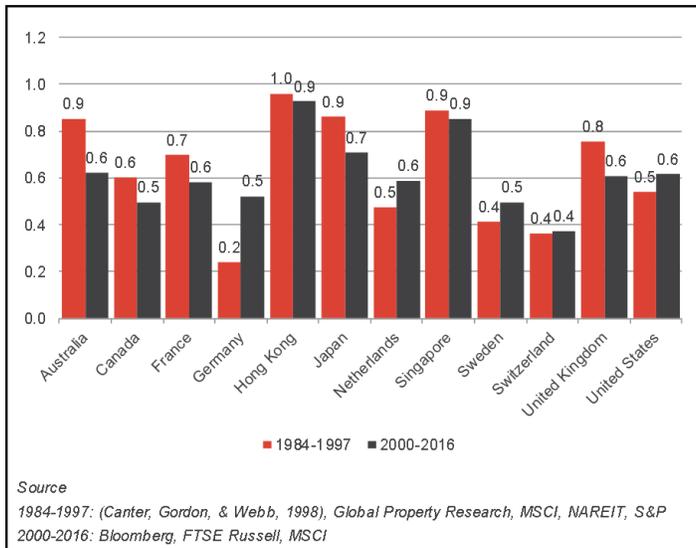
Exhibit 3: Risk-Adjusted Returns by Asset Class by Country (2000-2016)



Finding 4: In most countries, property to equity correlations have actually declined

Nearly 20 years ago in our previous study we questioned why investors around the globe would consider real estate securities when most of these investors already had an allocation to domestic equity in their mixed-asset portfolios. In order to answer that question we examined the correlations between each country’s real estate securities sector to its corresponding domestic broader equities market. We discovered that in most countries the domestic real estate securities sector was not perfectly correlated with its domestic stock indices. There was a wide range of correlations, from a low of 0.24 for Germany to a high of 0.96 in Hong Kong. We concluded that the addition of real estate stocks to a home market’s domestic portfolio added diversification benefits in varying degrees, depending on the country in question. With nearly two decades having passed since our prior study, and the pace of globalization and integration of markets rapidly advancing, we find in this study that correlations between a country’s listed property sector and its domestic stock market have gone down in most cases. Exhibit 4 illustrates that in Australia, Canada, France, Japan, and the U.K., the declines are material. In Singapore and Hong Kong the declines are slight. In Switzerland, the correlation is nearly the same. Only in Germany, the Netherlands, Sweden and the U.S. have correlations between its listed property sectors and general equity markets increased. In the case of the U.S., the correlation increased from 0.54 to 0.62, still considered moderately correlated. Even with increases in these four countries, this updated study suggests that within most of these countries (with the exceptions of Hong Kong and Singapore), the addition of real estate stocks to a home market’s domestic portfolio adds diversification benefits.

Exhibit 4: Real Estate Securities to Equities Correlations by Country



Finding 5: Across countries, real estate markets are less correlated than equity markets

Cross-country correlations also confirm potential risk-reduction benefits from the addition of global real estate securities.

Using the United States as an example, in all countries examined, the correlation between the U.S. and international real estate markets is less than the correlation between the U.S and the corresponding country’s equity markets. In almost all cases, the difference is material (see Exhibit 5). This is the same pattern found nearly 20 years ago in our previous study.

Exhibit 5: Cross Country Real Estate Securities and Equities Correlations (2000-2016)

International Real Estate Securities	US Real Estate Securities	International Equities	US Equities
Australia	0.565	Australia	0.718
Belgium/Luxembourg	0.483	Belgium/Luxembourg	0.689
Canada	0.713	Canada	0.777
Finland	0.612	Finland	0.629
France	0.616	France	0.818
Germany	0.530	Germany	0.801
Hong Kong	0.422	Hong Kong	0.669
Italy	0.412	Italy	0.687
Japan	0.377	Japan	0.597
Netherlands	0.613	Netherlands	0.785
Norway	0.427	Norway	0.732
Singapore	0.426	Singapore	0.686
Sweden	0.548	Sweden	0.711
Switzerland	0.533	Switzerland	0.755
United Kingdom	0.688	United Kingdom	0.844

Source: Bloomberg, EPRA, FTSE Russell, MSCI



Finding 6: Investors gain more diversification from property than from equity

Finally, on an aggregate basis, international real estate securities have a lower correlation with US equities than do international equities. The correlation to U.S. bonds is negative for both international real estate securities and international equities but more negative to international equities (see Exhibit 6).

