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Nomura High-yield J-REIT Index

EQUITY QUANTITATIVE RESEARCH

New smart beta index for J-REITs

Global Markets Research

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Japan quantitative research

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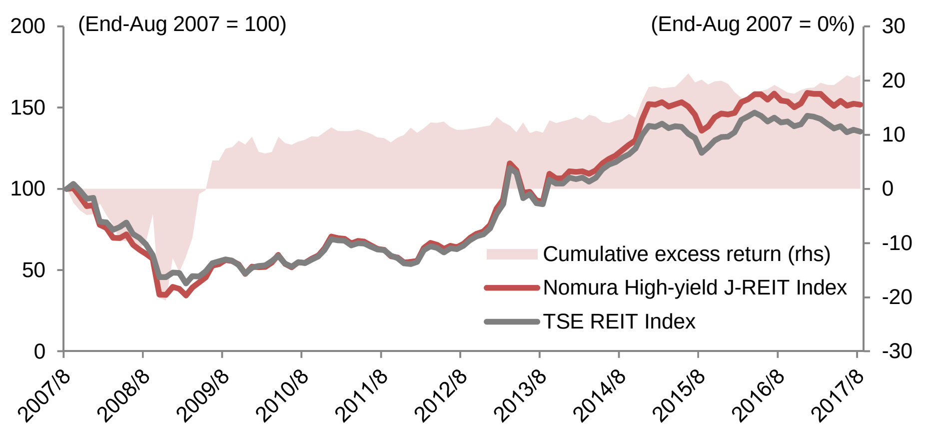
Index comprises J-REITs with high forecast dividend yields

One of the attractions of investment in J-REITs is their high dividend yields, and Nomura has developed the Nomura High-yield J-REIT Index in order to help investors to gain even more benefit from these yields. More specifically, the Nomura High-yield J-REIT Index was developed with the aim of enabling investors to achieve dividend-inclusive returns that are higher than the J-REIT market average while at the same time reducing their exposure to the risks associated with investment in individual J-REITs, through investment in multiple J-REITs with high forecast dividend yields even relative to other J-REITs. The 30-40 J-REITs with the highest forecast dividend yields are selected from among J-REITs that meet certain criteria in terms of factors such as market cap and market turnover. The index is a non-market-cap-weighted index, and the weights of individual J-REITs within the index reflect their yields, in order to increase the weighting of J-REITs with higher forecast dividend yields.

We regard the Nomura High-yield J-REIT Index as a smart beta index. On the equity markets, the tendency for stocks with higher dividend yields to outperform the market average is well known. Smart beta strategies, which involve quantitative investment based on characteristics that stocks known to outperform the market average tend to have in common (an example of which is high dividend yields), have been attracting a lot of attention in the past few years. In the J-REIT market too, J-REITs with high forecast dividend yields also tend to outperform the J-REIT market average. The Nomura High-yield J-REIT Index, which invests in high-dividend-yield J-REITs on the basis of quantitative criteria, in order to take advantage of these excess returns, can in our view be regarded as a smart beta index for J-REITs.

Investor demand for high yields has increased sharply since the BOJ introduced its negative interest rate policy at end-January 2016. In our view, financial products that track the Nomura High-yield J-REIT Index, which we think is likely to achieve dividend-inclusive yields in excess of the J-REIT market average by virtue of its focus on high-yield J-REITs, represents an option for investors looking for a way of meeting these investment needs.

Fig. 1: Performance of Nomura High-yield J-REIT Index



Note: Period of analysis is September 2007 through August 2017. We did not take transaction costs into account. Analysis is based on past performance and does not guarantee future performance.

Source: Nomura

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See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.

