

Global property research
Solutions for customized property indices



GPR APREA COMPOSITE
Index Methodology

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1 GENERAL INFORMATION

In order to ensure the highest quality of each of its indices, Global Property Research (GPR) and Asia Pacific Real Estate Association (APREA) exercise the greatest care when compiling and calculating indices on the basis of the rules set out in this GPR APREA Index Construction & Maintenance Procedures.

However, GPR and APREA cannot guarantee that the various indices, or the various ratios that are required for index compilation and computation purposes, as set out in this GPR APREA Index Construction & Maintenance Procedures, are always calculated free of errors. GPR and APREA accept no liability for any direct or indirect losses arising from any incorrect calculation of such indices or ratios.

Decisions concerning the way its indices are calculated, as well as regarding their compilation, are always taken by GPR and APREA to the best of knowledge and belief. GPR and APREA will not be liable for any losses arising from such decisions.

The indices of GPR and APREA do not represent a recommendation for investment of whatever nature. In particular, the compilation and calculation of the various indices shall not be construed as a recommendation of GPR and APREA to buy or sell individual instruments, or the basket of instruments underlying a given index.

2 GLOSSARY

<i>Adjustment factor</i>	A multiplier to correct for changes in the intrinsic value of the stock not having return implications
<i>Base</i>	Initial value of the index
<i>Compiler</i>	Parties responsible for the management and maintenance of the indices
<i>De-merger</i>	Situation in which a company splits up in two or more entities, which may be floated
<i>Development activities</i>	Property holdings under construction
<i>Directors' holdings</i>	Shares held by the management and board of Directors of the company
<i>Ex-dividend date</i>	First trading date at which the holder of the stock is no longer entitled to receive the subsequent dividend
<i>Free float</i>	The number of shares outstanding considered to be available for trading on the stock market, excluding shares held by management, board of directors and block holders owning more than 5% of the companies' shares outstanding.
<i>Gross dividends</i>	Dividends before taxes
<i>Indicative values</i>	Values subject to change
<i>Investment activities</i>	Income generating property holdings, including land and hereby excluding investments in infrastructure assets, telecom towers and billboards
<i>Market capitalization</i>	Number of shares outstanding times the share price
<i>Nominee account</i>	A joint share account held by a financial institution aggregating various separate share holdings
<i>Operational turnover</i>	Recurrent income from activities
<i>Primary stock listing</i>	Quotation of the stock with the highest number of shares traded measured over a period of one year. In case no trading history over the past year is available the compiler will assign a primary stock listing
<i>Spin-off</i>	Situation in which a company disposes part of its portfolio by creating a separate entity, which subsequently may be floated
<i>Suspension of trading</i>	A temporary deferral of regulated trading
<i>Trading volume</i>	Share turnover expressed as the number of shares traded times the price of the shares in US dollars

*GPR APREA COMPOSITE Index
Calculation Procedures*

3 INTRODUCTION

- 3.1 This document contains the rules for the construction and maintenance of the GPR APREA COMPOSITE Index.
- 3.2 The GPR APREA COMPOSITE Index is a free float weighted index based on shares of the leading Asia Pacific property companies.
- 3.3 The GPR APREA COMPOSITE Index is composed in such a way that it is considered to be representative for the movements in the Asia Pacific property stock market.
- 3.4 The GPR APREA COMPOSITE Index is composed to reflect the performance of the leading Asia Pacific property companies. The following index variants are available:
 - .3.4.1. GPR APREA COMPOSITE Regional Index
 - .3.4.2. GPR APREA COMPOSITE Regional REIT Index
 - .3.4.3. GPR APREA COMPOSITE Countries Index
 - .3.4.4. GPR APREA COMPOSITE Sectors Index
 - .3.4.5. GPR APREA COMPOSITE REIT Sectors Index
- 3.5 Each index will require a minimum number of 5 constituents in order for its price to be computed. New indices may only be added as part of the GPR APREA COMPOSITE Index if the number of eligible property companies equals or exceeds five (5). Indices will be removed from the GPR APREA COMPOSITE Index if the number of eligible property companies falls below five (5).