Exhibit 6: Global Correlation Matrix (2000-2016)

	International Real Estate Securities	International Equities
US Equities	0.732	0.880
US Bonds	-0.120	-0.378

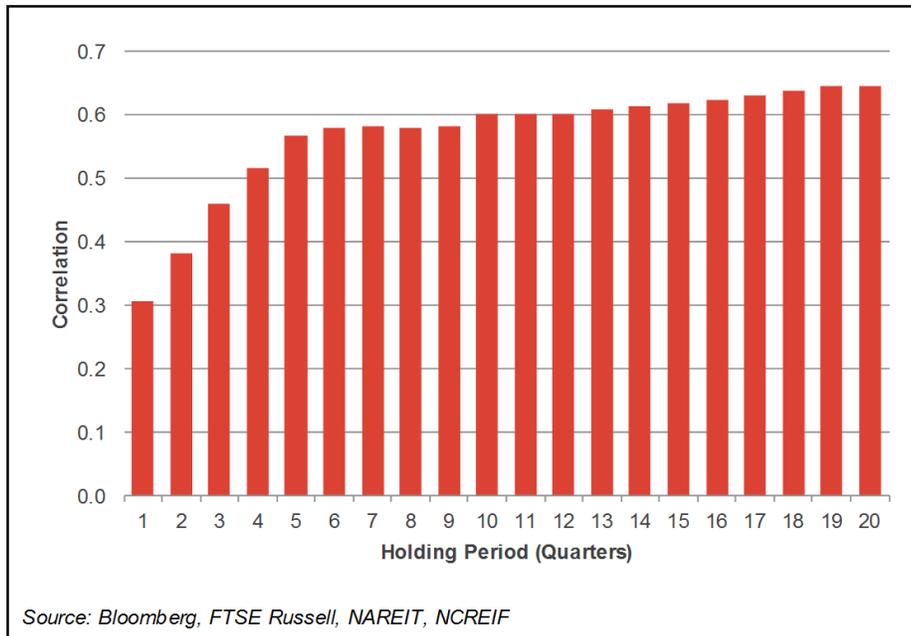
Source: Barclays, Bloomberg, EPRA, FTSE Russell, MSCI

The takeaway from this part of our analysis suggests that U.S. investors who are looking abroad to gain portfolio diversification through equities can do better by including real estate stocks than general equities. This is not to suggest that investors should displace their international equity allocations with real estate. Rather, this suggests that real estate stocks, because of the unique features associated with their underlying real estate assets, behave sufficiently differently than traditional equities and thereby offer international investors stronger diversification benefits. This was true in our 1998 study and this remains true today.

Finding 7: REITs are real estate

Much has been written on this topic and perhaps an effective way of answering this question is to explore the term structure (the relationship over time) of private versus public real estate. Using quarterly total returns from the NPI Index (the NCREIF Property Index measures unlevered returns for institutionally owned core real estate in the United States and is based on property appraisals) as well as NAREIT total returns (U.S. REITs), we can plot the term structure between private and public real estate in the U.S. As illustrated in Exhibit 7, the relationship between private and public real estate in the U.S. is strong, approaching 0.66, the longer the hold period. What does this mean? For investors with a longer time-horizon, REITs should be viewed as an effective proxy for direct real estate. Over shorter time-horizons (less than a year), REITs will likely be affected more by market “noise” as opposed to their underlying real estate.

