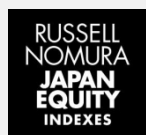


# Russell/Nomura Japan Equity Indexes rulebook

EQUITY QUANTITATIVE RESEARCH (INDEX)

**NOMURA**  
EQUITY RESEARCH

July 12, 2013



## Russell/Nomura Japan Equity Indexes have the following characteristics:

- They are equity indexes based on free-float methodology market capitalization that cover the top 98% of all listed stocks in terms of float-adjusted market capitalization, thereby offering broad market coverage.
- In addition to stocks listed on the Tokyo Stock Exchange First Section (TSE-1), they include stocks listed on JASDAQ and other exchanges.
- Since the indexes are float-adjusted, they reflect the stocks that are actually available for investment.
- There are style indexes for large and small companies and for growth and value stocks.
- A Prime Index structured for passive investment is included.
- Stocks are selected quantitatively based on clearly defined criteria.

## Key rule changes and additions

- Change to method for reflecting dividends in calculation of index values including dividends (see 6-1-2).
- Addition of indexes adjusted for dividend tax (see 6-1-4).

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### Japan index products

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

# 1. Summary

Asset management has become more important in recent years, giving rise to management styles tailored to different investors' needs. Investors also want to be able to exercise more control over their own portfolios. Russell Investments and the Quantitative Research Center, Nomura Securities Co., Ltd., have responded to these trends by developing and publishing Russell/Nomura Japan Equity Indexes that can be used by investors employing a variety of different investment styles.

Russell/Nomura Japan Equity Indexes should be useful in:

- Determining investment strategies
- Determining manager structures
- Devising asset management benchmarks
- Supporting portfolio management activities
- Evaluating the performance of various investment styles
- Managing risk

Russell/Nomura Japan Equity Indexes have the following characteristics:

- They represent the entire Japanese equity market in that component stocks are selected from among all listed stocks (including those on the JASDAQ market)
- They reflect the stocks that are actually available for investment, as market capitalization takes the stable shareholdings ratio into consideration
- There are subindexes for different sizes of company based on market capitalization
- There are subindexes for growth and value investment styles
- A Prime Index structured for passive investment is included
- The subindexes for growth and value stocks are based on P/B ratios adjusted for hidden assets
- Indexes are calculated using share prices on major markets (Nomura composite share price)
- There are equity indexes including and excluding dividends
- Clear definitions mean that there is no arbitrariness in stock selection methods
- The composition of each index is reviewed once a year

## About Russell Investments

Russell Investments (Russell) is a global asset manager and one of only a few firms that offers actively managed, multi-asset portfolios and services that include advice, investments and implementation. Working with institutional investors, financial advisors and individuals, Russell's core capabilities extend across capital markets insights, manager research, Indexes, portfolio implementation and portfolio construction.

Russell has more than \$173bn in assets under management (as of 31 March 2013) and works with over 2,500 institutional clients, independent distribution partners and individual investors globally. As a consultant to some of the largest pools of capital in the world, Russell has \$2.6trn in assets under advisement (as of 31 December 2012). It has four decades of experience researching and selecting investment managers and meets annually with more than 2,200 managers around the world. Russell traded more than \$1.4trn in 2012 through its implementation services business. Russell calculates more than 700,000 benchmarks daily covering approximately 98% of the investable market globally, 80 countries and more than 10,000 securities. Approximately \$4.1trn in assets currently are benchmarked to these indexes.

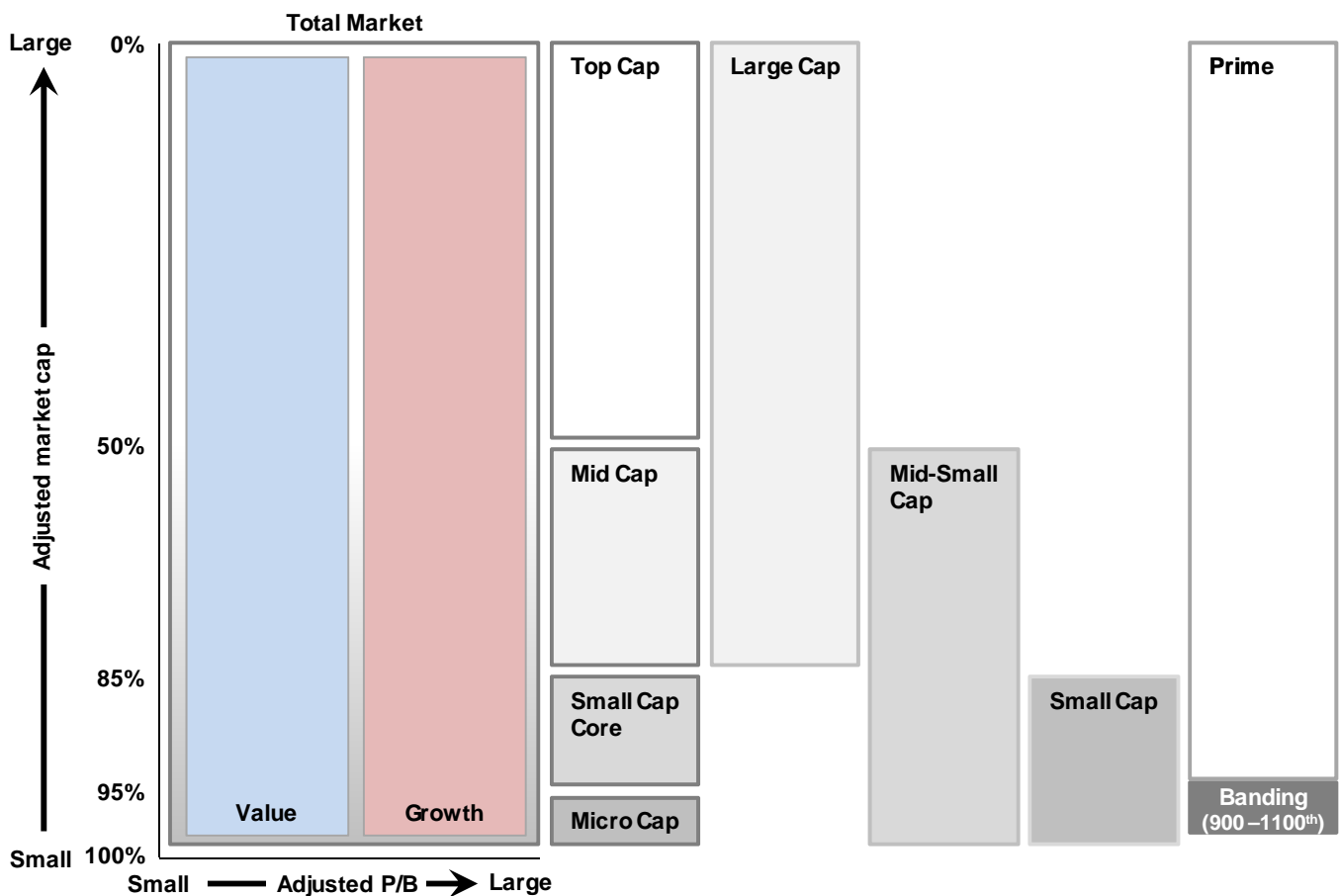
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## 2. Russell/Nomura Japan Equity Indexes

The Russell/Nomura Japan Equity Indexes cover the top 98% of stocks listed on all markets in terms of float-adjusted market value. As subindexes, size-based and investment style indexes are published separately, with the size-based indexes divided according to float-adjusted market value. Investment style indexes use as their determinant adjusted P/B, in accordance with which the market value of constituent stocks is distributed between value and growth indexes. See Appendix 1 for a list of the indexes.

