

MSCI JAPAN HUMAN AND PHYSICAL INVESTMENT INDEX

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1 INTRODUCTION

The MSCI Japan Human and Physical Investment Index (the “Index”) aims to represent the performance of Japanese companies that make significant investments in physical and human capital. The index aims to include companies which, relative to their sector peers, are spending a high proportion of their revenue on –

- Physical Capital Investments
- Research And Development (R&D) Investments
- Human Capital Investments.

Additionally the index targets companies that have strongly increased their investment on capital goods or R&D while maintaining sales growth. It also targets companies with policies and programs to develop social and human capital in the labor pool.

Included constituents are weighted using their MSCI Governance-Quality Score to tilt towards companies with strong governance structure and financial quality. Please refer to Appendix II for a brief description of the Governance-Quality Score. The Governance-Quality Score is higher for companies with high Return On Equity (ROE), low leverage, sustainable earnings and relatively better board and ownership structure.

2 MSCI JAPAN HUMAN AND PHYSICAL INVESTMENT INDEX CONSTRUCTION

2.1 PARENT INDEX

Index construction starts with the MSCI Japan Index (the “Parent Index”). The Index then excludes some stocks from the Parent index based on financial, non-financial and liquidity criteria as listed in section 2.2.

2.2 SECURITY EXCLUSION CRITERIA

Securities from the Parent Index which meet any of the below criteria are not considered for inclusion in the Index.

- REITS – Securities that belong to the following Sub Industries as per the Global Industry Classification Standard (GICS[®])
 - Diversified – 60101010
 - Industrial – 60101020
 - Hotel & Resort – 60101030
 - Office – 60101040
 - Health Care – 60101050
 - Residential – 60101060
 - Retail – 60101070
 - Specialized – 60101080
 - Mortgage - 40204010
- Negative Operating Income – Securities of companies which are operating at a loss (as measured by the company’s annual operating income) in each of the last 3 fiscal years.
- Net Loss – Securities of companies that have reported a net loss (as measured by the company’s annual income before extra-ordinary items) in each of the last 3 fiscal years.
- Negative Book Value – Securities of companies that have reported a negative book value in any of the last 3 fiscal years.
- Frequency of Trading – A security that has traded on fewer than 80% of the trading days in the twelve months.

- Annual Traded Value – 1 year Annualized Traded Value (ATV) is greater than JPY 100,000,000,000.
 - For detailed description of ‘Frequency of Trading’ and ‘Annual Traded Value’ please refer to the MSCI Index Calculation Methodology at <https://www.msci.com/index-methodology>.
- ESG Controversies – Securities of companies with a “red flag” as defined by MSCI ESG Controversies. Please refer to Appendix III for details.
- Labor Rights Controversy – Securities of companies that have faced Very Severe, Severe ongoing/structural controversies related to labor rights over the past three years (as indicated by a MSCI ESG Research Labor Rights controversy score ≤ 2). Please refer to Appendix IV for details on the controversy score.
- Human Rights Controversy – Securities of companies that have faced very severe, severe ongoing/structural controversies related to human rights over the past three years (as indicated by a MSCI ESG Research Human Rights Controversy score ≤ 2). Please refer to Appendix IV for details on this controversy score.

2.3 APPLICABLE UNIVERSE

Securities from the Parent Index which are not excluded due to the above criteria form the applicable universe for the Index.

2.4 ELIGIBLE UNIVERSE

Securities from the applicable universe that meet any of the following criteria form the eligible universe. These securities are eligible for inclusion in the Index.

2.4.1 COMPANIES MAKING A HIGH LEVEL OF PHYSICAL CAPITAL INVESTMENT

The level of physical capital investment is assessed using the proportion of company’s sales accounted for by making investments in physical capital. This metric is calculated as the ratio of average capex over the last 3 years to latest sales.

- Capex is the average of capital expenditure made over last 3 years. Capex includes the expenditure on physical capital investment as well as on research and development investments.
- Sales is measured as the sales reported for the most recent completed fiscal year. Certain companies do not report Sales: for such companies, Sales is substituted by the company’s operating income.

As per the MSCI Fundamental Data Methodology, MSCI does not provide sales data for certain financial sector companies (GICS Industry Group 4010 - Banks, GICS

Industry Group 4020 – Diversified Financials, except sub industry group 40201030 – Multi-Sector Holdings).

