

KPOP Index

Calculated and administered by Moorgate Benchmarks Ltd.

Methodology Document

Version 1.1

Change History

Version Number	Editor	Date	Comments
1.0	Gareth Parker	23/06/2022	Live document.
1.1	Gareth Parker	17/08/2022	Clarification of weighting methodology.

Distribution

Name	Firm/Department	Location
Public		

1. Introduction

1.1. The KPOP Index

- 1.1.1. The KPOP Index is a 30-stock equity index that provides focused exposure to KRX-listed companies that are engaged in the entertainment and interactive media & services industries.
- 1.1.2. Constituents are weighted by free float-adjusted market capitalisation at each periodic review, subject to a 9.85% individual stock cap, with weights allowed to fluctuate between reviews.

2. Governance

2.1. CT Investments, Inc. (CT Investments)

2.1.1. CT Investments is the index provider and owner of the KPOP Index.

2.2. Moorgate Benchmarks Limited (Moorgate)

2.2.1. Moorgate Benchmarks Limited is calculator and administrator of the index. Moorgate is regulated by the Financial Conduct Authority as a registered benchmark administrator under the UK benchmarks regulation and by BaFin as a registered benchmark administrator under the EU benchmarks regulation.

2.3. Moorgate Benchmarks Index Management Committee

2.3.1. The Moorgate Benchmarks Index Management Committee oversees the day-to-day management of the index and the implementation of the annual review.

2.3.2. Where an index-impacting event occurs the resolution of which is not clear from these rules, the Moorgate Benchmarks Index Management Committee is empowered to decide on the most appropriate action to take to resolve the event.

2.3.3. The Moorgate Benchmarks Index Management Committee is also responsible, in the event of the rules not providing a clear process for the management of any situation, for determining the process to be followed.

2.4. Index Methodology Changes

2.4.1. Members of the Moorgate Benchmarks Index Management Committee, and stakeholders may at any time recommend changes to these Rules (including the Index construction criteria) by submitting any proposed changes for consideration and approval in advance of the Moorgate Benchmarks Index Management Committee's next meeting.

2.4.2. Proposed rules changes that the Committee deems material will be publicly consulted on, according to the policy detailed within the Moorgate Benchmarks Cessation or Material Change Policy, available from www.moorgatebenchmarks.com.

2.4.3. Following approval by the Moorgate Benchmarks Index Management Committee, such changes shall be implemented by way of an update to these rules, which shall be published on www.moorgatebenchmarks.com and www.ctinvestments.co.

2.4.4. Except in exceptional circumstances, new rules and rules adjustments will become effective after the following annual review of index constituents and weightings.

3. Index construction

3.1. Classification of potentially-eligible constituents

Theme eligibility

- 3.1.1. The index administrator, Moorgate Benchmarks, uses theme classification data provided by CT Investments to identify index constituents and weightings. The classification process is separate from the determination of index constituents and weightings.
- 3.1.2. CT Investments research staff identify and classify companies as being engaged in the KPOP Industry, and assigns each a “theme relevance score”.
- 3.1.3. The research staff are assisted by a proprietary artificial intelligence algorithm (taking advantage of Natural Language Processing (NLP) technologies) that extracts patterns from data. Only publicly-available information is used, and all output from the AI algorithm is manually reviewed as part of the classification and scoring process.
- 3.1.4. Research staff then classifies each constituent to one of two industries: Entertainment and Interactive Media & Services.
- 3.1.5. After identifying the initial investment universe, these companies are then reviewed to ensure they are consistent with the theme of the index.

3.2. Constituent Eligibility

- 3.2.1. Once the initial investment universe is established, the index administrator (Moorgate Benchmarks) applies the below size, liquidity and other eligibility rules in order to determine index constituents.

Geographic Eligibility

- 3.2.2. Companies must be traded on the Korea Exchange (KRX) in Korean Won (KRW).
- 3.2.3. Potential constituents who are not KRX-listed are removed from the eligible universe.

Size eligibility

- 3.2.4. Shares with a minimum full market capitalization of less than KRW100bn are removed from the eligible universe.¹

Free float

- 3.2.5. Shares with a free float of less than 10% are removed from the eligible universe.

3.3. Constituent Selection

- 3.3.1. Index constituents are selected and weighted according to the following process:
- 3.3.2. An initial universe of eligible index constituents is built according to the criteria defined above.

¹ Note, during index annual reviews, existing constituents whose capitalization remains above \$250m will remain eligible with respect to their market capitalization.