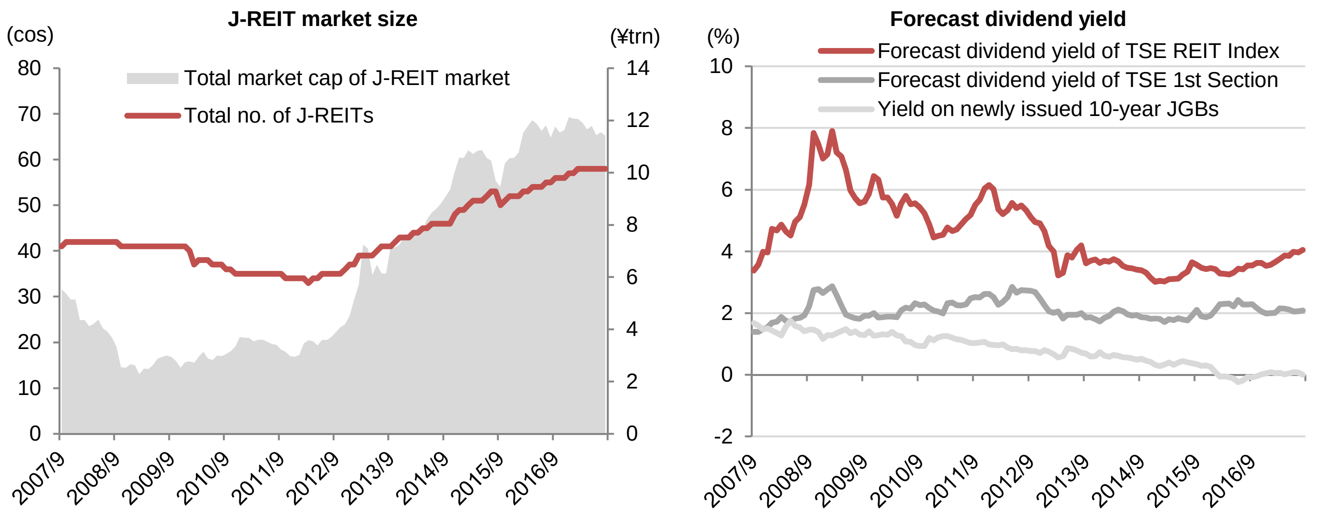
1. Forecast yields on J-REITs are relatively high

The first two real estate investment trusts (REITs) were listed on the Tokyo Stock Exchange in September 2001, and the Japanese REIT (J-REIT) market has continued to expand ever since. As of end-August 2017 the J-REIT market comprised a total of 58 listed J-REITs with a combined market cap of more than ¥11trn. Initially, J-REITs invested only in office buildings, but over recent years they have ventured into other types of real estate too, and as well as REITs specializing in office buildings there are now also REITs that specialize in residential facilities, REITs that specialize in commercial facilities, and REITs that do not specialize but instead invest in a variety of different types of real estate.

Figure 2 shows the size of the J-REIT market and forecast dividend yields over the past 10 years. It is clear from this exhibit that the J-REIT market has been growing since mid-2012 in terms of both the number of REITs and total market cap. Forecast yields for J-REITs are also notably higher than those for both Japanese equities and Japanese bonds. The average forecast dividend yield on REITs listed on the TSE as of end-August 2017 was around 4%, compared with the average forecast dividend yield for Japanese equities (TSE-1) of around 2% and the average yield on newly issued 10-year JGBs of around 0%.

These relatively high forecast dividend yields on J-REITs make them particularly attractive in the low-interest-rate environment that has prevailed in Japan since the BOJ introduced its negative interest rate policy at end-January 2016. The Nomura High-yield J-REIT Index was developed with the aim of enabling investors to achieve dividend-inclusive returns that are higher than the J-REIT market average while at the same time reducing their exposure to the risks associated with investment in individual J-REITs, through investment in multiple J-REITs with high forecast dividend yields even relative to other J-REITs. In our view, financial products that track this index represent an option for investors looking for a way of meeting their needs with respect to yields.

Fig. 2: J-REIT market size and forecast dividend yields



Note: Period of analysis is September 2007 through August 2017. Market cap-weighted averages used for forecast dividend yields for TSE REIT Index and TSE 1st Section.
Source: Nomura

