



中華證券交易服務有限公司

CHINA EXCHANGES SERVICES  
COMPANY LIMITED

# **CES Gaming Top 10 Index Methodology**

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## 1. Preface

China Exchanges Services Company Ltd. (CESC) has appointed China Securities Index Co., Ltd. (CSIC) for index calculation, maintenance and dissemination. The index methodology is developed by mutual agreement between CESC and CSIC.

CES Gaming Top 10 Index (CES G10) is a price return index which provides a measure of market performance for the top 10 Gaming Stocks listed on the Main Board of the Stock Exchange of Hong Kong Limited (SEHK).

## 2. Index Universe

**CES GAMING TOP 10 INDEX.** The index universe of CES G10 is comprised of all common stocks with primary listing on the Main Board of the SEHK and a listing history of at least three months by the Review Cutoff Date.

## 3. Selection Criteria

The constituents of CES G10 are selected as follows:

- 3.1 Gaming Sector Screen.** Eligible stocks must be classified as Gaming Stocks: Companies which are the owners and operators of casino and gaming facilities, including companies providing lottery and betting services. Companies are classified based primarily on its majority of revenues.
- 3.2 Liquidity Screen.** Eligible stocks must have daily average trading value over the past six months of at least 20 million Hong Kong dollars. For newly listed stocks, the daily average trading value is derived from the data between the fourth trading day and the Review

Cutoff Date;

**3.3 Size Screen.** Following the liquidity screen above, the top 10 Gaming Stocks by daily average total market capitalisation<sup>^</sup> are chosen for inclusion in the index.

<sup>^</sup>Daily average total market capitalisation is defined as follows:

- ◆ The daily average total market capitalisation during the most recent year or,
- ◆ For newly listed stocks, the daily average total market capitalisation is derived from the data between the fourth trading day and the Review Cutoff Date;

## 4. Index Calculation

CES G10 is calculated to 4 decimal points.

### 4.1 Base Date and Base Level

The base date for CES G10 is 4 March 2011. The base level is 3000.

### 4.2 Index Calculation Formula

CES G10 is calculated according to the formula below:

$$\text{Current index} = \frac{\text{Current adjusted market capitalisation of constituents}}{\text{Divisor}} \times 3000$$

Adjusted market capitalisation =  $\sum(\text{Price} \times \text{Adjusted No. of shares} \times \text{Capping Factor} \times \text{Foreign Exchange Rate})$ .

The **Category-Weight Method** is used to adjust the number of issued shares

for each constituent. Hence, the calculation of “adjusted number of shares” depends on two factors, 1) free float shares (see Rule 4.4) and 2) category weight (see Rule 4.5). The Capping Factor is set between 0 and 1, so that no constituent accounts for more than 15% of the index.

However, if the number of constituents is less than 8, a 25% cap will be applied to the index. If the number of constituents is less than 5, the Index will be equally weighted so that each constituent has an equal weight in the index.

When changes occur to the constituent list or share structure or any constituent’s market capitalisation changes due to non-trading factors, the divisor is adjusted to keep the index comparable over time. Based on the rules in Section 5: “Maintenance of Constituent Shares and Capping Factor Adjustments”, the “Divisor Adjustment Methodology” is used to adjust index. See Section 6: “Index Maintenance”.

### 4.3 Index Real-time Calculation

The real-time calculation of the CES G10 is based on the traded price data issued by the trading systems of SEHK via various channels. The real-time index is calculated during the trading hours of SEHK.

- The opening index is calculated on the basis of the opening price (of the index constituents) obtained through the daily aggregate auction. If there is no transaction, the opening index is then calculated by using the reference opening price supplied by the quotation system.
- The index is calculated until the close of trading.

**Price of each constituent (X)** is defined on the following principle: If there is no transaction for the whole trading day, X means the reference opening price, otherwise, X means the last traded price.

## 4.4 Free Float

To reflect the price fluctuation of the real negotiable shares in the market, CES G10 adopts free float shares (Free Float) for index calculation and exclude non-negotiated shares caused by strategic holdings, government holdings, etc.