For details please refer to MSCI Fundamental Data Methodology at <https://www.msci.com/index-methodology>.

- Companies which are ranked higher than the bottom 20th percentile by Capex to Sales ratio in their respective sectors (GICS Sector) are eligible for inclusion in the Index.
- In the applicable universe, relatively few companies may belong to the Telecom Services and Utilities sectors industries and these small sectors can cause anomalous inclusion of securities in the Eligible Universe. Hence, securities from Telecom Services are grouped with securities from Information Technology and securities from Utilities are grouped with securities from the Energy sector for the purposes of sector comparisons on Capex-to-Sales.
- The Capex-to-Sales metric is calculated by dividing total Capex over the last three years by most recent fiscal year Sales. If the Sales for the latest fiscal year is unavailable, then the Capex-to-Sales ratio is not calculated.
- When a company changes its fiscal year, the capex and the sales numbers are considered for the truncated year.

2.4.2 COMPANIES MAKING A HIGH LEVEL OF HUMAN CAPITAL INVESTMENTS

The level of human capital investment is assessed by considering the proportion of a company's sales expended on salaries. The metric is calculated as the ratio of latest total salaries to the latest company sales.

- Salary – As per the most recent reported total salaries (i.e., wage cost) for the full fiscal year. Salary represents wages paid to employees and officers of the company. It also includes all employee benefits such as health insurance and contribution to pension plans.
- Companies which are ranked higher than the bottom 20th percentile in their respective sectors are eligible for inclusion in the index
- Missing data – Salary data may not be available for some companies: such companies are excluded from the percentile calculation of the level of human capital investments.

2.4.3 STRONG GROWTH IN PHYSICAL CAPITAL INVESTMENT

Companies which demonstrate strong growth in physical capital investment as well as in their sales are eligible for selection in the index. These companies meet following conditions

- Companies with above sector average growth in capex investment and above sector average growth in sales.
- Capex growth is measured as the percentage change in capex investment over the last three years.
- Sales growth is measured as the percentage change in sales over the last three years.
- If Capex or Sales number for current year or current year – 3 are not available then capex growth and sales growth are not calculated for that company. Such companies are excluded from the calculation of sector average.

2.5 SECURITY SELECTION

From the eligible universe, securities are selected based on their MSCI ESG Research human capital assessment score. Securities in the eligible universe are sorted in ascending order of their human capital assessment score. The top 150 stocks are included in the index. In cases where two stocks have same human capital assessment score, the stock with greater market capitalization is ranked higher.

2.5.1 MSCI ESG RESEARCH HUMAN CAPITAL ASSESSMENT

MSCI ESG Research provides a human capital assessment score for companies in Japan after assessing human capital over five dimensions.

Figure 1- Five dimensions of the Human Capital score



Source: MSCI ESG Research

For more details on the human capital assessment scores, please refer to Appendix V

2.6 SECURITY WEIGHTING

At each Index Review, all the securities eligible for inclusion in Index are weighted by the product of their free float market capitalization weight in the Parent Index and Governance Quality Score. The calculated weights are then normalized to 100%.

2.6.1 GOVERNANCE QUALITY SCORE

Governance Quality Score is calculated as

Governance Quality Score = Governance Score * Quality Score

2.6.1.1 GOVERNANCE SCORE

Governance Score is calculated for each security in the Parent Index as per the standard MSCI Governance Quality Index methodology (available at <https://www.msci.com/index-methodology>). For a brief description of Governance Score, please see Appendix II.

2.6.1.2 QUALITY SCORE

The Quality Score for each security in the Parent Index is calculated as per the MSCI Quality Indexes methodology (available at <https://www.msci.com/index-methodology>). For a brief description of Quality Score, please see Appendix I.

2.6.2 MAXIMUM ISSUER WEIGHT CAPPING

The maximum issuer weight in the Index is capped at 5%.