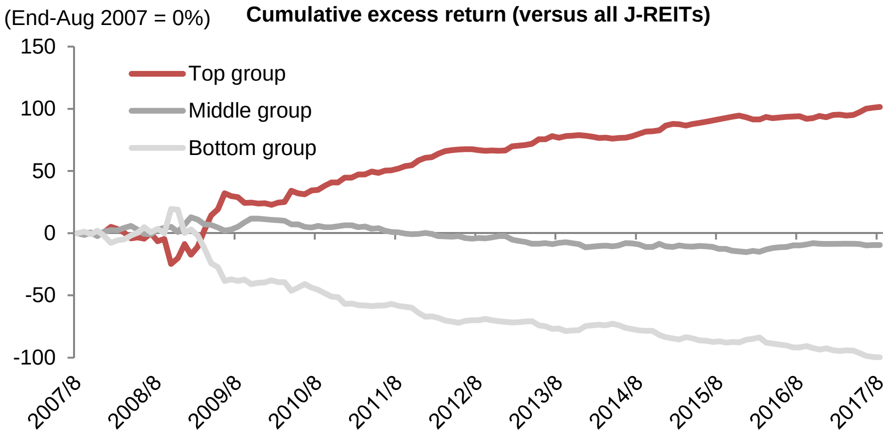
2. High-yield J-REITs tend to offer high returns

In this chapter we will look at the relationship between returns on J-REITs and their forecast dividend yields. We divided all J-REITs into three groups based on their forecast dividend yields at the beginning of each month and then compared the returns on each group.

It is clear from the results of this analysis, which we show in Figure 3, that J-REITs with higher forecast dividend yields tend to generate higher returns. This is in line with the historical tendency, on the equity markets, for high-yield stocks to outperform low-yield stocks. Quantitative investment based on characteristics that stocks known to outperform the market average tend to have in common, such as high dividend yields, is called smart beta investment. This kind of investment has recently been attracting a lot of attention, particularly among equity market investors. In the J-REIT market too, high-dividend-yield J-REITs (which correspond to high-dividend-yield stocks on the equity markets) also tend to outperform the market average, and the Nomura High-yield J-REIT Index, which invests in high-dividend-yield J-REITs on the basis of quantitative criteria, can in our view be seen as a smart beta index for J-REITs. The aim is that the index will achieve dividend-inclusive returns that are higher than the J-REIT market average, by virtue of the fact that high-yield stocks tend to generate not only high dividend yields but also high returns.

Nevertheless, Figure 3 shows that the high-yield group has not always generated high returns in the past. Around the time of the 2008 global financial crisis, the returns of the high-yield group and the low-yield group were reversed. This was a time of increased global concerns about creditworthiness in the financial markets as a whole and 2008 was also the year of the first (and, to date, only) bankruptcy of a J-REIT. There appears to be a tendency for high-yield J-REITs to have relatively low market caps and liquidity, and also relatively high credit risk, and we think this may have been the reason for their poor performance around this time. It is also possible that part of the strong performance achieved by high-yield J-REITs in the past might have been compensation for their high credit risk (ie, a risk premium). Investors should therefore be wary of these risk characteristics when investing in high-yield J-REITs.

Fig. 3: Performance of three equally weighted portfolios based on forecast dividend yield



Note: Period of analysis is September 2007 through August 2017. Figure shows returns including dividends. We divided the universe of all J-REITs (the benchmark) into three groups, with an equal number of J-REITs in each group, based on forecast dividend yield, and calculated the equally weighted return on each group. Figure shows cumulative excess return on each group versus the equally weighted return on all J-REITs (ie, the benchmark). We did not take transaction costs into account. Analysis is based on past performance and does not guarantee future performance.

Source: Nomura

3. Index performance and characteristics

Let us start this chapter by giving an overview of the Nomura High-yield J-REIT Index[1]. This index is a non-market-cap-weighted index comprising J-REITs with relatively high forecast dividend yields. A periodic reconstitution of the index is carried out once a year.

Figure 4 gives an overview of the index construction method. In the periodic reconstitutions, J-REITs are first screened for liquidity, and those with a low market cap or a low market turnover are excluded. Out of the J-REITs that have got through this screening process, 30-40 are selected in order of forecast dividend yield (highest first). Selected J-REITs with a higher forecast dividend yield are allocated a higher weight within the index.