- (1) **Long term holdings by founders, their families and senior executives of the company**
- (2) **Government holdings**
- (3) **Strategic holdings**
- (4) **Frozen shares subject to lock-up period**
- (5) **Restricted employee shares**
- (6) **Cross holdings between/among listed companies**

### 4.4.1 Identification of Free Float

(1) Restricted shares subject to lock-up period are deemed as non-free float.

(2) For non-restricted shares, the shares are deemed as non-free float if the shareholding held by shareholders classified under any of the six categories above together with persons acting in concert exceeds 5%. Any shareholdings, including any of the above six categories of less than 5% is treated as free float.

(3) Restricted shares after the lock-up period are treated as non-restricted shares.

$$\text{Free Float} = \text{Total number of HK shares} - \text{Non-free float shares}$$

Further provisions on Free Float are set out in Appendix A.

## 4.5 Category-Weight Method

A **Category-Weight** Method, which can minimize the variability of constituents shares adopted for index compilation, is used to weight number of shares of constituents of CES G10. An Inclusion Factor is assigned to each HK share based on the percentage of Negotiable Market Capitalisation Ratio over the total number of shares.

- *Negotiable Market Capitalisation Ratio = Free Float of HK share / Total number of HK shares*
- *Adjusted Shares = Total number of HK shares × Inclusion Factor*

Inclusion factor is determined by the following table:

### Category-Weight Table

Negotiable Market Cap Ratio (%)	≤15	(15, 20]	(20, 30]	(30, 40]	(40, 50]	(50, 60]	(60, 70]	(70, 80]	>80
Inclusion Factor (%)	Negotiable market cap ratio round up to the nearest percentage point								
	20	30	40	50	60	70	80	100	

### Example of the Application of the Category-Weight Method

Stock	Stock A	Stock B	Stock C
Total HK Shares	100,000	8,000	5,000
Non Free Float	88,800	4,500	900
Free Float	11,200	3,500	4,100
= Total HK Shares - Non Free Float			
Negotiable Market Capitalisation Ratio	11.2%	43.8%	82.0%
= Free Float / Total HK Shares			
Inclusion Factor	12%	50%	100%
Inclusion Shares	12,000	4000	5000

## 4.6 Total Return Index

CES G10 is price return index. Nonetheless, the daily total return index value of CES G10 is calculated for investors' reference. The total return index, which offers investors a different angle to measure index performance, includes the reinvestment return of cash dividends.

The calculation formula of total return index is same as that of the price return index, except that the divisor is adjusted for dividends on the ex-dividend day.

## 5. Maintenance of Constituent Shares and Capping Factor Adjustments

### 5.1 Maintenance of Constituent Shares

To ensure that CES G10 reflects the trading status of related stocks, constituent shares are maintained based on the following rules:

- Constituents are maintained based on announcements published by listed companies.
- Free float shares adjustment resulting from non-corporate actions is reviewed semi-annually. The adjustment will be implemented after the market close on the second Friday of June and December.
- Share adjustment from corporate actions (such as bonus issues, rights issues, stock splits and stock consolidations) will be implemented on the ex-date.
- For other corporation events (such as secondary offering, share buyback, exercise of convertible bonds and warrants, etc.) share adjustment will be implemented immediately if accumulated share



change adds up to 5% or more; Share adjustment will be deferred to next regular review if accumulated share change is less than 5%.

- When a corporate event causes the accumulated share changes to be 5% or more, the share adjustment will be implemented on the effective day of the corporate event as indicated in the published announcement. In the event that the announcement date is later than the effective date of corporate event, the effective date of share adjustment will then be the next trading date after the announcement date.

## 5.2 Capping Factor Adjustments

The Capping Factors is updated semi-annually. The new Capping Factor is implemented after market close on the second Friday of June and December, effective on the next trading day, and is calculated based on the data collected 5 trading days prior to the effective date. If the change in constituent shares or constituent weightings is deemed significant, CESC may conduct a non-regular Capping Factor adjustment.