Fig. 1: Russell/Nomura Japan Equity Indexes



Source: Nomura

- The Russell/Nomura Total Market Index contains the top 98% of all stocks listed on Japan's stock exchanges in terms of float-adjusted market capitalization
- The Russell/Nomura Large Cap Index contains the top 85% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization
- The Russell/Nomura Small Cap Index contains the bottom 15% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization
- The Russell/Nomura Top Cap Index contains the top 50% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization
- The Russell/Nomura Mid Cap Index contains the middle 35% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization
- The Russell/Nomura Mid-Small Cap Index contains the bottom 50% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization

- The Russell/Nomura Small Cap Core Index comprises stocks in the Small Cap Index, excluding the Micro Cap Index, and represents the bottom 15% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization, excluding the bottom 5%
- The Russell/Nomura Micro Cap Index contains the bottom 5% of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization
- The Russell/Nomura Prime Index contains the top 1,000 stocks from the Total Market Index in terms of float-adjusted market capitalization and taking into account “banding” and the “negative list”

## 3. Index construction methodology

Russell/Nomura Japan Equity Indexes are determined by regular and unscheduled reconfigurations.

### 3-1. Execution and announcement of regular reconfigurations

Regular reconfigurations are carried out once a year on the first business day in December (after the close on the last trading day in November) based on the results of calculations using data as of the regular reconfiguration date of record<sup>1</sup>, defined as the 15th day (or the preceding trading day if this falls on a nontrading day) of the month prior to the month preceding the regular reconfiguration. Regular reconfigurations were previously carried out as follows:

Up to January 2001: First business day in January (after close on the last trading day in December)

February 2002: First business day in February (after close on the last trading day in January)

From December 2002: First business day in December (after close on the last trading day in November)

As a rule, index changes are announced on the website of Nomura Securities at 4pm (Tokyo time) on the first trading day of the month prior to the month in which the regular reconfiguration takes place, except but not limited to cases of unforeseen circumstances or when information cannot be confirmed.

Website: <http://qr.nomuraholdings.com/en/frcnri/index.html>

### 3-2. Universe of stocks

All stocks<sup>2</sup> trading on Japan's various markets at the end of March, plus large cap stocks that have newly traded since end-March or that have carried out stock transfers, are eligible for inclusion in the Total Market Index at the time of the regular reconfiguration, with the following exceptions.

- **Equities other than common stock**

As a rule, only common stock is included in Russell/Nomura Japan Equity Indexes. However, exceptions to this rule will be made if necessary.

- **Stocks assigned for delisting**

Stocks assigned for delisting are not included in the universe.

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<sup>1</sup> This rule is effective as of the December 2007 regular reconfiguration. Up to and including the regular reconfiguration of December 2006, selections were made based on data as of the last trading day of the month prior to the month preceding the regular reconfiguration.

<sup>2</sup> JASDAQ stocks have been included in regular reconfigurations since January 1989 and stocks listed only on provincial exchanges in regular reconfigurations since January 1991. Prior to that, only stocks listed on the Tokyo, Osaka or Nagoya exchanges as at the end of November were eligible for inclusion in the Total Market Index.

- **Stocks under supervision (examination) and stocks under supervision (confirmation)**

Stocks under supervision (examination) and stocks under supervision (confirmation) that are not part of the index composition immediately prior to regular reconfigurations are not included in the universe.

- **TOB target companies<sup>3</sup>**

Stocks that are the targets of tender offers may be removed from the universe of stock selection if and only if the following requirements are met:

- (1) The offer close date is between the regular reconfiguration date of record<sup>4</sup> and the regular reconfiguration date<sup>5</sup>.
- (2) The company conducting the tender offer announces that it will acquire all of the shares it does not already own of the target company, and
- (3) The company conducting the tender offer is planning to acquire all of the stock of the target company in exchange for money or stock of the company conducting the offer. In addition, the target company agrees to the offer.

- **Listed investment trusts**

Stocks included in listed investment trusts are in some cases already included in indexes. Listed investment trusts are therefore excluded in order to prevent problems with duplication.

- **REITs**

REITs are not included in the Russell/Nomura Japan Equity Indexes. The inclusion of REITs is a divisive issue that we continue to assess and review.

- **Foreign stocks**

Stocks listed on foreign sections of Japanese exchanges or stocks regarded as overseas companies are excluded, even if these stocks are traded in the Japanese market.

- **Other exceptions**

Latent stock, warrants, and rights on them are excluded. The Bank of Japan is also excluded.

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<sup>3</sup> These changes to the index rules came into effect starting from the December 2010 regular reconfiguration.

<sup>4</sup> See 3-1. Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date of record.

<sup>5</sup> See 3-1. Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date.

## 4. Indicators used in the selection of stocks

Stocks for the Russell/Nomura Japan Equity Indexes are selected according to float-adjusted market capitalization excluding stable shareholdings. Indexes are reconfigured after determining size on the basis of float-adjusted market capitalization and value/growth on the basis of adjusted P/B.

### 4-1. Stable shareholding ratio

The indexes take into consideration the stable shareholding ratio to remove stocks that are not traded in the market due to cross-shareholdings and stable shareholdings.

The stable shareholding ratio, expressed as a two-year moving average<sup>6</sup>, is calculated by dividing the number of stably held shares, as described in the next section, by the number of shares outstanding. With the exception of adjustments outside of regular reconfigurations, stable shareholdings are adjusted at each regular reconfiguration. See 6-3. Execution and announcement of stable shareholding adjustments outside of regular reconfigurations, for more on stable shareholding adjustments outside of regular reconfigurations.

#### 4-1-1. Calculation method for stable shareholdings<sup>7</sup>

The latest data available as of the regular reconfiguration date of record<sup>8</sup> are used to calculate stable shareholdings, from the following sources<sup>9</sup>.

- (1) Toyo Keizai's major shareholder data
- (2) Declarations of marketable securities holdings contained in securities filings

(If data overlap, priority is given to Toyo Keizai's major shareholder data.)

Stable shareholdings = (1) number of shares held by major shareholders + (2) number of shares contained in declarations of marketable securities holdings (excluding those in (1))

Stable shareholdings shares thought to be for purely investment purposes<sup>10</sup> are excluded. Classifications in the declarations of marketable securities holdings for liquid assets and fixed assets (holdings deemed long term) are not taken into consideration.

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<sup>6</sup> Fixed annual figures used, without taking moving averages, for regular reconfigurations in January 1997 and earlier and three-year moving averages used for regular reconfigurations from January 1998 to December 2003.

<sup>7</sup> Revisions have been made to the calculation method for stable shareholdings in accordance with changes to accounting rules. See Appendix 2 for more on past calculation methods.

<sup>8</sup> See 3-1. Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date of record.

<sup>9</sup> In some cases, public information such as company prospectuses and stock exchange releases is referenced.

<sup>10</sup> Those held by domestic life insurers, among those held by domestic trust banks, those where the method of investment can be determined (eg, pension funds, investment trusts), as well as those held by foreign banks, venture capital companies, etc.



## 4-2. Adjusted P/B<sup>11</sup>

Adjusted P/B is used to classify stocks in value and growth indexes. In Japan, the book value (BV) recorded on the balance sheet is not necessarily the market value. To classify value and growth properly, it is ideal to use shareholders' equity that reflects reality. As such, the difference between market value and book value is reduced as much as possible by calculating an estimated market value adjusted for unrealized gains or losses on marketable securities and unrecognized retirement benefit obligations that are not recorded on the balance sheet.<sup>12</sup>

Adjusted P/B = (price x number of shares outstanding) / (shareholders' equity (BV) + marketable securities unrealized gains/losses – unrecognized pension liabilities)

### 4-2-1. Shareholders' equity (book value)

Actual shareholders' equity<sup>13</sup> from the latest reporting period as of the regular reconfiguration date of record<sup>14</sup> is used. The highest priority is given to data prepared in accordance with IFRS, followed by Japanese GAAP consolidated, US GAAP, and Japanese GAAP parent data. The shareholders' equity (BV) figure used in the calculation of adjusted P/B is the actual shareholders' equity figure adjusted for changes in capital structure that have occurred between the most recent fiscal year-end and the regular reconfiguration date of record.