3 MAINTENANCE OF THE MSCI JAPAN HUMAN AND PHYSICAL INVESTMENT INDEX

3.1 SEMI ANNUAL REVIEWS

The Index is rebalanced on a semi-annual basis, usually as of the close of the last business day of May and November, coinciding with the May and November Semi-Annual Index Reviews of the MSCI Global Investable Market Indexes. This approach aims to capture timely updates to Physical Capital Investment, Human Capital Development, Human Capital and Labor Management Controversies, Governance and Quality characteristics of the companies and coincides with the rebalancing frequency of the relevant MSCI Parent Indexes. The pro forma Index is in general announced nine business days before the effective date.

- At each Semi-Annual Index Review – Physical Capital Investment, R&D Investment, Sales, Operating Income, Net Profit and Book Value are considered as of the latest annual report from the close of the most recent fiscal year. For the majority of companies in Japan, the fiscal year ends on 31st March.
- Governance Quality Score – considered as of the last business day of the previous month. For May and November Index Reviews, the Governance and Quality Scores are considered as of last business day of April and October.
- Other MSCI ESG Research Data – Impact Monitor Score, Human Rights Controversy Score, Labor Rights Controversy Score, Human Capital Development Assessment and Labor Management Management Score are considered as of last business day of the previous month.

3.2 QUARTERLY INDEX REVIEWS

The MSCI Japan Human and Physical Investment Index is reviewed in February and August in addition to the Semi-Annual Index Reviews to coincide with the Quarterly Index Reviews of the Parent Index. During Quarterly Index Reviews, existing constituents are reviewed for involvement in very severe controversies or a substantial deterioration of their governance assessment. Existing constituents meeting following conditions are deleted from the Index during Quarterly Index Reviews –

- Company's MSCI ESG Research Labor Rights controversy score is downgraded to 2 or below since the previous Index Review.
- Company's MSCI ESG Research Human Rights Controversy score is downgraded to 2 or below since the previous Index Review.

- Company's ESG Controversy score is downgraded to 0 ('Red Flag') since the previous Index Review.

3.3 BUFFER RULES

To reduce Index turnover and enhance Index stability, buffer rules are applied at 20% of the fixed number of securities in the Index.

For example, the Index targets 150 securities and the buffers are applied between securities ranked between 120 and 180. The securities in the MSCI Parent Index with a human capital assessment score rank at or above 120 will be added to the Index on a priority basis. The existing constituents that have a human capital assessment score rank between 121 and 180 are then successively added until the number of securities in Index reaches 150. If the number of securities is below 150 after this step, the remaining securities in the Parent Index with the lowest human capital assessment score rank are added until the number of securities in the Index reaches 150.

3.4 ONGOING EVENT-RELATED CHANGES

The general treatment of corporate events in the MSCI Japan Human and Physical Investment Indexes aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor's participation in an event based on relevant deal terms and pre-event weighting of the index constituents that are involved. Further, changes in index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the MSCI Japan Human and Physical Investment Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI Japan Human and Physical Investment Index.

The following section briefly describes the treatment of common corporate events within the MSCI Japan Human and Physical Investment Indexes.

No new securities will be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

EVENT TYPE

EVENT DETAILS

New additions to the Parent Index

A new security added to the parent index (such as IPO and other early inclusions) will not be added to the index.

Spin-Offs

All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Merger/Acquisition

For Mergers and Acquisitions, the acquirer's post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.

If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

Changes in Security Characteristics

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted indexes.

The MSCI Corporate Events methodology book is available at:
<https://www.msci.com/index-methodology>

APPENDIX I: DESCRIPTION OF THE QUALITY SCORE

The quality score for each security is calculated by combining the z-scores of three fundamental descriptors: Return on Equity, Debt to Equity and Earnings Variability. A given variable z-score for a security is calculated using the mean and standard deviation of the corresponding variable computed within the MSCI Parent Index. After calculating component variable z-scores, a composite z-score for each security is computed by taking an equal-weighted average of the component z-scores. The Quality Score is then computed from the composite Z score as follows:

$$\text{Quality Score} = \begin{cases} 1 + Z & , Z > 0 \\ (1 - Z)^{-1} & , Z < 0 \end{cases}$$

where Z is the composite z-score described earlier.

For detailed description of the Quality Score please refer to the MSCI Quality Index Methodology available at <https://www.msci.com/index-methodology>.