4 COMPOSITION OF THE GPR APREA COMPOSITE INDEX

- 4.1 Only stock exchange quoted companies are eligible for inclusion in the GPR APREA COMPOSITE Index.
- 4.2 Companies are eligible when the free float market capitalization, calculated as the share price times the available amount of shares outstanding taking into account foreign ownership restrictions, is over 50 million US dollar for two consecutive months, and when the free float percentage is at least 15%.
- 4.3 Fast track inclusion rule: companies that result from IPO's will qualify for inclusion if their free float market capitalization exceeds 0.20% of the overall free float market capitalization of the GPR APREA COMPOSITE Index. If this is the case then the newly listed companies (IPOs) will be included in the index at the closing price at the end of the first day of trading. Since monthly trading volume in case of newly listed property companies (IPOs) is unknown at the time of inclusion, this Rule replaces Rule 2.2.
- 4.4 Companies are included for which at least 60% of operational turnover is derived from investment activities (property investment companies) or investment and development activities combined (hybrid property companies).
- 4.5 Operational turnover is determined using figures of the latest available financial statements of the property company. If operational turnover cannot be derived from these financial statements, then at least 60% of company assets that qualify as property assets will serve as the criterion to determine inclusion.
- 4.6 The GPR APREA COMPOSITE Index includes office, residential, retail, industrial, diversified, hotel and healthcare property companies. Whenever a company derives at least 60% of operational turnover from one specific property type, the compiler considers this company to be specialized in this property sector. For companies in the hotel and healthcare sector, it must be certain they are an investor and not an operator. The financial information needs to be clear on how the income is derived, from which activities. In case of doubt, the company will not be included.
- 4.7 The property stocks included in the GPR APREA COMPOSITE Index are assigned a base weighting derived from their free float market capitalization on the date of periodic adjustment.
- 4.8 Country weights are the sum of weighting factors of individual constituents in every country.
- 4.9 If a company derives over 75% of the operational turnover from one country, not being the country of its primary stock listing thereby not crossing continental borders, the company is placed in the index of the country in which the operational turnover is located. The primary stock listing will be determined by the security with the highest turnover.
- 4.10 In case of exclusion of a company from the index, the compiler will not assign another company for inclusion until the next rebalance unless the Index Committee determines otherwise.
- 4.11 Companies are included if the publication of audited annual reports and press releases are all available on their website. An annual report is defined as a current set of accounts consisting of a profit and loss statement, a balance sheet, a directors' review and full notes to the accounts.

5 CALCULATION OF THE GPR APREA COMPOSITE INDEX

- 5.1 The base date of the GPR APREA COMPOSITE Index is 31 December 1999 and the base value is 100.
- 5.2 The GPR APREA COMPOSITE Index, Regional indices and Country indices are calculated in EUR, JPY, LOC and USD. Sector indices will be available in USD.
- 5.3 The GPR APREA COMPOSITE Index is calculated as total return index and price index from Monday to Friday on the basis of property stocks' closing share prices on the stock exchange of primary listing.
- 5.4 The GPR APREA COMPOSITE Index total return index reflects gross dividend payments.
- 5.5 Share prices are established during normal, regulated trading on the stock exchange of primary listing. If a property stock has multiple listings only the primary listing will be considered. Primary listing describes the quotation of the stock with the highest number of shares traded.
- 5.6 Share prices used are most recent closing trade prices.
- 5.7 Dividends are included in the index at the ex-dividend date.
- 5.8 Dividends paid out by a company are immediately reinvested at the first index calculation.
- 5.9 Foreign exchange rates are WM Reuters rates.
- 5.10 If for any reason the stock price or a foreign exchange rate is not known or deemed to be unreliable the compiler will, after proper inquiries have been made with the relevant pricing source, calculate the index on the basis of the most recent price for that stock or foreign exchange rate which is known to the compiler.
- 5.11 Changes in free float will be implemented once a month, after close of trading on the third Friday of each month. The free-float thresholds are determined by Index Committee.
- 5.12 Free float changes will be reported at least one week before occurrence.
- 5.13 Historical time series from 1999 will be available as long as the indices have enough number of constituents.
- 5.14 The 20% cap rule: When one or more stock(s) is (are) a significant part of the constituent universe, representing more than 20% of the index weight, the index calculator will assign a maximum weight of 20% to those constituents.