Fig. 4: Overview of Nomura High-yield J-REIT Index construction method

	Nomura High-yield J-REIT Index
Selection universe	All J-REITs
Screening based on liquidity and other criteria	J-REITs that meet the following criteria are selected from the selection universe: • Top 98% of selection universe in terms of market cap • Top 95% of selection universe in terms of average daily turnover over the past 60 days • Listed for more than a year
No. of J-REITs selected	[No. of J-REITs that meet liquidity and other criteria] X 0.8 (rounded up or down to nearest whole number) Maximum 40, minimum 30
Selection criteria	J-REITs that pass the screening for liquidity and other criteria are selected in order of forecast dividend yield (highest first)
Weighting method	Weighted by "forecast dividend yield score (see note) X market cap" (weight of individual J-REITs is capped at 5%)
Periodic reconstitution	Carried out at the beginning of September each year

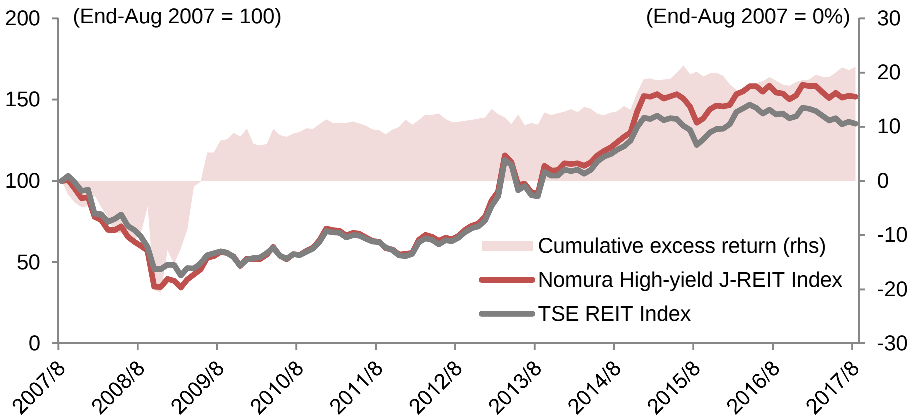
Note: Forecast dividend yield score is in the range of 0-1, based on forecast dividend yield, with a higher score indicating a higher forecast dividend yield.

Source: Nomura

Figure 5 shows the performance of this index, calculated on the basis of the rules set out above. In terms of absolute return (annualized), the index has generated an average return of 7.2%, with an annual standard deviation of 24.0%, over the past 10 years, making it a high-risk, high-return index compared with the TSE REIT Index. In terms of excess return, it has outperformed the TSE REIT Index by an average of 2.1ppt a year. However, at the time of the 2008 global financial crisis the Nomura High-yield J-REIT Index underperformed the TSE REIT Index. This is in line with the analysis results discussed in the previous chapter. Since 2009, however, the index has generated relatively stable excess returns.

[1] Please see our index rulebook, published on 8 September 2017, for details. The index rulebook and detailed information regarding the index are available on our website (in Japanese only): http://qr.nomura.co.jp/jp/nmjr/index.html

Fig. 5: Performance of Nomura High-yield J-REIT Index



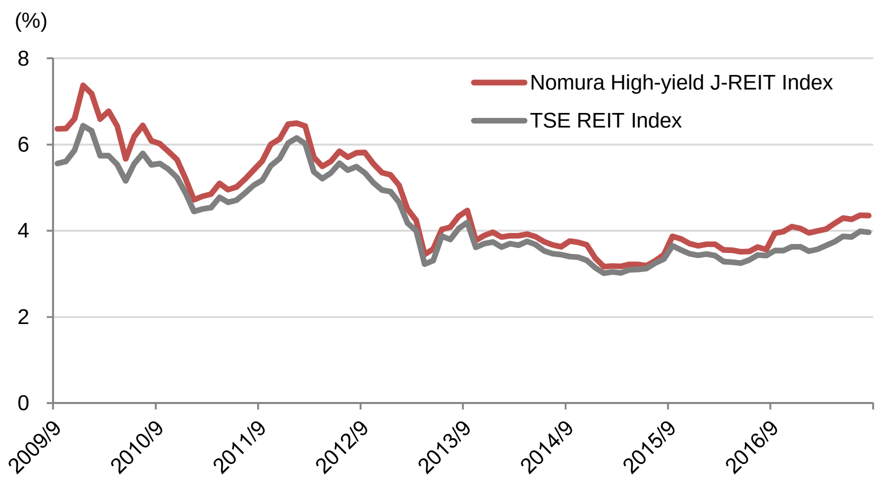
	Absolute return		Excess return
	Nomura High-yield J-REIT Index	TSE REIT Index	Nomura High-yield J-REIT Index
Average return (annualized, %)	7.22	5.11	2.11
Standard deviation (annualized, %)	23.90	20.46	7.59
Return/risk	0.30	0.25	0.28

Note: Period of analysis is September 2007 through August 2017. Based on monthly returns including dividends. We did not take transaction costs into account. Analysis is based on past performance and does not guarantee future performance.