APPENDIX II: DESCRIPTION OF THE GOVERNANCE QUALITY SCORE

The Governance Quality Score combines the Quality Score and the Governance Score of a security and penalizes the Quality Score with a discount factor if the company does not pass the test on all 11 of the defining MSCI governance measures. The Governance Quality Score is thus calculated as below

$$\text{Governance Quality Score} = \text{Quality Score} * \text{Governance Score}$$

As the Governance Score ranges between 0 and 1, the Governance Score acts as a discount factor to a security's Quality Score. For example, if a company fails the test on only one governance metric, its Quality Score is discounted by a factor of 0.9.

The Governance Score is calculated on a scale of 0 to 1, such that the scores increase with increasing standards of corporate governance. The Governance Score of a company is measured by combining company's scores on 10 governance measures. Each Governance Measure is either directly based on a MSCI ESG Research's Governance Key Metric score or combines more than one key metric score. Each key metric is designed as a test (or question) and company either passes the test or fails. Company's key metrics scores are 0 or 1. The 10 governance measures are built on 17 governance key metrics.

For detailed description of Governance-Quality Score, please refer to the MSCI Governance Quality Index Methodology available at <https://www.msci.com/index-methodology>.

APPENDIX III: MSCI ESG RESEARCH DATA

The Index uses ESG ratings and research provided by MSCI ESG Research Inc. In particular, the indexes use the following two MSCI ESG Research products: MSCI ESG Ratings and MSCI ESG Controversies.

For details on MSCI ESG Research's full suite of ESG products, please refer to:
http://www.msci.com/products/esg/about_msci_esg_research.html

MSCI ESG RATINGS

MSCI ESG Ratings provide research, analysis and ratings of how well companies manage their environmental, social and governance risks and opportunities.

For more details on MSCI ESG Ratings, please refer to
http://www.msci.com/resources/factsheets/MSCI_ESG_IVA.pdf

MSCI ESG CONTROVERSIES

MSCI ESG Controversies assess controversies concerning the negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact.

For more details on MSCI ESG Controversies, please refer to
http://www.msci.com/resources/factsheets/MSCI_ESG_Impact_Monitor.pdf

APPENDIX IV: DEFINITION OF CONTROVERSY SEVERITY

Each controversy case is assessed by MSCI ESG Research for the severity of its impact on society or the environment and consequently rated **Very Severe** (reserved for the very worst cases), **Severe**, **Moderate**, or **Minor**. To reach these assessments, each case is analyzed along two dimensions: nature of impact and scale of impact. For more details on MSCI ESG Controversies, please refer to:

http://www.msci.com/resources/factsheets/MSCI_ESG_Impact_Monitor.pdf

Figure 2 Assessment of Controversy Severity: the severity matrix

		Nature of Impact			
		Very Serious (Deaths, disability, torture, enslavement, destruction of livelihood or traditional way of life)	Serious (Livelihood seriously impaired; interference with basic needs, child labor, displacement)	Medium (Minor impairment to livelihood, denial of opportunity, most labor disputes and violations)	Minimal (Potential denial of opportunity, potential violation of rights, procedural failings)
Scale of Impact	Extremely Widespread (1000+ people)	Very Severe	Very Severe	Severe	Moderate
	Extensive (25-999 people)	Very Severe	Severe	Moderate	Moderate
	Limited (10-24 people)	Severe	Moderate	Minor	Minor
	Low (<10 people)	Moderate	Moderate	Minor	Minor

APPENDIX V: MSCI ESG RESEARCH HUMAN CAPITAL ASSESSMENT

MSCI ESG Research Human Capital Assessment Score is based on MSCI ESG Ratings Human Capital Development Management Score (0-10) and Labor Management Management Score (0-10). For more details on MSCI ESG Ratings, please refer to http://www.msci.com/resources/factsheets/MSCI_ESG_IVA.pdf

MSCI ESG Ratings focus on key ESG issues that can turn into unexpected costs for companies in the medium to long term. Companies which are assessed on the key issue of Human Capital Development belong to industries with higher specialization, education, and qualification needs and with higher levels of compensation, based on MSCI ESG Research's proprietary database compiled from multiple government sources (e.g. US Bureau of Labor Statistics). Typical sectors include Financials, IT, Utilities, etc.

For companies which are not assessed on Human Capital Development, Labor Management is used instead of the Human Capital Assessment Score to evaluate this dimension. The Labor Management score has a high degree of overlap with Human Capital Development assessment and is assessed for all companies that are constituents of the MSCI World Index.