Exhibit 7: Relationship between Private and Public Real Estate (1978 -2016)



Finding 8: The GFC inspired a new “Smarter” approach to portfolio construction

During the GFC, most listed stocks, including real estate, were caught up in a tsunami of volatility and increased correlations. The global real estate securities index declined by about 51% during 2007 and 2008, with standard deviations increasing to 22%. Correlations between global listed real estate and the broader global equities market increased to over 0.9. A closer examination of the returns within the global real estate securities index provides important insights into the behaviors of these companies. Factors including higher leverage, higher levels of business risk, and certain higher-risk property types were found to be the largest contributors to high volatility and downside risk. By controlling these factors (Exhibit 8), investors can mitigate downside risk and lower the volatility of their REIT portfolios relative to the real estate securities investment universe (see Exhibit 9). Had investors controlled these factors during the 2007 and 2008 downturn, return losses would have been mitigated and standard deviations would have been materially lower. A question may be asked, “How would this lower risk portfolio have performed coming out of the GFC?” “Would lower leverage, lower exposure to development companies and no exposure to hotels, for example, have impaired returns coming out of the GFC when markets were recovering?” As stated in Exhibit 9, the controlled, lower risk, “Smart” global real estate securities portfolio would have underperformed by a cumulative total of 390 basis points over the ensuing four years, post GFC, while outperforming by cumulative total of 1,540 basis points during the crisis, a tradeoff worth considering.

Exhibit 8: A Look at the “Smart” Portfolio Relative to the Index

FTSE EPRA/NAREIT DEVELOPED INDEX	"SMART" PORTFOLIO
<ul style="list-style-type: none"> • Sectors <ul style="list-style-type: none"> • Traditional (Retail, Residential, Office, Industrial, Healthcare) • Niche (Lodging, Self Storage, Data Centers) • Balance Sheet <ul style="list-style-type: none"> • LTV: 30-60% • Liquidity <ul style="list-style-type: none"> • High • Investment Focus <ul style="list-style-type: none"> • Investors • Developers • Managers • Volatility <ul style="list-style-type: none"> • Moderate to high • Downside Risk Exposure <ul style="list-style-type: none"> • Equal 	<ul style="list-style-type: none"> • Sectors <ul style="list-style-type: none"> • Excludes Lodging & Data Centers • Balance Sheet <ul style="list-style-type: none"> • LTV: <50% • Liquidity <ul style="list-style-type: none"> • High • Investment Focus <ul style="list-style-type: none"> • Investors • Limited exposure to developers • Volatility <ul style="list-style-type: none"> • Lower than the index • Downside Risk Exposure <ul style="list-style-type: none"> • Lower than the index

Exhibit 9: “Smart” Portfolio versus Index During and After the GFC

	FTSE EPRA/NAREIT Global Developed Index	“Smart” Global Real Estate Securities Portfolio
Downturn (2007-2008)	-51.4%	-36%
Initial Recovery (2009-2012)	101.7%	97.8%
Standard Deviation (2007-2015)	22.1%	17.3%



Pre & Post GFC Behavior

In the years following the global financial crisis, the investment characteristics of global real estate securities appears to be more in line with, or even more attractive than, the eight years preceding the GFC. Over the time period 2012 to 2016, standard deviations have fallen nearly in half, to 11.8%, from levels experienced during the financial crisis. This is in line with the trends in the years leading up to the GFC, at 12.7% (2000 to 2007). Correlations to equities have also trended down to 0.61, materially lower than experienced during the GFC but slightly above trends from 2000 to 2007, at 0.55. Setting aside the influence of the GFC on real estate securities, the spread of the REIT structure around the globe post 2000 may account for the more stable returns and lower correlation trends that were experienced in the eight years preceding the GFC and in the five years post the GFC. More time and data will need to be collected and additional study will need to be conducted to determine if this hypothesis is correct.

In addition to more favorable investment characteristics post the GFC, company level balance sheets are stronger. In the U.S., company level debt to market values declined to an average of 36.6% over the past five years versus 48% in the eight years preceding the GFC (FTSE EPRA NAREIT Developed Index). Interest coverage ratios have also improved to 3.9 times versus 2.9 times in the eight years prior to the GFC.