Source: Nomura

Figure 6 shows forecast dividend yields for the Nomura High-yield J-REIT Index and the TSE REIT Index. It is clear from this exhibit that the Nomura High-yield J-REIT Index tends to have a higher forecast dividend yield than the TSE REIT Index, in accordance with the concept on which it is based.

Fig. 6: Forecast dividend yield on Nomura High-yield J-REIT Index



Note: Period of analysis is September 2009 through August 2017. Forecast dividend yields shown are the average forecast dividend yield at the end of the previous month for index constituents at the beginning of each month, with averages weighted in line with index weights.

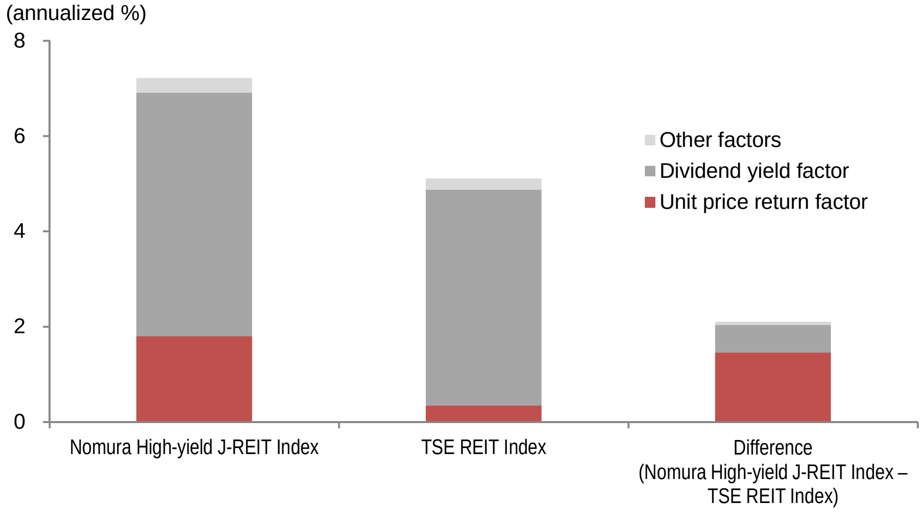
Source: Nomura

However, if we compare the Nomura High-yield J-REIT Index with the TSE REIT Index, we see that the gap between the two in terms of forecast dividend yield is smaller than the gap in terms of returns. Figure 7 breaks down dividend-inclusive returns on the

Nomura High-yield J-REIT Index and the TSE REIT Index into unit price returns and returns due to dividends. On average, over the past 10 years, the dividend yield factor has had the greater effect in the case of both indices. However, the majority of the difference between the two indices (ie, the excess return on the Nomura High-yield J-REIT Index versus the TSE REIT Index) is due to the unit price return factor. High-dividend-yield J-REITs thus generated high returns not only in the form of income gains, via their high dividends, but also in the form of capital gains, as their unit prices outperformed the J-REIT market average. This trend is the same as the high performance of high-dividend-yield stocks on the equity markets. Because of the combined effect of both income gains and capital gains, we can expect the Nomura High-yield J-REIT Index to generate excess returns versus the J-REIT market average that are greater than the difference between the two indices in terms of forecast dividend yield.

Fig. 7: Factor breakdown of dividend-inclusive returns on Nomura High-yield J-REIT Index

(Sep 2007–Aug 2017 average)