- 3.3.3. The index' eligible universe is ranked in reverse order of float-adjusted market capitalisation.
- 3.3.4. The largest five securities by float-adjusted market capitalisation within the Entertainment Industry are selected for inclusion in the index. (If fewer securities are available, all available securities are selected.) These are "initial constituents" for this industry.
- 3.3.5. The largest two securities by float-adjusted market capitalisation within the Interactive Media & Services Industry are selected for inclusion in the index. (If fewer securities are available, all available securities are selected.) These are "initial constituents" for this industry.
- 3.3.6. The index' eligible universe is then ranked in reverse order of theme relevance score.
- 3.3.7. The top three unselected securities by theme relevance score within the Entertainment Industry are selected for inclusion in the index. (If fewer securities are available, all available securities are selected.) These are also "initial constituents" for this industry.
- 3.3.8. The top unselected security by theme relevance score within the Interactive Media & Services Industry are selected for inclusion in the index. (If fewer securities are available, all available securities are selected.) These are also "initial constituents" for this industry.
- 3.3.9. The highest-ranked remaining unselected securities are selected for inclusion in the index, one by one in reverse order of theme relevance score, until the total number of selected constituents is 30.

3.4. Constituent Weighting

- 3.4.1. Constituents are weighted via convex optimisation, within the following constraints, to minimise the distance from float adjusted market cap-based weightings.

Sector-based weight controls

- 3.4.2. The following weight limits are applicable to the summed weights of the constituents of the relevant subsectors.

Industry	Weight at rebalance
Entertainment	Between 70% and 80%
Interactive Media & Services	Between 20% and 30%

Initial diversification-based weight controls

- 3.4.3. The largest five constituents' float-adjusted weight in the overall index are capped at 9.85%.
- 3.4.4. Remaining constituents are capped at 4.85%.

Holdings-based weight controls²

- 3.4.5. Index weights are optimised to limit the likelihood of products that track the KPOP index breaching the mandatory reporting requirement for company holdings greater than 10%. In other words, the weight of constituents within the index should not lead to a situation where the largest fund tracking the index would itself hold more than 10% of any individual listed company, even if the fund continues to grow in size.
- 3.4.6. To achieve this, the index-based product with the largest AUM is identified, and its AUM at the index determination date (see section 4) is identified.

Optimisation Process

- 3.4.7. An optimisation process is then used, which minimises the sum of **{max (the largest fund's AUM, KRW 1,000,000 million) * constituent weight} / constituent full market-cap - 5%**, subject to the diversification constraints noted above in 3.4.3 and 3.4.4. This optimisation assumes that the index-based product is 100% invested. The holding size is assessed for each index constituent, by multiplying the AUM by each constituent's weight. The percentage that this holding size represents of the constituent's full market capitalisation is then calculated and the optimiser minimises the occurrence of any constituent's holding size exceeding 5% of the constituent's full market capitalisation.
- 3.4.8. Once the above process is completed, index weights are further reduced for constituents whose holding sizes are greater than 7%, until the holding size for each constituent is 7%, and the excess weight redistributed pro-rata across the remaining uncapped constituents.

Calculation of Cap Factor

- 3.4.9. A cap factor is calculated for each constituent, to achieve the final index weightings of each constituent.

² For clarity, the reader should recognise that this section describes a control on the weight of index constituents that is calculated in order to limit the percentage that the largest index-based fund can hold in an individual constituent.

4. Quarterly review of the KPOP Index

4.1. Timings

4.1.1. The KPOP Index is reviewed quarterly, using the process described below.

4.1.2. Dates applicable to reviews are detailed below:

Date	Name	
On the last trading day of March, June, September and December	Determination date	Date on which data is collected for use in the index review. (Data is collected at the close of markets on this day.)
On or before the second business day of January, April, July and October	Review release	Date on which the results of the review are published to licensees.
The fourth business day of January, April, July and October	Implementation date	Date on which the results of the review are implemented in the index. (Changes are effective in the index at the index open on the fifth business day of January, April, July and October.)

4.1.3. Where the Korea Exchange is closed on a determination, review release or implementation date, the previous day on which the Exchange is open will be used instead of the indicated date.

4.2. Review process

4.2.1. As of the determination date, share prices, shares in issue, KPOP Index classifications, theme relevance scores and related data are captured.

4.2.2. The eligible universe is created, as described in 3.1 above.

4.2.3. Constituents are selected and weighted according to the process described in section 3 above.

4.2.4. The results of the quarterly review process are published on the review release date.

4.2.5. The results of the quarterly review process are implemented at the close of business on the implementation date.

5. Calculation of the KPOP Index

5.1. Index versions calculated

- 5.1.1. Price, net total return, and gross total return versions of each index are calculated.
- 5.1.2. The index is calculated in US dollars (USD).
- 5.1.3. The index is an end of day index, calculated on all Korean trading days using the closing auction price received from each constituent's primary listing exchange, converted (where necessary) using the WM/Refinitiv London 4pm closing spot values, and is published shortly after those values are received by Moorgate.

5.2. Index formula & divisor calculations

- 5.2.1. For details of the index calculation formula and related processes, please refer to the "Moorgate Benchmarks Equity Index Calculation Guide". The KPOP Index is treated as a market capitalization-weighted index.