6 PUBLICATION OF THE GPR APREA COMPOSITE INDEX

- 6.1 Index values are calculated from Monday to Friday on the basis of property stocks' closing share prices on the stock exchange of primary listing.
- 6.2 The compiler of the GPR APREA COMPOSITE Index reserves the right to delay publication of values of the index or to suspend or cease publication, if in its opinion circumstances prevail which prevent the proper calculation of the index.
- 6.3 The indices are rounded to two decimal places and published accordingly.

7 PERIODIC ADJUSTMENT OF THE GPR APREA COMPOSITE INDEX

- 7.1 The aim of the compiler of the GPR APREA COMPOSITE Index when making a periodic adjustment is to ensure that the weighting and selection of the component countries and property stocks remains in accordance with the basic principles of the Index, as described in chapter **Error! Reference source not found.**
- 7.2 Changes in the selection and base weighting of countries or in the selection of stocks will be announced on the first business day in March, June, September and December. This will be based on data as of the last business day of the preceding month.
- 7.3 The adjustments to the selection and base weighting of stocks and countries in the GPR APREA COMPOSITE Index will occur quarterly after trading hours on the third Friday in March, June, September and December.
- 7.4 Periodic adjustment to the selection and base weighting of stocks and countries included in the GPR APREA COMPOSITE Index may not change the historic value of the index.
- 7.5 In cases, which are not explicitly defined in the rules for periodic adjustment, periodic adjustment will be carried out in spirit of the aims mentioned in article 3.3. All adjustments must meet the criteria mentioned in chapter 2.
- 7.6 If a stock has multiple listings only the primary listing will be considered.

Company Structure Changes

- 8.1 In case of a merger or acquisition in which all of the companies involved are in the GPR APREA COMPOSITE Index, only one company will continue to be part of the GPR APREA COMPOSITE Index. The weight of this company is dependent on the free float market capitalization of the surviving company. Free float will be adjusted to publications following the offer. The compiler will not assign another company for inclusion. The final return will reflect the offer price.
- 8.2 In case of a merger or acquisition in which one of the companies involved is in the GPR APREA COMPOSITE Index and the other company does not meet the criteria as expressed in chapter 2, the company resulting from the activity will have to comply with these criteria in order for the company to remain included in the GPR APREA COMPOSITE Index. If the resulting company fails to meet these criteria, the company will be excluded. The final return will reflect the offer price.
- 8.3 After the occurrence of a de-merger of a company included in the GPR APREA COMPOSITE Index, both the original and/or the newly created entities will immediately become part of the index whenever the new entities meet the criteria of chapter **Error!**
Reference source not found.
- 8.4 After the occurrence of a spin-off of part of a company included in the GPR APREA COMPOSITE Index, only the original company will remain part of the index. The spin-off will be treated as an initial public offering.
- 8.5 In case of a suspension of trading in a company, the price of the share will remain the price of the last trade in the companies' shares, reflecting a zero return. The weight of the company in the GPR APREA COMPOSITE Index will remain unchanged. In case the suspension eventually leads to a bankruptcy, the loss of the investment will be taken on the filing date. Whenever the suspension continues for more than three consecutive months, the share price will be set at zero, assuming a total loss of the investment.
- 8.6 In case the REIT status of a (candidate) constituent is unknown, the constituent will also enter the GPR APREA COMPOSITE REIT Index only once the (candidate) constituent makes a formal announcement that is opts for, or complies with, REIT legislation in the country of primary stock listing. In case of Singapore business trusts, (candidate) constituents will be classified as REIT and consequently enter the GPR APREA COMPOSITE REIT Index only once the following criteria are both met:
 - .8.6.1. the (candidate) constituent derives at least 90% of operation turnover from investment activities (property investment activities);
 - .8.6.2. the (candidate) constituent must formally commit to distribute at least 90% of income as dividends.