### 4-2-2. Unrealized gains/losses on marketable securities

Mark-to-market accounting has applied since FY00 financial results. Marketable securities are classified as follows:

| Classification                | Value on the balance sheet  |
|-------------------------------|---|
| Trading securities            | Market value  |
| Held-to-maturity securities   | Amortized cost  |
| Available-for-sale securities | Cost or market (but market value starting with FY01 financial results <sup>15</sup> ) |

The Russell/Nomura Japan Equity Indexes are not adjusted for unrealized gains/losses on trading securities and held-to-maturity securities in view of the probable purpose of their holding.

The market value of available-for-sale securities is adjusted for the return on the TOPIX between the end of the fiscal year and the regular reconfiguration date of record<sup>16</sup>. Assuming a uniform effective tax rate of 40%, 60% of the unrealized gains/losses on the marketable securities is reflected in the book value-based shareholders' equity<sup>17</sup>.

<sup>11</sup> See Appendix 2 for more on past methods of calculation.

<sup>12</sup> Unrealized gain/loss adjustments are not made to shareholders' equity when figures are reported in accordance with international accounting standards.

<sup>13</sup> Includes half-yearly and quarterly data, but excludes paid-in funds for new shares.

<sup>14</sup> See 3-1 Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date of record.

<sup>15</sup> Some available-for-sale securities were valued at cost for FY01 financial results, but for the indexes they are valued at market value.

<sup>16</sup> See 3-1 Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date of record.

<sup>17</sup> Since the February 2002 regular reconfiguration, after-tax unrealized gains/losses have been used.

Unrealized gains/losses on marketable securities

$$= \text{StockMV}_{\text{FTRM}} \times \left( \frac{\text{TOPIX}_{\text{OCT}}}{\text{TOPIX}_{\text{FTRM}}} - 1 \right) \times 60\%$$

StockMV = market value of available-for-sale securities

TOPIX = the value of the TOPIX

OCT = regular reconfiguration date of record

FTRM = the latest fiscal period

#### 4-2-3. Unrecognized pension liabilities<sup>18</sup>

New accounting standards for pension liabilities took effect starting with FY00 financial results. Reserves for the unfunded portion of the pension obligation, or the pension obligation minus pension plan assets, are recognized on the balance sheet, as a rule, but can be done so over time. This unrecognized portion is known as unrecognized pension liabilities, a potential liability that will have to be accounted for eventually. Recognition of the unfunded portion of the pension obligation varies by company, with some having recognized substantial reserves on their balance sheets and others having a large amount of unrecognized pension liabilities. To eliminate this discrepancy, P/B is adjusted for unrecognized pension liabilities.

Specifically, the following three unrecognized pension liability items disclosed in securities filings are deducted from book value-based shareholders' equity at 60% of their combined value, on the assumption of a uniform 40% effective tax rate:

- Unrecognized benefit obligation at transition
- Actuarial assumption adjustment
- Unrecognized prior service costs

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<sup>18</sup> Since new pension accounting took effect from fiscal years ending in March 2001, this adjustment was applied from the February 2002 regular reconfiguration.

## 5. Method of selecting stocks for indexes

The selection of constituent stocks for Russell/Nomura Japan Equity Indexes is based on float-adjusted market cap adjusted for stable shareholding ratio<sup>19</sup>. Reconfigurations are carried out after determining size in terms of float-adjusted market value and value/growth in terms of adjusted P/B.

### 5-1. Overall index: Selection of stocks for the Total Market Index

The Russell/Nomura Total Market Index, which encompasses all the indexes, is built one stock at a time from the universe of stocks for selection ranked in order of float-adjusted market cap, whereby the total float-adjusted market cap of the index exceeds 98% of the stocks listed on all markets and the number of stocks in the index is a multiple of 100<sup>20</sup>.

### 5-2. Selection of stocks for size-based indexes

Among the Russell/Nomura Japan Equity Indexes, size-based indexes are published in accordance with the float-adjusted market cap of the constituent stocks. The selection methods for the indexes are as follows.

- **Large Cap Index**

The Russell/Nomura Large Cap Index is built one stock at a time from stocks in the Russell/Nomura Total Market Index ranked in order of float-adjusted market cap, whereby the total float-adjusted market cap of the index is as close as possible to 85% of the Russell/Nomura Total Market Index and the number of stocks in the index is a multiple of 50<sup>21</sup>.

- **Small Cap Index**

The Russell/Nomura Small Cap Index contains all stocks in the Russell/Nomura Total Market Index that are not included in the Large Cap Index. It is roughly the bottom 15% of the total float-adjusted market cap of the Total Market Index.

- **Top Cap Index**

The Russell/Nomura Top Cap Index is built one stock at a time from stocks in the Russell/Nomura Total Market Index ranked in order of float-adjusted market cap, whereby the total float-adjusted market cap of the index is as close as possible to 50% of the Russell/Nomura Total Market Index and the number of stocks in the index is a multiple of 10<sup>22</sup>.

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<sup>19</sup> Float-adjusted market cap adjusted for stable shareholding ratio is calculated on the basis of the number of shares outstanding used for index purposes.

<sup>20</sup> Until the February 2002 reconfiguration, the number of stocks was no fewer than in the previous year and covered at least 98% of float-adjusted market capitalization.

<sup>21</sup> Until the January 2001 reconfiguration, the number of stocks was a multiple of 100, was no fewer than in the previous year, and covered about the top 85% of the total float-adjusted market capitalization of the Total Market Index.

<sup>22</sup> Until the January 2001 reconfiguration, the number of stocks was a multiple of 10, was no fewer than in the previous year, and covered about the top 50% of the total float-adjusted market capitalization of the Total Market Index.

- **Mid Cap Index**

The Russell/Nomura Mid Cap Index contains all the stocks in the Large Cap Index that are not in the Top Cap Index. It represents the stocks roughly in the top 50% to 85% range of the Russell/Nomura Total Market Index in terms of float-adjusted market capitalization and is equivalent to roughly 35% of total market capitalization.

- **Mid-Small Cap**

The Russell/Nomura Mid-Small Cap Index is a combination of the Mid Cap Index and the Small Cap Index. It contains all the stocks in the Total Market Index that are not in the Top Cap Index. It represents the bottom 50% of the total float-adjusted market capitalization of the Total Market Index.

- **Small Cap Core Index**

The Russell/Nomura Small Cap Core Index is the set of stocks as close to the top 95% of the float-adjusted market cap of the Total Market Index that is still a multiple of 50 and that are not included in the Large Cap Index. It contains stocks at the top of the Small Cap Index in terms of market cap. It represents the stocks roughly in the bottom 15% to 5% range of the Total Market Index and is equivalent to roughly 10% of total market cap.

- **Micro Cap Index**

The Russell/Nomura Micro Cap Index contains all stocks in the Small Cap Index that are not included in the Small Cap Core Index. It represents roughly the bottom 5% of the float-adjusted market cap of the Russell/Nomura Total Market Index.

### 5-3. Investable index: Selection of stocks for the Prime Index

The Russell/Nomura Prime Index is made up of the largest 1,000 stocks in the Total Market Index in terms of float-adjusted market capitalization, taking into consideration liquidity of stocks so as for the index to be investible. This involves looking at the “negative list” and “banding,” where the “negative list” takes precedence over “banding”<sup>23</sup>.

#### (1) Negative list (exclusion of low liquidity stocks)

This rule is meant to restrict the inclusion of stocks with exceptionally low liquidity. Stocks ranked 2,001st or lower<sup>24</sup> in terms of average monthly trading value in the year to the regular reconfiguration date of record<sup>25</sup> are excluded.

#### (2) Banding method (900–1,100 rule)

This rule is meant to limit the frequent replacement of stocks owing to small changes in market capitalization. Stocks ranked 900 or higher by float-adjusted market capitalization are included in the index, regardless of whether or not they were included in the index prior to the reconfiguration. Stocks ranked 901 to 1,100 are included in the index only if they were included in the index prior to the reconfiguration, until 1,000 stocks have been selected. If 1,000 stocks have not been selected after going through the 1,100 stocks in this way, stocks ranked between 901 and 1,100 that were not included in the index prior to the reconfiguration are selected until a total of 1,000 stocks has been selected.