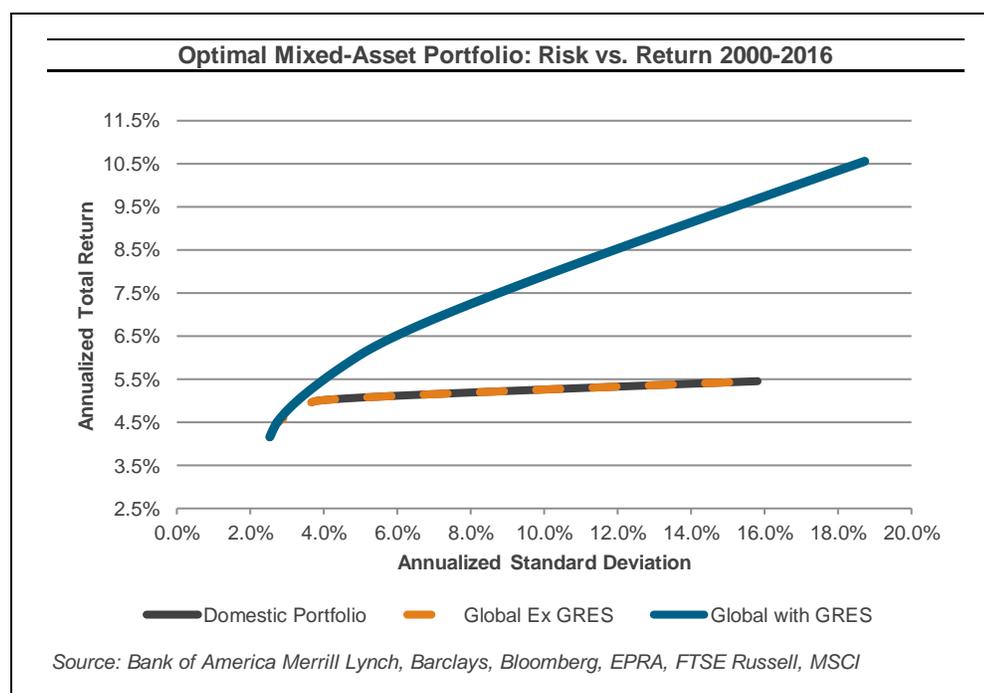
Finding 9: REITs add to portfolio return without adding risk

In order to estimate the extent of the diversification benefits of global real estate securities, historical average annual returns, volatilities and correlations of all assets in the model portfolio were used to construct a series of efficient frontiers. A portfolio is “efficient” when it offers the highest return for a selected level of risk, or alternatively, the lowest risk for a given level of return. Exhibit 10 illustrates three portfolios: the first is a domestic portfolio consisting of U.S. stocks and U.S. government bonds (domestic portfolio); a domestic portfolio with international equities and bonds but without global real estate securities (Global EX GRES); and finally, a domestic plus international equities and bonds with global real estate securities (Global with GRES). As illustrated in Exhibit 10 there is no benefit from adding international stocks and bonds to a U.S. domestic portfolio consisting of U.S. stocks and bonds. This is so because during the time frame analyzed international equities and bonds had lower returns relative to their counterparts in the U.S. while having only slightly lower risk. Moreover, the correlation between U.S. stocks and international stocks is high as is the case between international bonds and U.S. bonds. Therefore, no diversification benefits were gained from the addition of international equities and bonds.