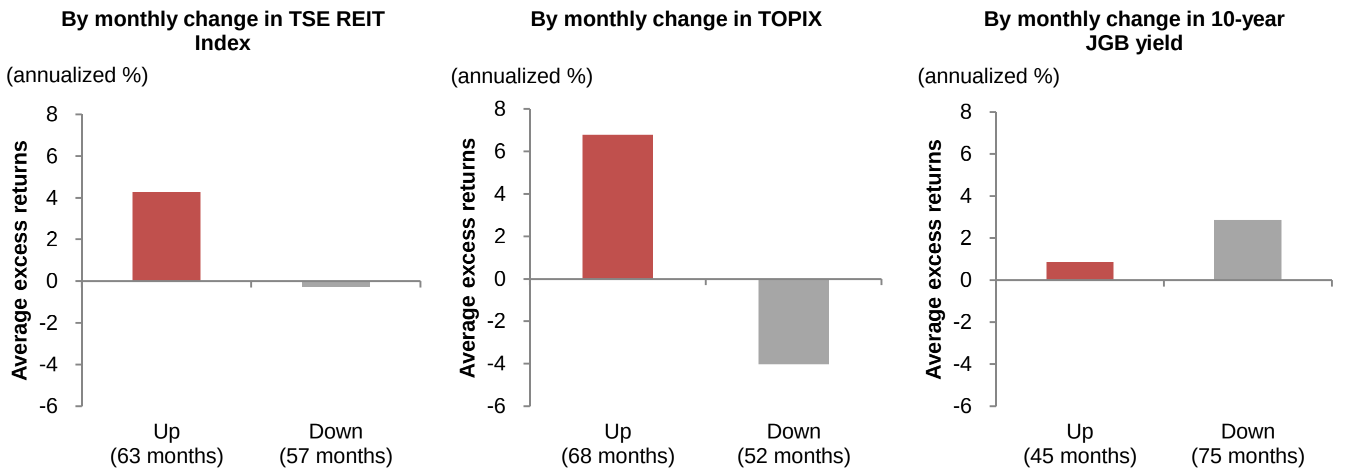


Note: Period of analysis is September 2007 through August 2017. Index returns are on a monthly basis. "Unit price return factor" is average return excluding dividends, "dividend yield factor" is average forecast dividend yield at the time of the periodic reconstitution (ie, at the beginning of September), and "other factors" is the average index return including dividends minus the total of the average index return excluding dividends and the average forecast dividend yield.

Source: Nomura

Figure 8 shows excess returns on the Nomura High-yield J-REIT Index versus the TSE REIT Index, broken down into months in which the market rose or fell. More specifically, the exhibit compares average returns in months of rises or falls in the J-REIT market, the Japanese equity market, and Japanese interest rates, respectively. It is clear from the exhibit that average excess returns were higher in months when the J-REIT market and the Japanese equity market rose and Japanese interest rates fell (ie, bond prices rose). It thus appears that high-dividend yield J-REITs tend to have a higher beta versus the J-REIT market and the equity and bond markets than the J-REIT market average. This might be linked to high-yield J-REITs' relatively high credit risk and liquidity risk. However, on average over the past 10 years, in months when the TSE REIT Index fell the high-yield index underperformed only very slightly, with the decline in the Nomura High-yield J-REIT Index coming in more or less in line with the decline in the J-REIT market average.

Fig. 8: Average excess return for the Nomura High-yield J-REIT Index versus the TSE REIT Index by market conditions
(Sep 2007–Aug 2017 average)



Note: Period of analysis is September 2007 through August 2017. Based on monthly returns including dividends. Figures in parentheses are number of months. Months of decline include months when there was no change.

Source: Nomura

We will end by looking at the characteristics of the J-REITs included in the Nomura High-yield J-REIT Index after the September 2017 periodic reconstitution.

As Figure 9 shows, compared with the TSE REIT Index the Nomura High-yield J-REIT Index has the following characteristics: high yield, value, small cap, and high profitability. It is well known that, on the equity markets, stocks with each of these characteristics tend to outperform the market average, but in our view it is very interesting that high-yield J-REITs should combine all these characteristics.

The J-REIT market has a much shorter history than Japan's equity markets, but we expect a number of different smart beta indices for the J-REIT market to emerge from now on, as the number of J-REITs continues to grow, as has already been the case for the equity markets. We hope that investors will use the Nomura High-yield J-REIT Index in order to achieve excess returns versus the J-REIT market average.

Fig. 9: Characteristics of Nomura High-yield J-REIT Index

	Nomura High-yield J-REIT Index	TSE REIT	Characteristics of Nomura High-yield J-REIT Index
Forecast dividend yield (%)	4.47	3.98	High yield
P/B (x)	1.32	1.39	Value
Average market cap (¥bn)	231.4	382.9	Small cap
Actual ROE (%)	5.72	5.23	High profitability

Note: As of end-July 2017. Shows respective averages for Nomura High-yield J-REIT Index and TSE REIT Index, with averages weighted in line with index weights. Forecast dividend yield and ROE figures are annualized. Forecast dividend yield figures are based on REITs selected in the 2017 periodic reconstitution. P/B is the inverse of the weighted-average net asset yield.