<sup>23</sup> Negative list and banding are applied only to the Prime Index.

<sup>24</sup> Indicates ranking within universe of stocks for selection at time of regular reconfiguration.

<sup>25</sup> See 3-1 Execution and announcement of regular reconfigurations, for more on the regular reconfiguration date of record.

## 5-4. Selection of stocks for investment style indexes

Among the Russell/Nomura Japan Equity Indexes, value and growth indexes are published that reflect value and growth investment styles.

Value indexes are indexes made up of stocks with low adjusted P/Bs and growth indexes are those made up of stocks with high adjusted P/Bs, after determining style probabilities in view of adjusted P/B.

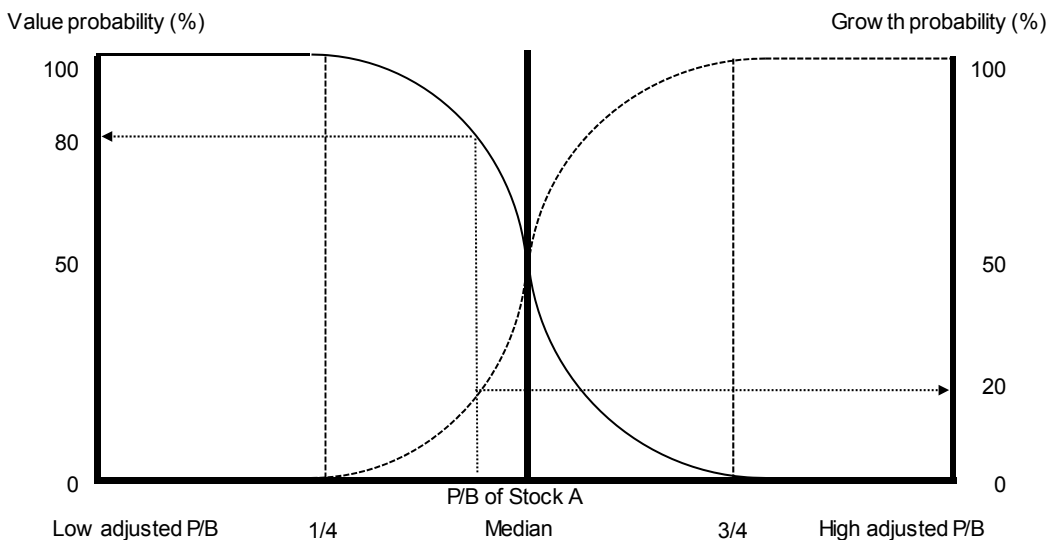
### 5-4-1. Style probability

Style probability is the ratio of market cap apportioned to value and growth for each stock. Style probability is calculated with a nonlinear probability function, as shown in Figure 2, using adjusted P/B<sup>26</sup>.

The probabilities of stocks at the median are 50% value, 50% growth. The probabilities are 100% value for stocks in the first quartile and 100% growth for stocks in the fourth quartile. The probabilities of stocks falling between these (ie, the second and third quartiles) have both value and growth probabilities that depend on their P/B ratios. The sum of growth and value probabilities must always be 100%.

With the exception of adjustments outside of regular reconfigurations, style probabilities are adjusted at every regular reconfiguration. See 7. Unscheduled reconfigurations, for more on adjustments to style probabilities outside of regular reconfigurations.

**Fig. 2: Determination of style probability with a nonlinear probability function**



Source: Nomura

<sup>26</sup> See 4-2 Adjusted P/B, for more on adjusted P/Bs.

**5-4-2. 5% rule**

Stocks with probabilities of 95% or more are assigned to the corresponding style index with a weighting of 100%. Stocks with probabilities of 5% or less are assigned to the corresponding style index with a weighting of 0%. This serves to keep down the number of stocks with small weightings in the indexes.

**5-4-3. Market value of value/growth indexes**

The market capitalization of value/growth indexes is weighted according to style probability. The float-adjusted market cap of stocks with probabilities of 100% growth or 100% value is placed entirely in the growth or value indexes.

For instance, in the case of Stock A, in Figure 2, with 80% value probability and 20% growth probability, 80% of its float-adjusted market cap is assigned to the value index and the remaining 20% is assigned to the growth index.

The float-adjusted market cap of the Total Market Index is split roughly evenly between its value and growth subindexes. The float-adjusted market capitalization of the group of stocks between the stock with the lowest (or highest) P/B ratio and the median stock and that of the group of stocks between the first and the third quartile stocks is designed to be approximately 50% of the Total Market Index's market capitalization.

The 5% rule described above boosts the number of stocks with 100% growth or value probabilities, as a result of which the market cap of stocks in the lowest and highest quartiles is effectively greater than 25%

## 6. Index calculations

### 6-1. Index calculation methods

Russell/Nomura Japan Equity Indexes are share price indexes weighted according to market capitalization, in the following manner.

#### 6-1-1. Calculation of market capitalization

Value inclusion ratio (%) = Value probability x (1 – stable shareholding ratio (%))

Growth inclusion ratio (%) = Growth probability x (1 – stable shareholding ratio (%))

Value no. of shares included = No. of shares outstanding for index purposes x Value inclusion ratio (%)

Growth no. of shares included = No. of shares outstanding for index purposes x Growth inclusion ratio (%)

Total no. of shares included = Value no. of shares included + Growth no. of shares included

Value market capitalization = Nomura composite share price x Value no. of shares included

Growth market capitalization = Nomura composite share price x Growth no. of shares included

Total market capitalization = Value market capitalization + Growth market capitalization

Value index market capitalization =  $\Sigma$  each stock's Value market capitalization

Growth index market capitalization =  $\Sigma$  each stock's Growth market capitalization

Total index market capitalization =  $\Sigma$  each stock's Total market capitalization

- o Nomura composite price

When stocks are listed on more than one exchange, the Nomura composite price is used as the price. The Nomura composite price adopts the price on the exchange with the most accurate price for that stock, based on the stock's percentage of days traded and total trading volume for the latest 60 days. The exchange is essentially selected daily. The share price is selected according to the following order of precedence:

The special quotation price or continuous confirmed quote on the selected exchange → the trade price on the selected exchange → the standard quotation on the selected exchange → a composite price for the previous trading day

### 6-1-2. Calculation of index values

Indexes must be protected from changes in share price and market capitalization not influenced by market fluctuations. This is done by adjusting the base market capitalization as follows:

- o Index excluding dividends

Base market cap<sub>t</sub> = market cap<sub>t-1</sub> + adj market cap<sub>t</sub>

Return<sub>t</sub> = (market cap<sub>t</sub>) / (base market cap<sub>t</sub>) – 1

Index<sub>t</sub> = index<sub>t-1</sub> x (1 + return<sub>t</sub>)

- o Index including dividends

Base market cap<sub>t</sub> = market cap<sub>t-1</sub> + adj market cap<sub>t</sub> – adj total dividends<sub>t</sub>

Return<sub>t</sub> = (market cap<sub>t</sub> + total dividends<sub>t</sub>) / (base market cap<sub>t</sub>) – 1

Index<sub>t</sub> = index<sub>t-1</sub> x (1 + return<sub>t</sub>)

- o Calculating dividends per share

For indexes including dividends, dividend data are reflected on the ex-dividend date. However, on the ex-dividend date, the amount of the dividend is not yet definite. As such, dividend forecasts announced by companies are used (if unavailable, Toyo Keizai's dividend forecasts are used)<sup>27</sup>. In the event of a difference between the dividend forecast and the actual dividend, the base market capitalization is readjusted on the last trading day of the month of the earnings announcement<sup>28</sup>, except that announcements made on the last day of the month are reflected at the end of the following month.

### 6-1-3. Calculation of US dollar-denominated index values

The US dollar-denominated indexes are calculated based on the yen-denominated indexes and the exchange rate as of the base date<sup>29</sup> for each index, using the following formula. Indexes are calculated for both those including and those excluding dividends.