Looking at global real estate securities, however, the results were dramatically different. The addition of global real estate securities to a mixed-asset portfolio results in significant diversification benefits. All along the risk spectrum there is a return benefit from the addition of global real estate securities. At a low level of risk, say 5%, overall portfolio return increases by 97 basis points by adding global real estate securities. At a 10% risk level, overall portfolio return increases by 264 basis points by adding global real estate securities. Finally, at a 15% risk level, portfolio return increases by 398 basis points by adding global real estate securities. In this model, there were no constraints placed on any of the assets. As a result of superior risk-adjusted

returns and moderate correlations relative to U.S. equities, global real estate securities were heavily weighted in the allocation of the optimal portfolio. In fact, U.S. stocks did not receive an allocation beyond the lowest levels of risk and return. In the real world, it is unlikely that an investor would exclude U.S. equities from a mixed-asset portfolio and allocate greater than 50% to global real estate securities. Therefore, if a maximum allocation of 10 percent is placed on global real estate securities then U.S. stocks will load at a maximum weight of about 60%, more in line with real world allocation decisions. Under this constrained scenario, the addition of global real estate securities results in incremental portfolio return of 51 basis points, holding risk constant. As demonstrated in both unconstrained and constrained scenarios, the addition of global real estate securities adds diversification benefits to a mixed-asset portfolio. Added returns without added risk.

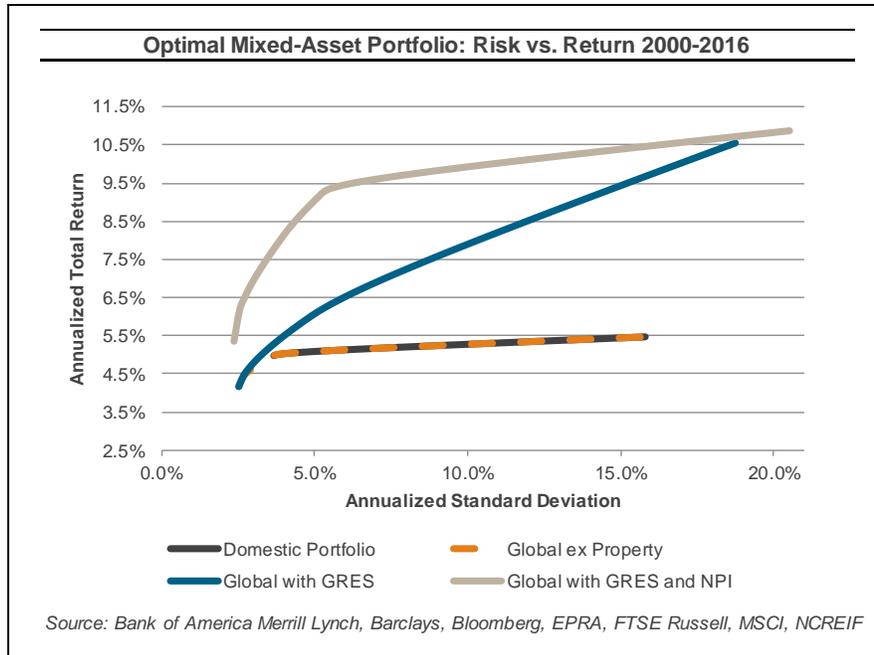
Exhibit 10: Unconstrained Efficient Frontier Analysis with Global Real Estate Securities



Finding 10: The role of private AND public real estate, working together, is even more firmly established

Earlier we examined the relationship between private and public real estate by looking at its term structure. We found the longer the hold period the stronger the relationship. We also found that real estate securities play a prominent role in a mixed-asset portfolio consisting of domestic and international stocks and bonds. Left unconstrained, real estate securities overwhelmed the model, adding as much as 398 basis points of incremental return while holding risk constant. By introducing private and public real estate to the same mixed-asset portfolio, the shift in the efficient frontier is even more dramatic. As illustrated in Exhibit 11, the addition of public and private real estate to a mixed-asset portfolio results in incremental returns ranging from 391 basis points to as high as 495 basis points relative to a global portfolio consisting of U.S. stocks, bonds, and international stocks and bonds.

Exhibit 11: Unconstrained Efficient Frontier with Public and Private Real Estate



The dynamic between public and private real estate, within a mixed-asset portfolio is interesting. At lower levels of risk and return, say at an 8% standard deviation for the overall portfolio, private real estate dominates, taking about 69% of the total real estate allocation. At higher levels of risk and return, say at a 14% standard deviation for the overall portfolio, public real estate dominates, taking about 65% of the total real estate allocation. The two forms of real estate “shake hands” at a standard deviation of 11%, with each consuming an equal 50% allocation of the total real estate allocation (Exhibit 12).