5.3. Constituent exits between reviews

- 5.3.1. The handling of constituents who undergo takeover or mergers follows the policy detailed in the Moorgate Benchmarks Equity Index Calculation Guide.
- 5.3.2. Constituents removed due to takeovers or mergers, or for any other reason, are not replaced until the next index review.
- 5.3.3. Where a constituent is removed, the weight of the constituent is distributed pro-rata across the remaining constituents. If the company is removed at a zero value, due to bankruptcy etc, no redistribution of weight is necessary.

5.4. Other corporate actions and events

- 5.4.1. The constituents of the KPOP Index are proactively maintained to reflect changes that may result from corporate actions.
- 5.4.2. The management of corporate events follows the processes and procedures outlined in the Moorgate Benchmarks Corporate Actions Guide – Market Capitalization Weighted Indices.

5.5. Errors

- 5.5.1. If an error is discovered in an index value Moorgate Benchmarks will follow the process outlined in the "Moorgate Benchmarks Error Correction Policy", available at www.moorgatebenchmarks.com.

6. Exceptions and amendments to these Rules

6.1. Exceptions

- 6.1.1. Moorgate Benchmarks shall apply the method described above for the composition and calculation of the indices. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require unforeseen changes to be made to the KPOP Index..
- 6.1.2. Wherever exceptions are required, Moorgate Benchmarks will endeavour to ensure a calculation method is applied that is consistent with the method described in this document.

6.2. Amendments

- 6.2.1. Moorgate Benchmarks Limited and CT Investments, Inc. notify users of the benchmarks that whilst it is the policy of CT Investments, Inc. as administrator to consult fully on any material change to a benchmark, it is possible that circumstances, particularly external events beyond the control of Moorgate Benchmarks and CT Investments, Inc., may necessitate immediate changes to, or the cessation of, a benchmark and therefore, any financial contracts or other financial instruments that reference the benchmarks, or any market participants that use the benchmarks in valuations should plan to be able to manage the possibility of changes to, or cessation of, the benchmarks. Please consult the Moorgate Benchmarks Cessation or Material Change Policy for further details.
- 6.2.2. The Moorgate Benchmarks Index Management Committee may prescribe changes to the selection criteria and other rules governing the indices and the method applied to calculate the indices, which it deems to be necessary and desirable in order to prevent material errors or to remedy, correct or supplement the rules currently described in these Guidelines.
- 6.2.3. CT Investments, Inc. and Moorgate Benchmarks shall ensure that any amendments to the methodology are updated and published as soon as possible after any changes to the indices are implemented, and shall notify all persons who have licensed the use of the indices as far in advance of such implementation as reasonably practicable.

7. Data publication

7.1. Data distribution

- 7.1.1. The index values are published via various data vendors. Each vendor determines whether they will distribute/display the index data via their respective information systems. Values are also published at www.ctinvestments.co and www.moorgatebenchmarks.com.
- 7.1.2. The composition of the index, as well as the respective weightings of index constituents, is published on a retrospective basis in respect of each review date on the business day immediately following the next review date, at www.ctinvestments.co and www.moorgatebenchmarks.com.

8. Contact details

- 8.1.1. The index provider, CT Investments, Inc., can be contacted at jangwon@contentstech.com. More information is available at www.ctinvestments.co.
- 8.1.2. The index calculator, Moorgate Benchmarks Ltd, can be contacted at info@moorgatebenchmarks.com. More information is available at www.moorgatebenchmarks.com.

9. Legal

- 9.1.1. CT Investments, Inc. or any successor thereto (the "Index Provider") owns solely and exclusively the intellectual property rights in the KPOP Index and its methodology (excluding methodological elements not developed specifically for the creation of the KPOP Index). Any use or publication of such intellectual property, as well as of the KPOP trademark or any other KPOP related methodologies, provisions or values, must be with the prior written consent of the CT Investments, Inc..
- 9.1.2. CT Investments, Inc. and Moorgate Benchmarks Ltd. assume no obligation, duty or liability to any person in relation to the Index save as provided in any written agreement with such person. CT Investments, Inc. and Moorgate Benchmarks Ltd. make no express or implied warranty as to:
- a) the advisability of purchasing or assuming any risk in connection with any transaction related to the Index;
 - b) the levels at which the Index stands at any particular time on any particular date;
 - c) the results to be obtained by any party from the use of the Index or any data included in it for the purposes of issuing securities or carrying out any financial transaction;
 - d) any other matter.
- 9.1.3. CT Investments, Inc. may assign the proprietary rights in the Index to a third party in its reasonable discretion.

9.2. Licensing

- 9.2.1. Licenses to use the indices as the underlying value for investment products and derivative instruments may be issued to stock exchanges, banks, financial services providers and investment houses by CT Investments, Inc.

Appendix A: Index Information

Name	Ticker	Value	Inception Date
KPOP Index			