Company Capital Changes

- 8.7 The amount of shares outstanding will be changed to reflect seasoned offerings and share repurchases at the day of occurrence.
- 8.8 If a company goes bankrupt, the index will reflect the return by setting the price at zero, in order to reflect a total loss of the investment.
- 8.9 In case of a stock split, a stock dividend, a poison pill, a rights issue or a bonus issue the number of shares will be adjusted. Furthermore, an adjustment factor is implemented to ensure continuity of return calculations.

- 8.10 In case of a merger or acquisition, whereby the target company remains listed on the stock exchange with a free float percentage of at least 15%, this target company will continue to be part of the Index when the offer has been declared unconditional. This article will be superior to articles 8.1 and 8.2.
- 8.11 In the event of a rights issue, an adjustment factor is implemented to ensure continuity of return calculations. If the rights issue is fully underwritten, then the newly issued shares will be included in the index at the closing price at the end of the ex-right date. If the rights issue is not fully underwritten, then the newly issued shares will be included in the index at the closing price at the end of the first day of trading. In case of doubt, the rights issue will be perceived as not fully underwritten.

9 FINAL PROVISIONS FOR THE GPR APREA COMPOSITE INDEX

- 9.1 Global Property Research and Asia Pacific Real Estate Association act as the compiler of the GPR APREA COMPOSITE Index.
- 9.2 The compiler of the GPR APREA COMPOSITE Index is responsible for the daily administration of the index. The compiler of the TR//GPR/APREA COMPOSITE Index is also responsible for decisions regarding the interpretation of these rules.
- 9.3 In cases for which the rules make no provision, but which require immediate action, the compiler of the GPR APREA COMPOSITE Index shall decide to the best of his ability and within the spirit of and in accordance with the aim of the rules.
- 9.4 These rules may be amended, which may also lead to a change in the GPR APREA COMPOSITE Index. There must be a period of at least three months between the date of publication of a proposed amendment and the date on which it comes into effect, unless the amendment does not conflict with any interest of the parties involved. No responsibility is accepted for damages arising from an amendment to the rules of the GPR APREA COMPOSITE Index.
- 9.5 The compiler of the GPR APREA COMPOSITE Index shall make every effort to safeguard the accuracy of the composition, publication and adjustment of the GPR APREA COMPOSITE Index in accordance with the applicable rules. However, the compiler of the GPR APREA COMPOSITE Index accepts no responsibility whatsoever for any inaccuracy in the share prices, the calculation and publication of the index, the information used to make adjustments neither in the GPR APREA COMPOSITE Index nor in the adjustments themselves.

Appendix

11.1 Calculating returns for individual companies

The returns for individual companies are calculated as follows:

$$r_{i,t+1} = \frac{p_{i,t+1} + d_{i,t+1} - p_{i,t}}{p_{i,t}}, \text{ where}$$

$r_{i,t+1}$ Return of company i in period $t, t+1$

$p_{i,t+1}$ Price of company i at time $t+1$

$d_{i,t+1}$ Dividend on company i at time $t+1$

$p_{i,t}$ Price of company i at time t

t Last trading day

11.2 Calculating weights of individual companies

The weight of companies in the index is derived as follows:

$$W_{i,t} = \frac{C_{i,t}}{\sum_{i=1}^{N_t} C_{i,t}}, \text{ where}$$

$W_{i,t}$ Weight of company i at time t

$C_{i,t}$ (Free float) market capitalization of company i at time t

n_t Number of companies that meet the inclusion criteria at time t

11.3 Calculating index

Total Return Index

The total return is a quantity which adjusts the price for issuance of dividends. When a company issues a dividend, the price of the equity drops in the exact amount of the per share dividend amount. Leaving aside subsequent market movements of the equity price, the impact of a constituent equity dividend upon an index is a drop in the price of the index. A companion index which is based on the total return adjusts the price-only index for the issuance of dividends by its constituents.