Exhibit 12: The Role of Public and Private Real Estate in a Mixed-Asset Portfolio

Portfolio Standard Deviation	% of Real Estate Allocation to Private Real Estate	% of Real Estate Allocation To Public Real Estate
8%	69%	31%
11%	50%	50%
14%	35%	65%

Conclusion

In our last study, we concluded that global real estate securities added significant diversification benefits to a mixed-asset portfolio. Twenty years have passed since our last study and during those twenty years we have experienced the rise of tech stocks, the spread of the REIT structure around the globe, the events surrounding 9/11, the creation and rise of the Euro, a financial crisis of a magnitude not experienced since the Great Depression, as well as the increasing globalization and integration of markets. Given this extremely volatile time period, particularly during the financial crisis, does the REIT story still hold? Do investors benefit from the addition of global real estate securities in a mixed-asset portfolio? What we found is that over the time period 2000 to 2016, global real estate securities delivered twice the risk-adjusted returns than global equities on an aggregate level and global real estate securities beat global equities at a country level by a two to one ratio. We also found that property to equity correlations declined over the past twenty in most countries. It is interesting to note that only in a few countries did correlations increase and one such example is found in the United States where property to equity correlations increased modestly.

From a U.S. perspective, the correlations between U.S. and international property markets are lower than the correlations between U.S. and international equity markets. For U.S. investors looking abroad to gain portfolio diversification, they can do better by adding international real estate securities than by adding international equities.

Most asset classes were caught up in the tsunami of volatility and increased correlations associated with the Great Financial Crisis. This was true for global real estate securities. What can investors learn from this once-in-a-lifetime event? During periods of capital markets disruption, avoid highly levered companies. Also avoid pure-play developers and higher-risk property sectors like hotels. Controlling for these factors would have reduced volatility by as much as 22% while reducing downside risk by as much as 1,540 basis points. Although volatility and correlations spiked during the GFC, in the years that followed the financial crisis, correlations have fallen back to a moderate level that we saw in the eight years preceding the crisis. Standard deviations are even lower in the years following the GFC than in the eight years preceding the crisis. It would appear that the investment characteristics of global real estate securities have normalized. Moreover, the amount of debt held by companies has materially declined in the U.S., from an average of 48% during the 2000-2007 time frame to 36.6% over the past five years. As a result, interest coverage at the company level has improved. The sector is stronger and more resilient today than in the eight years preceding the GFC.

To answer the frequent question, “Are REITs real estate?” we examined the term structure of private direct real estate and real estate securities. We found a sharp upward curve suggesting the longer the hold period the stronger the relationship, as high as 0.66. For investors who are holding real estate for three or more years, REITs are a strong proxy for real estate.

To quantify the diversification benefits of global real estate securities, a series of optimal portfolios were constructed, capturing a 16 year time period that was extremely dynamic and volatile. Over this time period, global real estate securities played a



important role in a mixed-asset portfolio at all levels of the risk and return spectrum. The addition of global real estate securities resulted in added portfolio returns without added portfolio risk.

We then tested the relationship between private and public real estate by including both in a mixed-asset portfolio to determine how they would interact. The addition of public and private real estate resulted in even higher incremental returns than just public alone. Portfolio returns increased by a range of 391 to 495 basis points, depending on the position along the risk curve. At lower levels of risk and return, private real estate had a more prominent allocation than public real estate. At a midpoint for risk, the real estate allocation was equally split between public and private real estate. For more growth-oriented investors, public real estate received a much larger allocation relative to private real estate.

As this study demonstrates, real estate securities, whether alone or in tandem with private real estate, play an important diversification role in the context of a mixed-asset portfolio.

** Todd Canter is the Global Portfolio Strategist for the National Australia Bank's Asset Management (NABAM) Group. David Hemmings is a senior analyst at Presima, a boutique real estate securities firm which is an affiliate of NABAM.*