- o US dollar-denominated index value

$$\text{Dollar-denominated index value} = \frac{\text{Yen-denominated index value} \times \text{exchange rate on base date for each index}}{\text{exchange rate}}$$

- o Exchange rate

Calculations use the mid-rate announced by the Bank of Japan (at 5pm).

<sup>27</sup> Ex-dividend dates prior to 26 September 2013 are based on Nomura dividend forecasts, and if not available, Toyo Keizai dividend forecasts.

<sup>28</sup> Applied from end-June 2007. Prior to that, adjustments were made on the first trading day of the month following the announcement of results.

<sup>29</sup> See 6-1-5 Calculation start periods and base values for indexes, for more on the base dates for each index.



#### 6-1-4. Calculation of dividend tax adjusted index values

Dividends are subject to taxation and index values based on total dividends adjusted for the dividend tax are calculated with the following formula. Index values are calculated in accordance with tax rates applied to residents and nonresidents. See 6-1-3. Calculation of US dollar-denominated index values, for more on the method of calculating US dollar-denominated index values.

- Dividend tax adjusted index

$$\text{Base market cap}_t = \text{market cap}_{t-1} + \text{adj market cap}_t - \text{tax adj total dividends}_t$$

$$\text{Return}_t = ((\text{market cap}_t + \text{tax adj total dividends}_t) / (\text{base market cap}_t)) - 1$$

$$\text{Index}_t = \text{index}_{t-1} \times (1 + \text{return}_t)$$

- Tax rate

Tax adjusted total dividends<sup>30</sup> use tax rates as of the day before the ex-dividend date. Reviews are conducted quarterly, at the time of regular reconfigurations, as well as quarterly reconfigurations with regard to newly listed stocks (see 7-1).

#### 6-1-5. Calculation start periods and base values for indexes

The base dates and calculation start periods for the Russell/Nomura Japan Equity Indexes are as follows (includes value/growth indexes).

| Index   | Base date (=base value)              | Calculation start period |
|---|--------------------------------------|--------------------------|
| Size-based indexes, with the exception of those with* | 29 Dec 1979 (=100)                   | Dec 1995                 |
| *Prime Index  | 30 Dec 1996 (=100)                   | Jul 2004                 |
| *Small Cap Core/Micro Cap indexes                     | 30 Dec 1999 (=100)                   | Jun 2006                 |
| Dividend tax adjusted indexes                         | 29 Dec 2000 (=100)<br>(Prime = 1000) | Jul 2013                 |

<sup>30</sup> Dividend plans of companies (when not available, Toyo Keizai dividend forecasts) are used for results periods that ended 31 December 2011 and thereafter. Prior to that, actual dividends were reflected on the ex-rights date.

## 6-2. Adjusting the base market capitalization

In the case of changes in a stock's capital structure or in the composition of the index, base market capitalization is adjusted according to the following schedule. No adjustment to base market capitalization is made for capital changes not requiring payment, including stock splits, stock dividends, and par-value changes, as these do not affect market capitalization.

**Fig. 3: Timing of changes to the index as a result of changes to the capital structure of constituent issues**

| Changes in equity capital   | Date index changes  | Share price used  |
|---|---|---|
| Rights offering   | Ex-rights date  | Issue price   |
| Public offering   | Business day following payment date<br>(listing date of new shares when settlement is on the issuance date)   | Previous day's price  |
| Private placement   | Five business days after the placement date   | Previous day's price  |
| Conversion of CB<br>Conversion of preferred stock into common stock | Last business day of the month in which the conversion ratio becomes known  | Previous day's price  |
| Exercise of bond with warrant<br>Exercise of stock option           | Last business day of the month in which the number of shares per warrant or option becomes known  | Previous day's price  |
| Merger  | Swap date   | Previous day's price  |
| Retirement of shares  | Last business day of the month following that in which the shares are retired   | Previous day's price  |
| Rights offering refusal   | Last business day of the month following the month in which the rights offering refusal is announced (on the last business day of the following month when the announcement is within five business days of the month-end).   | Issue price   |
| Capital reduction with compensation                                 | Date effective  | Previous day's price  |
| Stock swap  | Swap date   | Previous day's price  |
| Corporate divestiture (continuing company, new stock)               | Swap date   | Previous day's price  |
| Corporate divestiture (company/division), spinoff <sup>31</sup>     | Ex-rights date  | Not used  |
| Replacement   | Replacement date  | Previous day's price  |
| Other adjustments   | Other adjustments to the base market capitalization required are made on the last business day of the month in which the announcement of the relevant report is made (on the last business day of the following month when the announcement is within five business days of the month-end). | Share price when capital change reflected or closing price on day before adjustment |

Source: Nomura

<sup>31</sup> With a corporate divestiture (company/division) or spinoff, the base market capitalization is adjusted for the reduction in capital as follows:

- When the company does not announce the value of the divested division or of the shares of the divested company,  
Capital reduction = the amount by which shareholders' equity is expected to be reduced
- When the company does announce the value of the divested division or of the shares of the divested company,  
Capital reduction = the value of the division or the value of the divested company's shares times the total number of shares

### 6-3. Execution and announcement of stable shareholding ratio adjustments outside regular reconfigurations<sup>32</sup>

Stable shareholding ratio adjustments outside of regular reconfigurations are, as a rule, announced on the Nomura Securities website no later than five business days before the date of adjustment, except in cases of unforeseen circumstances or when information cannot be confirmed.

Nomura Securities website:

<http://qr.nomuraholdings.com/QR/FRCNRI/constituents.html>

#### 6-3-1. Adjustments to stable shareholding ratio for private placements

Because new shares issued in private placements can be regarded as stable shareholdings, the stable shareholding ratio is adjusted as follows on the day (t) in which the number of shares changes. This ensures that the number of shares included in index calculations, which is adjusted for stable shareholdings, remains the same both before and after the private placement.

Stable shareholding ratio<sub>t</sub> = (stable shareholding ratio<sub>t-1</sub> x number of shares outstanding for index purposes<sub>t-1</sub> + the change in shares outstanding) / (number of shares outstanding for index purposes<sub>t-1</sub> + the change in shares outstanding)

#### 6-3-2. Adjustments to stable shareholding ratio for retirement of shares

The stable shareholding ratio is adjusted as follows on day (t) in which the number of shares changes due share retirements. This ensures that the number of shares included in index calculations, which is adjusted for stable shareholdings, remains the same both before and after share retirements.

Stable shareholding ratio<sub>t</sub> = (stable shareholding ratio<sub>t-1</sub> x number of shares outstanding for index purposes<sub>t-1</sub> – the change in shares outstanding) / (number of shares outstanding for index purposes<sub>t-1</sub> – the change in shares outstanding)

#### 6-3-3. Conversion of preferred shares, merger with or acquisition of an unlisted company, tender offer, etc

The stable shareholding ratio is adjusted if a transfer of capital in such forms as the conversion of preferred shares, a merger with or acquisition of an unlisted company, or a tender offer causes a substantial change in stable shareholdings.

#### 6-3-4. Stock swap, merger of listed companies, etc

The stable shareholding ratio is changed on the basis of the exchange ratio (merger ratio) for the surviving wholly owning parent or the merging company

<sup>32</sup> This rule has been in effect since 1 December 2004.

## 7. Unscheduled reconfigurations

Unscheduled reconfigurations are announced on Nomura Securities' website, as a rule, about two weeks prior to the event, except but not limited to cases of unforeseen circumstances or when information cannot be confirmed.

Nomura Securities website:

<http://qr.nomuraholdings.com/QR/FRCNRI/constituents.html>

### 7-1. Newly listed stocks<sup>33</sup>

Newly listed stocks for each quarter are determined as of the determination date and if the float-adjusted market cap ranking of a newly listed stock is within the number of stocks in the Large Cap Index (in December, the number of stocks after the regular reconfiguration is used), then it is included in the index as of the first business day of the second month following the determination date.

| Listing date | Determination date                       | Inclusion date                  |
|--------------|--|---------------------------------|
| Jan–Mar      | End of April                             | First business day in June      |
| Apr–Jun      | End of July                              | First business day in September |
| Jul–Sep      | Reflected at the regular reconfiguration |                                 |
| Oct–Dec      | End of January                           | First business day in March     |

If the float-adjusted market cap ranking of a newly listed stock is within the number of stocks in the Top Cap Index (in December, the number of stocks after the regular reconfiguration is used), then it is included in the Top Cap Index, and otherwise it is included in the Mid Cap Index.