The total return index is computed as follows:

$$T_{t+1} = T_t \times \frac{\sum_{i=1}^{n_t} (p_{i,t+1} \times q_{i,t+1} \times e_{i,t+1}) + (d_{i,t+1} \times q_{i,t+1} \times e_{i,t+1})}{\sum_{i=1}^{n_t} (p_{i,t} \times q_{i,t} \times e_{i,t})}, \text{ where}$$

T_{t+1} Total Return Index at time t+1

T_t Total Return Index at time t

$q_{i,t+1}$ Float adjusted shares outstanding of company i at time t+1

$e_{i,t+1}$ Exchange rate from local currency of company i to base currency of the index at time t+1

$q_{i,t}$ Float adjusted shares outstanding of company i at time t

$e_{i,t}$ Exchange rate from local currency of company i to base currency of the index at time t

All quantities in the equation above are end-of-day quantities. The numerator is computed as per the ex-date for any dividends. A key point for this approach comes via the observation that the dividend is adjusted for solely on the ex-date and does not enter the computations (implicitly) after that date. To accomplish this on the day following the ex-date, a price-only version of the index's ex-date total value enters in the denominator (divisor) of the equation.

Corporate actions can be grouped in events that concern dividends (A), capital changes (B), mergers & acquisitions (C), exceptional market conditions (D), capital increases (E) and capital returns (F). Some Corporate actions are treated via an Adjustment Factor (AF).

Within the different groups the following different types of corporate actions are defined:

GROUP	Corporate Action	AF	Reference
A	Cash Dividend	N	Rule 5.7/Rule 5.8
A	Special Dividend	N	Rule 5.7/Rule 5.8
A	Stock Dividend or Scrip Dividend	Y	Rule 8.9
A	Optional Dividend	N	Rule 5.7/Rule 5.8
A	Bonus Dividend	Y	Rule 8.9
B	Share Split	Y	Rule 8.9
B	Share Consolidation or Reverse Share Split	Y	Rule 8.9
B	Share Redenomination	N	
C	Merger	N	Rule 8.1/Rule 8.2
C	Demerger	Y	Rule 8.3
C	Spin-off	Y	Rule 8.4
C	Acquisition	N	Rule 8.1/Rule 8.2
C	Takeover	N	Rule 8.1/Rule 8.2
D	Bankruptcy	N	Rule 8.5/Rule 8.8
D	Change of Primary Listing	N	
D	Suspension	N	Rule 8.5
D	Share Conversion	N	
E	Seasoned Offering	N	Rule 8.7
E	Rights Issue	Y	Rule 8.9
F	Capital Return or Capital Repayment	N	
F	Share Buy-Back	N	

Cash Dividend

Cash Dividends are payments made by a company to its shareholders. In case the Cash Dividend currency differs from the share price currency, the Cash Dividend will be converted using the prevailing foreign exchange rates.

Special Dividend

Special dividends are those dividends that are outside of the normal payment pattern established historically by the company. Whether a dividend payment is funded from operating earnings or from other sources of cash does not affect the determination of whether it is a special dividend. Instead, it is considered a Special Dividend when the market perceives it as a special dividend with dividends outside the normal payment pattern. In case the Special Dividend currency differs from the share price currency, the Special Dividend will be converted using the prevailing foreign exchange rates.

Stock Dividend or Scrip Dividend

Stock Dividend is a distribution of shares to shareholders as an alternative to a cash payment. In some instances the Stock Dividend can be optional, whereby the shareholder may choose the shares instead of a cash dividend payment. In this case the shares are issued for the value. An adjustment to the price and the Adjustment Factor is done on the opening of the ex-dividend date, and the number of shares is adjusted (increased) on the ex-dividend date after close of trading. When there is no cash alternative, the Stock Dividend represents a scrip/bonus issue and the Adjustment Factor should be calculated in the same way.

Optional Dividend

A company offers its shareholders the choice of receiving the dividend in cash or in stock. It is assumed that investors select the cash option a) on the ex-dividend date for those cases where a stated equivalent of stock is announced and b) on the pay-date for those cases where an undetermined amount of stock is announced based on earnings and profits to be distributed at a future date. Thus, the dividend is treated in the same way as Cash Dividend.