Please refer to Appendix VI for details on how the human capital development score and labor management scores are combined.

Category	Human Capital Development	Labor Management
Description	<i>This issue evaluates companies' ability to attract, retain, and develop human capital through strong benefits and training programs, efforts to develop strong employee engagement</i>	<i>This issue evaluates the extent to which companies invest in human capital through the provision of competitive compensation, benefits, and performance incentives; efforts to develop formal engagement and communication channels for employees</i>
1. Training & Development	<ul style="list-style-type: none"> Leadership training & skills development Percentage of employees receiving training* Training days per employee* Job-specific development training programs Talent pipeline development strategy Regular performance appraisals and feedback processes 	<ul style="list-style-type: none"> Leadership training & skills development Percentage of employees receiving training* Training days per employee* Support for degree programs / certification
2. Diversity	<ul style="list-style-type: none"> Discrimination and workforce diversity controversies Percentage of women on executive 	<ul style="list-style-type: none"> Discrimination and workforce diversity controversies Labor policy or code of conduct

	<ul style="list-style-type: none"> management team* % of women in the leadership roles** % of female workers in the new hires** 	<ul style="list-style-type: none"> covers anti-discrimination* % of women in the leadership roles** % of female workers in the new hires**
3. External Recognition	<ul style="list-style-type: none"> External recognition as employer of choice* 	<ul style="list-style-type: none"> External recognition as employer of choice*
4. Compensation & Benefits	<ul style="list-style-type: none"> Non-compensation benefits and work/life balance Variable component to pay Employee stock ownership (ESOP) or employee stock purchase plan (ESPP) 	<ul style="list-style-type: none"> Non-compensation benefits incl. pension and retirement Variable component to pay Employee stock ownership (ESOP) or employee stock purchase plan (ESPP)
5. Employee Engagement	<ul style="list-style-type: none"> Monitors employee satisfaction Employee productivity* Employee turnover Formal grievance reporting & escalation procedures 	<ul style="list-style-type: none"> Monitors employee satisfaction Employee productivity* Employee turnover*
Controversies	<ul style="list-style-type: none"> Labor management controversies Collective bargaining controversies 	<ul style="list-style-type: none"> Labor management controversies Collective bargaining controversies
Other Metrics	<ul style="list-style-type: none"> Average years employed by the company for male and female workers** Monthly overtime work hours per employee** 	<ul style="list-style-type: none"> Restructuring policies & programs* Labor-related code of conduct* Strikes* Average years employed by the company for male and female workers** Monthly overtime work hours per employee**

Source: MSCI ESG Research

* Indicates that this metric is collected but may not contribute to score, e.g. due to low data availability

** indicated that this metric is not yet collected nor scored. It is, however, now required by law for Japanese companies with more than 300 employees. Based on the assumption that the data is provided by the majority of the companies in the MSCI Japan, we will look into incorporating it into our evaluation of the Human Capital Assessment Score

APPENDIX VI: COMBINING THE HUMAN CAPITAL DEVELOPMENT SCORE AND THE LABOR MANAGEMENT MANAGEMENT SCORE

MSCI Human Capital Assessment score is computed by combining MSCI Human Capital Development score and MSCI Labor Management Management Score. The combination is calculated as follows—

- Calculate the decile score for each company with a Human Capital Development Score on a scale of 1st (<10th percentile) to 10th decile (> 90th percentile)
- Calculate the decile score for each company with only a Labor Management Score on a scale of 1st (<10th percentile) to 10th decile (> 90th percentile)
- Select companies at first in the top half (> 5th decile) based on the Human Capital Development Score and then in top half based (> 5th decile) on the Labor Management Score.
- If the number of selected stocks is fewer than 150 then iteratively first select companies from the 5th decile on Human Development Score and then from 5th decile on the Labor Management Score.

The following sections have been modified since April 2016:

Section 2.2: Security Exclusion Criteria

- GICS code of REITS are updated to reflect new GICS Industry classification as of 1st Sep 2016.

The following sections have been modified since April 2016:

- Appendix VII in the previous version of the methodology book describing the Corporate Events treatment has been deleted. The details on the Corporate Events treatment are now included in Section 3.4.

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* = toll free

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- Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.
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