The method for determining the style probability of newly included stocks is to assign 100% value probability if adjusted P/B is in the lowest quartile of total market cap, 100% growth probability if it is in the highest quartile, and 50% value and 50% growth if it is in either of the middle quartiles. The style probabilities of other stocks are not changed.

### 7-2. Stock swaps and stock transfers<sup>34</sup>

Based on the following rules, stock rebalancing is carried out swiftly in view of the diversification of corporate reorganization. Changes to stocks in the indexes are made to take into consideration the situation following each cause of action on a case-by-case basis. The objective is to maintain the inclusion of the constituent stocks and avoid temporary exclusions from the indexes.

<sup>33</sup> This rule has been applied since the June 2002 inclusion date.

<sup>34</sup> This rule has been applied to capital changes since April 2002.

### 7-2-1. Stock swaps, mergers

When a stock is delisted because of a merger or stock swap, it is excluded on the day of the merger. Following delisting, and until exclusion, the company's valuation will be based on the market value of the parent or surviving company multiplied by the merger or exchange ratio. Based on the merger ratio, the stable shareholding ratios of the surviving parent company and the merging company change. On the date of the merger, the surviving parent company or merging company moves to the highest-ranked size-based index to which the companies involved in the capital movement previously belonged.

In the case of the stock of an assuming parent company or acquirer, the style probability of the stock with changes in shareholders' equity is changed in light of the allocation ratio or the merger ratio. However, in the case of stock swaps and mergers taking place during the period from the first trading day of the month prior to the month preceding the regular reconfiguration up to the reconfiguration date, the abovementioned 5% rule does not apply in the calculation of the style probability<sup>35</sup>.

### 7-2-2. Stock transfers

In the case of an unlisted parent company that assumes the operations of another company and becomes listed in a short period of time, the stock of the subsidiary is removed from the indexes on the date of the parent company's listing. The price of the delisted subsidiary used is the price on the day before the delisting. On the date of the listing, the stock of the parent company is included in the highest-ranked size-based index to which the delisted subsidiary previously belonged. However, if the stock of the parent company is not included following the regular reconfiguration, the stock of the subsidiary will be excluded on the date of its delisting.

In the case of a newly added stock of an assuming parent company, the style probability of the subsidiary is determined in light of the allocation ratio or the merger ratio. However, in the case of stock swaps and mergers taking place during the period from the first trading day of the month prior to the month preceding the regular reconfiguration up to the reconfiguration date, the abovementioned 5% rule does not apply in the calculation of the style probability<sup>36</sup>.

## 7-3. Removal of stocks

### 7-3-1. Assignment to securities to be delisted<sup>37</sup>

Stocks assigned as securities to be delisted will be removed from indexes four business days after the move (one business day later if the day for the security to be assigned falls on a holiday). However, stocks that are listed on more than one market and continue to be traded on any one of the markets will not be removed.

### 7-3-2. Delisting

Stocks delisted for any of the reasons other than those noted in Section 7-2 are removed from indexes on the date of the delisting.

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<sup>35</sup> This rule has been in effect since October 2007.

<sup>36</sup> This rule has been in effect since October 2007.

<sup>37</sup> Effective from 21 April 2010. Prior to 28 December 2001 stocks assigned for delisting were removed on the date of the move; between 29 December 2001 and 23 August 2009, stocks assigned for delisting were removed on the second business day following the move; between 24 August 2009 and 20 April 2010, stocks assigned for delisting were removed on the third business day following the move.

**7-3-3. Marked loss of eligibility for inclusion in the universe of stocks**

If a stock is viewed to have become markedly at odds with the definitions of 3-2. Universe of stocks, owing to the occurrence of an event, the stock can be removed provided there is an official announcement by the company, stock exchange, government or regulatory agency.

**7-3-4. Exclusions between regular reconfigurations for Prime Index stocks<sup>38</sup>**

This rule allows stocks to be removed early if the likelihood of removal at the next regular reconfiguration is increasing owing to a sharp decline in market cap.

If, on any of the determination dates listed below, a Prime Index constituent stock's adjusted market capitalization falls below the minimum size criterion of 0.1% of the total adjusted market capitalization of the Total Market Index, it will be removed from the Prime Index (also from the Prime Value Index, Prime Growth Index, and Prime-related sector indexes in the same manner) on the first business day of the second subsequent month. However, it will not be removed from other Russell/Nomura Japan Equity Indexes.

| Determination date | Removal date                    |
|--------------------|---------------------------------|
| End-April          | First business day of June      |
| End-July           | First business day of September |
| End-January        | First business day of March     |

<sup>38</sup> Effective from 1 June 2009 (date of determination is last business day of April, final inclusion on last business day of May)

## Appendix 1: Indexes at a glance

Indexes by sector, excluding and including dividends, adjusted for dividend tax, and denominated in yen and dollars are available, based on a basic index.

| Basic index         | Official name                              |
|---------------------|--|
| <b>Total Market</b> | Russell/Nomura Total Market Index          |
| Total Market Value  | Russell/Nomura Total Market Value Index    |
| Total Market Growth | Russell/Nomura Total Market Growth Index   |
| <b>Large</b>        | Russell/Nomura Large Cap Index             |
| Large Value         | Russell/Nomura Large Cap Value Index       |
| Large Growth        | Russell/Nomura Large Cap Growth Index      |
| <b>Top</b>          | Russell/Nomura Top Cap Index               |
| Top Value           | Russell/Nomura Top Cap Value Index         |
| Top Growth          | Russell/Nomura Top Cap Growth Index        |
| <b>Mid</b>          | Russell/Nomura Mid Cap Index               |
| Mid Value           | Russell/Nomura Mid Cap Value Index         |
| Mid Growth          | Russell/Nomura Mid Cap Growth Index        |
| <b>Mid-Small</b>    | Russell/Nomura Mid-Small Cap Index         |
| Mid-Small Value     | Russell/Nomura Mid-Small Cap Value Index   |
| Mid-Small Growth    | Russell/Nomura Mid-Small Cap Growth Index  |
| <b>Small</b>        | Russell/Nomura Small Cap Index             |
| Small Value         | Russell/Nomura Small Cap Value Index       |
| Small Growth        | Russell/Nomura Small Cap Growth Index      |
| <b>Small Core</b>   | Russell/Nomura Small Cap Core Index        |
| Small Core Value    | Russell/Nomura Small Cap Core Value Index  |
| Small Core Growth   | Russell/Nomura Small Cap Core Growth Index |
| <b>Micro</b>        | Russell/Nomura Micro Cap Index             |
| Micro Value         | Russell/Nomura Micro Cap Value Index       |
| Micro Growth        | Russell/Nomura Micro Cap Growth Index      |
| <b>Prime</b>        | Russell/Nomura Prime Index                 |
| Prime Value         | Russell/Nomura Prime Value Index           |
| Prime Growth        | Russell/Nomura Prime Growth Index          |

## Appendix 2: Previous index rules

### Previous calculation methods for stable shareholdings

Previous methods for calculating the stable shareholding ratio are as follows.

#### Regular reconfigurations up to January 1985

(1) Toyo Keizai's major shareholder data and (2) declarations of marketable securities holdings contained in securities filings are only available from 1985. In regular reconfigurations through January 1985, the number of shares in major shareholder data from the *Nihon Keizai Shimbun* was used to estimate the number of stable shareholders, in the following way.

- Stocks existing after 1985 for which major shareholder data are available for 1984 and earlier

Stable shareholding ratio = shareholder ratio for top n major shareholders x individual stock adjustment multiple

Here, n is the number of major shareholders (up to 10) at each point in time before 1984.

The individual stock adjustment multiple is the 1985–87 average ratio of shareholdings of all stable shareholders to shareholdings of the top n major shareholders.