Bonus Dividend

A bonus is an offer of free additional shares to existing shareholders. A company may decide to distribute further shares as an alternative to increasing the dividend pay-out. An adjustment to the price and the Adjustment Factor is done on the opening of the ex- date, and the number of shares is adjusted (increased) on the ex-dividend date after close of trading.

Stock Split

Existing shares are subdivided into larger number of shares with an equivalent reduction in the Nominal Value of each share (where applicable). A Stock Split increases the number of shares in a company. The price is adjusted so that before and after this corporate event the market capitalization of the company remains the same and dilution does not occur. The number of shares, dividends and the share price are adjusted by the split factor on the ex-date. The share split does impact the Adjustment Factor as at the ex-date.

Share Consolidation or Reverse Share Split

A Reverse Share Split or reverse split is a reduction in the number of shares and an accompanying increase in the share price. The reverse split does have impact on the Adjustment Factor as at the ex-date.

Share Redenomination

The nominal value of existing shares in issue changes due to the change of currency. Therefore, the amount is converted using a set exchange rate.

Merger

A Merger generally means that two or more companies merge to form one larger company.

Demerger

A Demerger is the distribution of shares in a wholly-owned or a partially-owned company to the parent company's existing shareholders.

Spin-off

A Spin-off is the distribution of shares in a wholly-owned or a partially-owned company to new shareholders.

Acquisition

An Acquisition generally means the procurement of a controlling interest of more than 85% in one company by another company and the acquired company may continue to trade. Shareholders of the target company are offered cash and/or shares for their holding.

Takeover

A Takeover is also the acquisition of one company by another. However this term is normally – but not always – used to imply that the acquisition is made on the initiative of the acquirer and often without the full agreement of the acquired company. Shareholders of the target company are given cash and/or shares for their holding. A reverse takeover is the acquisition of a larger company by a smaller one, based on certain criteria such as turnover, profits or net assets. The mechanisms for carrying out an acquisition or takeover may be through a cash offer -fixed, open or tender-, a share exchange or a combination of both.

Bankruptcy

A company legally declares inability or impairment of ability to pay their creditors. Creditors may file a bankruptcy petition against a debtor in an effort to recoup a portion of what they are owed. However, in the majority of cases, bankruptcy is initiated by the debtor. After undergoing reorganization, a company is liquidated.

Change of Listing

If a company is delisted from the stock exchange within the universe of eligible stock exchanges for the index, there are two different options to consider: (i) the company's primary stock exchange listing changes to another stock exchange that is considered eligible for the index. There is no change in the index. (ii) The company remains unlisted, or the primary stock exchange listing changes to a stock exchange that is not considered eligible for the index. The company is removed from the index at its last closing price as shares would not be eligible for inclusion in the index.

Suspension

A security is removed at zero, assuming a total loss of the investment if a stock is suspended for full trading for at least three consecutive months. During those three months, the index calculation takes into account the last trading price for the security which is suspended.

Share Conversion

Share Conversion is the exchange of one form of shares for another form of shares of the same company.

Seasoned Offering

Seasoned offerings are an offer of shares to new shareholders. The number of shares is adjusted when the offered shares are effectively admitted to trading on the stock exchange.

Rights Issue

Shareholders are offered the right to buy new shares in proportion to their existing holding at a set offer price usually (but not always) at a discount to the market price. Rights are an offer of additional shares to existing shareholders. A company may decide to distribute further shares as an alternative to increasing the dividend pay-out. The rights issue does have impact on the Adjustment Factor as at the ex-date.

Capital Return or Capital Repayment

Capital repayments to shareholders is the return of all or any portion of the issued capital of a company in the winding up of operations or the return of capital in excess of a company's requirements. A capital repayment refers to payments that exceed the growth (net income/taxable income) of a business back to "capital owners", such as shareholders, partners or unit holders. The Capital Repayment is a transfer of value from the company to the existing owners.

Share Buy-Back

The repurchase by a company of its own shares, in order to reduce the number of shares in issue, usually at a set price either as a percentage of shares issued or ratio of shares held. A Share Buy-Back may be performed via a repurchase tender offer (to all shareholders), an open market purchase or a privately negotiated purchase. Share buybacks are implemented only under a tender offer form.

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