Source: Nomura

Appendix A-1

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When bonds are purchased via public offerings, secondary distributions, or other OTC transactions with Nomura Securities, only the purchase price shall be paid, with no sales commission charged. Bonds carry the risk of losses, as prices fluctuate in line with changes in market interest rates. Bond prices may also fall below the invested principal as a result of such factors as changes in the management and financial circumstances of the issuer, or changes in third-party valuations of the bond in question. In addition, foreign currency-denominated bonds also carry the risk of losses owing to factors such as foreign exchange rate fluctuations.
When Japanese government bonds (JGBs) for individual investors are purchased via public offerings, only the purchase price shall be paid, with no sales commission charged. As a rule, JGBs for individual investors may not be sold in the first 12 months after issuance. When JGBs for individual investors are sold before maturity, an amount calculated via the following formula will be subtracted from the par value of the bond plus accrued interest: (1) for 10-year variable rate bonds, an amount equal to the two preceding coupon payments (before tax) x 0.79685 will be used, (2) for 5-year and 3-year fixed rate bonds, an amount equal to the two preceding coupon payments (before tax) x 0.79685 will be used.
When inflation-indexed JGBs are purchased via public offerings, secondary distributions (uridashi deals), or other OTC transactions with Nomura Securities, only the purchase price shall be paid, with no sales commission charged. Inflation-indexed JGBs carry the risk of losses, as prices fluctuate in line with changes in market interest rates and fluctuations in the nationwide consumer price index.The notional principal of inflation-indexed JGBs changes in line with the rate of change in nationwide CPI inflation from the time of its issuance. The amount of the coupon payment is calculated by multiplying the coupon rate by the notional principal at the time of payment. The maturity value is the amount of the notional principal when the issue becomes due. For JI17 and subsequent issues, the maturity value shall not undercut the face amount.
Purchases of investment trusts (and sales of some investment trusts) are subject to a purchase or sales fee of up to 5.4% of the transaction amount. Also, a direct cost that may be incurred when selling investment trusts is a fee of up to 2.0% of the unit price at the time of redemption. Indirect costs that may be incurred during the course of holding investment trusts include, for domestic investment trusts, an asset management fee (trust fee) of up to 5.4% (annualized basis) of the net assets in trust, as well as fees based on investment performance. Other indirect costs may also be incurred. For foreign investment trusts, indirect fees may be incurred during the course of holding such as investment company compensation.
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In interest rate swap transactions and USD/JPY basis swap transactions ("interest rate swap transactions, etc."), only the agreed transaction payments shall be made on the settlement dates. Some interest rate swap transactions, etc. may require pledging of margin collateral. In some of these cases, transaction payments may exceed the amount of collateral. There shall be no advance notification of required collateral value or collateral ratios as they vary depending on the transaction. Interest rate swap transactions, etc. carry the risk of losses owing to fluctuations in market prices in the interest rate, currency and other markets, as well as reference indices. Losses incurred as such may exceed the value of margin collateral, in which case margin calls may be triggered. In the event that both parties agree to enter a replacement (or termination) transaction, the interest rates received (paid) under the new arrangement may differ from those in the original arrangement, even if terms other than the interest rates are identical to those in the original transaction. Risks vary by transaction. Please thoroughly read the written materials provided, such as documents delivered before making a contract and disclosure statements.
In OTC transactions of credit default swaps (CDS), no sales commission will be charged. When entering into CDS transactions, the protection buyer will be required to pledge or entrust an agreed amount of margin collateral. In some of these cases, the transaction payments may exceed the amount of margin collateral. There shall be no advance notification of required collateral value or collateral ratios as they vary depending on the financial position of the protection buyer. CDS transactions carry the risk of losses owing to changes in the credit position of some or all of the referenced entities, and/or fluctuations of the interest rate market. The amount the protection buyer receives in the event that the CDS is triggered by a credit event may undercut the total amount of premiums that he/she has paid in the course of the transaction. Similarly, the amount the protection seller pays in the event of a credit event may exceed the total amount of premiums that he/she has received in the

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