- Stocks not existing after 1985 for which major shareholder data are available for 1984 and earlier

Stable shareholding ratio = shareholder ratio for top n major shareholders x sector adjustment multiple

Again, n is the number of major shareholders (up to 10) at each point in time before 1984.

The sector adjustment multiple is the ratio, weighted for the number of shares outstanding adjusted for lot size for 1985–87, of the shareholdings of all stable shareholders to the stable shareholdings of the sector to which the stock in question belongs.

- Stocks not existing after 1985 for which major shareholder data are not available for 1984 and earlier

The average, weighted for the number of shares outstanding adjusted for lot size for 1985–87, of the stable shareholding ratio for the sector to which the stock in question belongs is used.

#### Bank stocks in regular reconfigurations from January 1986 to January 1999

Bank stocks have a large number of stable shareholders but relatively small holdings per shareholder and declarations of marketable securities holdings could only be obtained for stocks listed on the Tokyo Stock Exchange, so more extensive adjustments were needed. After interviewing banks, we determined that the above estimated values based on (1) Toyo Keizai's major shareholder data and (2) declarations of marketable securities holdings contained in securities filings had not been sufficiently adjusted and also took into consideration shareholdings of (3) below.



No. of stable shareholdings = no. of shareholdings of (1) major shareholders + no. of shares in (2) declarations of marketable securities holdings contained in securities filings (excluding those included in (1)) + (3) no. of shareholdings not included in marketable securities declarations

Small shareholder holdings (Group 3) that do not appear in published data are estimated using the following method. First, the number of shares included in Group 2 is determined. Next, Group 3 is deduced from Group 1, Group 2, and the stable shareholder ratios obtained from bank interviews. The result is an average value for Group 3 of approximately 50% of Group 2. The average shareholdings in Group 2 are then multiplied by 1.5<sup>39</sup>, producing a combined figure for Group 2 and Group 3. For example, the average holding ratio per stock for Group 2 is 1%. If Group 2 subsumes 40 shareholders, the shareholding ratio for Group 2 is 40%. Since the figure for Group 3 is half that of Group 2, 1.5 multiplied by 40 produces 60% as the combined shareholding ratio for Group 2 and Group 3. If Group 1 is 15%, the total stable shareholding ratio is 75%.

Since 1999, marketable securities declarations for all registered stocks in all markets have been available. Using the newly available information, in a variety of ways, to calculate stable shareholder ratios and comparing these results with findings from subsequent interviews with banks led to the conclusion that adding Group 3 was no longer necessary and it was thus abandoned.

#### **Nonbanking stable shareholdings in regular reconfigurations from January 1986 to January 2001**

As for nonbanking stable shareholdings in regular reconfigurations from January 1986 to January 2001, Group 1 data are based on the number of shares held by the top 10 shareholders<sup>40</sup>.

#### **Previous calculation methods for adjusted P/B**

Through the December 2003 regular reconfiguration, unrealized gains/losses on land were calculated using available data and adjusted P/B ratios were derived via the following formula. The book and market values of land assets have differed greatly in the past, but by how much has varied from company to company.

Adjusted P/B =

$$\frac{\text{price} \times \text{number of shares outstanding}}{\text{shareholders' equity (BV)} + \text{land (MV} - \text{BV)} + \text{marketable securities (MV} - \text{BV)} - \text{unrecognized pension liabilities}}$$

Unrealized gains/losses on land were based, when possible, on data from reassessed land market values. When these were not available, they were based on land tax data<sup>41</sup>. However, land taxes have been frozen since 1998 and valuation amount calculations using land tax data since that time may be less accurate. Mark-to-market valuation of real estate available for sale was introduced in FY00 and the early adoption of impaired asset accounting was allowed from FY03. This has meant that mark-to-market values

<sup>39</sup> Adjustments were made using a multiple of 1.5 for data in company reports for TSE-1 and TSE-2 stocks after 1995 and a multiple of 1.6 for TSE-1 company reports in 1994 and earlier.

<sup>40</sup> We count the number of shares held by all shareholders included in declarations of marketable securities holdings because the number listed in these declarations fell following changes to accounting standards in the financial year ended March 2001.

<sup>41</sup> In the cases of companies that did not revalue their landholdings and for which land tax data were not available, unrealized gains/losses on landholdings were set to zero.

are fully reflected in companies' financial statements. For this reason, P/B ratios were no longer adjusted for land valuation gains/losses as of the December 2004 regular reconfiguration.

### Calculation method for unrealized gains/losses on land

- o Companies with revalued land

When land is revalued, revaluation gains/losses after tax are calculated as follows:

| Assets                                  | Liabilities  |        |
|---|--|--------|
| Gains/losses on the revaluation of land | Deferred tax liability stemming from the revaluation |        |
|   | Net gains/losses on the revaluation                  |        |
| Book value before reassessment          |  | Equity |

The book value before the revaluation plus the gains/losses on the revaluation is the book value after the revaluation. The footnotes of companies' securities filings include the difference in value at the time of the revaluation and at the end of the fiscal year of the filing. The hidden value of the land asset is calculated in the following manner. A uniform effective tax rate<sup>42</sup> of 40% is assumed.

Unrealized gains/losses on land = revaluation difference – difference between the value at the time of revaluation and the end of the fiscal period x 60%

- o Calculation method for companies with no revalued land but with land tax data available

For stocks with no revalued land but with land tax data available, values based on the latest land tax data are used, factoring in the increase or decrease<sup>43</sup> during the period. A uniform effective tax rate of 40% is assumed. The details of the calculation are as follows:

$$MV_t = (1 + R_t)MV_{t-1} \times \frac{BV_{t-1} - DV_t}{BV_{t-1}} + AV_t$$

$$\text{Unrealized gain/loss} = (MV_t - BV_t) \times 60\%$$

$MV_t$  = value of land at time t

$BV_t$  = book value of land at time t

$AV_t$  = increase in value over period t

$DV_t$  = decrease in value over period t

$R_t$  = change in land price index at time t

<sup>42</sup> For regular reconfigurations in January 2001 and before, the calculation of adjusted P/B used unrealized gains/losses before taxes.

<sup>43</sup> Increases and decreases in asset value are disclosed in the property, plant & equipment section for all industries. Using this data, we calculate unrealized gains/losses on land.

The land price indexes used were as follows. These land price indexes are released twice a year by the Japan Real Estate Institute.

- For manufacturing, electric power, and gas companies: land price index for six major cities (industrial land)
- For nonmanufacturing companies other than electric power and gas companies: land price index for six major cities (commercial land)

The calculation of unrealized gains/losses on land was adjusted because of changes in accounting standards. For reference, the earlier calculation method follows.

#### **Up to the January 1993 regular reconfiguration (ie, before the land value tax was in force)**

Russell/Nomura Japan Equity Indexes were launched in 1995. As such, for periods before the land value tax was in force, unrealized gains/losses are estimated.

When the land book value (BV) at time t is greater than at time t-1, the market value of the land of the company in question is assumed to have grown in value at the rate of the Japan Real Estate Institute's land price index.

When the market value of land was rising

$$MV_t = (1 + R_t) MV_{t-1} + (BV_t - BV_{t-1})$$

$MV_t$  = price of land at time t

$BV_t$  = book value of land at time t

$R_t$  = rate of change in land price index at time t

If the land book value (BV) at time t is less than at time t-1, the market value of the land of the company is also assumed to have grown in value at the rate of the land price index, but the difference between the book value at time t and t-1 is then subtracted.

When the market value of land was falling

$$MV_t = MV_{t-1} \times \frac{BV_t}{BV_{t-1}} \times (1 + R_t)$$

#### **From the January 1994 regular reconfiguration to the January 1999 regular reconfiguration (period when land value tax was in effect)**

Land has been revalued since FY97. Land value taxes were assessed from 1993 to 1998. Unrealized gains/losses on land were estimated using land tax data for regular reconfigurations from January 1994 to January 1999. Land value tax was assessed on the value of land as of 1 January of each year. Land value tax was essentially calculated in the following manner:

Land value tax = (total market value of land – market value of nontaxable portion – basic exemption) x tax rate

The basic exemption for companies with capital of ¥100mn or greater was defined as the greater of taxable land area x ¥30,000 or ¥1bn. However, because the basic exemption complicates the estimate in question, it is set to zero. The nontaxable portion is also set

to zero, except for East Japan Railway, electric power companies, and gas companies. In order to estimate market value, individual stocks are divided into the following three industry categories:

#### (1) General businesses

Because general businesses all pay tax at the same rate, the market value of real estate held by each company can be calculated as follows:

$$MV_t = \left( \frac{PT_t}{TR_t} \times (1 + R_t) \right) \div 0.8$$

$MV_t$  = value of land at time t

$PT_t$  = land tax at time t

$TR_t$  = land tax rate at time t

Land tax rates :

$$TR_{199511} = 0.2\%$$

$$TR_{199411} = 0.3\%$$

$$TR_{199511} = 0.3\%$$

$R_t$  = percentage change in the land price index between the time of land value tax assessment (January of the preceding year) and the time of data acquisition (November each year)

$$R_{199511} = \left( \frac{PRC_{199511}}{PRC_{199401}} - 1 \right) \times 100(\%)$$

$PRC_t$  = value of land price index at time t

199401 = time when land tax was levied (January 1994)

The estimated market value is divided by 0.8 because the value of the land that the tax is assessed on is set at 80% of the published standard land value.

#### (2) East Japan Railway, electric power companies, and gas companies

East Japan Railway, electric power companies, and gas companies do not pay taxes on land<sup>44</sup> that is used in the public interest and thus pay little land value tax despite the large book value of their land. The market value of taxable land, deduced from the land value tax, is added to the book value of the tax-exempt land to arrive at an estimate of market value. The market value of the land not taxed is thus assumed to be the same as the book value of that land. Estimated market value is calculated using the following equation:

$$MV_t = \left( \frac{PT_t}{TR_t} \times (1 + R_t) \right) \div 0.8 + BV_{notax_t}$$

$MV_t$  = value of land at time t

$PT_t$  = land tax at time t

$TR_t$  = land tax rate at time t

$BV_{notax_t}$  = book value (= market value) of untaxed land at time t

<sup>44</sup> This includes railways, electric power stations, and gas production facilities.

## (3) Companies with real estate divisions

Land value tax was assessed at a lower rate on commercial land held as inventory assets than on fixed asset land, generally at one-fifth the rate for fixed assets. Companies with real estate divisions have land for sale in inventory and also prime housing lots taxed at exceptional rates. These two additional factors make deducing market value from the land value tax difficult. Therefore, for 23 particularly large companies<sup>45</sup> of this nature, consideration has also been given to the market value of housing lots. The tax rate is calculated at one-fifth the rate for the housing lot portion of inventory assets<sup>46</sup>.

$$MV_t = \left[ \frac{PTa_t}{TR_t} \times (1 + Ra_t) + \frac{PTb_t}{TR_t} \times (1 + Rb_t) \times 5 \right] \div 0.8$$

$PTa_t$  = land value tax on land taxable at normal rates at time t

$PTb_t$  = land value tax on land taxable at extraordinary rates at time t

$Ra_t$  = rate of change in land price index (commercial land price index) for land taxable at normal rates at time t

$Rb_t$  = rate of change in land price index (residential land price index) for land taxable at extraordinary rates at time t

## (4) Calculating land market value for stocks for which land value tax data are unavailable

When the amount of the land value tax is unknown, market value is estimated from the sector-average market value multiple for the fiscal year in question. Stocks that have no land book values either are assumed to have little or no land and hidden value is set at zero.

<sup>45</sup> Railway companies are among the 23 companies mentioned. These companies have railway segments and landholdings directly connected to railway operations are exempt from tax. That said, since the ratio of the book value of land at the railway segments of these companies is comparatively small, unlike in the cases of JR companies and others, we ignore the nontaxable portion.

<sup>46</sup> Since special tax rates do not apply to condominium land sites, the market value of the inventory portion of assets is overvalued, but since we have not taken into account basic exemptions and the nontaxable portions of tangible fixed assets, we think that these assets are well undervalued. We think that these factors largely offset each other.

## Previous calculation methods of unrealized gains/losses on marketable securities

Unrealized gains/losses on marketable securities were previously calculated as follows.

### Up to the January 1991 regular reconfiguration

- Nonfinancial stocks

Market value data for holdings of marketable securities have only existed since 1991. The hidden value of marketable securities for 1990 and earlier is calculated only if market value data have been published since 1991 and past marketable securities are contained in the declarations of marketable securities holdings. Otherwise hidden assets are set to zero. For points in time before market value data were published, past values are estimated from current data:

When the book value of marketable securities was increasing:

$$MV_{t-1} = (MV_t - (BV_t - BV_{t-1})) \times \frac{StockMV_t}{MV_t} \times \frac{TOPIX_{t-1}}{TOPIX_t} \\ + (MV_t - (BV_t - BV_{t-1})) \times \frac{MV_t - StockMV_t}{MV_t}$$

*MV* = market value of marketable securities

*StockMV* = market value of marketable equities

*BV* = book value of marketable securities

*TOPIX* = the value of the TOPIX

When the book value of marketable securities was declining:

$$MV_{t-1} = MV_t \times \frac{StockMV_t}{MV_t} \times \frac{BV_{t-1}}{BV_t} \times \frac{TOPIX_{t-1}}{TOPIX_t} + MV_t \times \frac{MV_t - StockMV_t}{MV_t}$$

- Financial stocks

Financial stocks generally have large hidden assets with a major impact on shareholders' equity. For stocks that have published market value data since 1991, book value is estimated even if book value data do not exist for periods before 1991. A backward-looking estimate is carried out using the oldest book value data available prior to 1991. For these estimates, the rate of increase or decrease in individual stocks is assumed to agree with the rate of increase or decrease found in Japan's National Accounts, under the entry for corporate shares (book value) of financial institutions.

**Regular reconfigurations from January 1992 to January 2001**

Market value data are used for holdings of marketable securities<sup>47</sup>. When there is a gap between the publication of market value data (the fiscal year-end) and the time of data collection (November of each year), the market value of stocks is adjusted using the TOPIX return. Data from the time of the publication of market value figures are used for the market value of other assets, as well as the book value of all assets.

$$MV_{NOV} = StockMV_{FTRM} \times \frac{TOPIX_{NOV}}{TOPIX_{FTRM}} + OthersMV_{FTRM}$$

*MV* = market value of marketable securities

*StockMV* = market value of marketable equities

*OthersMV* = market value of marketable securities other than equities

*TOPIX* = the value of the TOPIX

*Nov* = the time when data were gathered (November)

*FTRM* = the latest fiscal year that has now ended

<sup>47</sup> Since only TSE, OSE, and NSE First and Second Section stock data are available for 1999 and earlier, unrealized gains/losses are assumed to be zero for stocks that trade only on a regional exchange and JASDAQ stocks.

# Data publication services

Data for the Russell/Nomura Japan Equity Indexes can be obtained via the following channels.

- Index values are published in the following media:
  - \* Bloomberg (RNJI)
  - \* Jiji (SQ21, SQ22, SQ23, SQ24)
  - \* QUICK (NRIJ500–503, 510–517)
  - \* Reuters (FRCNRI01, FRCNRI02, FRCNRI03, FRCNRI04)
  - \* Our website (<http://qr.nomuraholdings.com/en/frcnri/index.html>)
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  - \* Bloomberg (RNPJ <INDEX>)
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- More detailed data

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Nomura Research Institute

Investment Information Systems Business Department

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e-mail: [ids-sales@nri.co.jp](mailto:ids-sales@nri.co.jp)

- Monthly report:

Russell/Nomura Japan Equity Indexes performance summary

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## **For further information on the indexes**

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Index Products Group

Quant Research Department

Global Markets Research, Japan

Nomura Securities Co.,

# Appendix A-1

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### STOCKS

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