## 6. Index Maintenance

When changes occur to constituent list or the share structure, or constituents' market capitalisation changes due to non-trading factors, the divisor is adjusted to keep the index comparable over time, that is, based on the rules in Section 5: “Maintenance of Constituent Shares and Capping Factor Adjustments”, CES G10 adopts the “Divisor Adjustment Methodology” to adjust the old divisor.

### 6.1 Formula of Divisor Adjustment Methodology

Adjusted Market Cap

Adjusted Market Cap

$$\frac{\text{before Adjustment}}{\text{Old Divisor}} = \frac{\text{after Adjustment}}{\text{New Divisor}}$$

*Adjusted Market Capitalisation after Adjustment = Adjusted Market Capitalisation before Adjustment + Adjusted Market Capitalisation increase (or decrease)*

The new divisor derived from this formula is used for future index calculation.

## 6.2 Circumstances for Index Maintenance

### 6.2.1 Corporate actions that may affect the price of constituents

- Dividend: No adjustment is made to CES G10 for dividend payment. The return from dividend payment is accrued to CES G10 total return index on the ex-dividend date as described in 4.6 (Total Return Index).
- Bonus issues, rights issues, stock splits and stock consolidations: The index is adjusted on the day on the ex-right date.

*Market Capitalisation after the Adjustment = Ex-right Price × Adjusted No. of Shares + Market Capitalisation before the Adjustment (excluding shares under adjustment for bonus issues, rights issues, stock splits and stock consolidations)*

### 6.2.2 Share changes caused by other corporate events

- For other corporation events (such as secondary offering, share buyback, exercise of convertible bonds and warrants, etc.) share adjustment will be implemented immediately if accumulated share change adds up to 5% or more.

*Adjusted Market Capitalisation after the Adjustment = closing price × adjusted shares after changes*

- Share adjustment will be deferred to the next regular review if the

accumulated share change is less than 5%.

#### 6.2.3 Share changes caused by shareholders' actions

- Share changes caused by shareholder actions are adjusted semi-annually. The share change is implemented after the market close on the second Friday of June and December.

#### 6.2.4 Constituents adjustment

- Index is adjusted before the effective day of regular review or non-regular adjustment.

#### 6.2.5 Capping Factor adjustment

- Index is adjusted before the effective day of regular review or non-regular Capping Factor adjustment.

## 7. Index Constituent Adjustments

When special events occur affecting the representativeness and investability of the index, requisite non-regular adjustments will be made to the index constituents of CES G10.

### 7.1 Treatment of IPOs

There will be no fast entry rule for the CES G10. All IPOs will be considered at the next regular review.

### 7.2 Merger and Acquisition

- Two constituent companies merge: The resulting new company will remain qualified as constituent. The vacancy created will be filled up by the highest ranking stock on the reserve list.
- One constituent company and one non-constituent company merge:



If the resulting new company fails the Gaming Sector Screen, the original constituent will be removed and replaced by the highest ranking stock on the reserve list. If the resulting new company satisfies the Gaming Sector Screen, it will remain a constituent of the index.

- One non-constituent company acquires or takes over another constituent company: If the resulting new company fails the Gaming Sector Screen, the original constituent will be removed and replaced by the highest ranking stock on the reserve list. If the resulting new company satisfies the Gaming Sector Screen and ranks higher than the highest ranking stock on the reserve list, the resulting new company will become a constituent of the index; otherwise, the original constituent will be replaced by the highest ranking stock on the reserve list..

### 7.3 Spin-off

If a constituent company is spun off to form two or more companies, whether the resulting companies are eligible for inclusion in the index will depend on their rankings.

- If the resulting new companies fail the Gaming Sector Screen, the original constituent will be removed and replaced by the highest ranking stock on the reserve list.
- If the resulting companies satisfy the Gaming Sector Screen and rank higher than the lowest ranking constituents, the lowest ranking constituents will be removed and replaced by the resulting companies.
- If the resulting companies satisfy the Gaming Sector Screen and some of them rank higher than the lowest ranking constituents, the

lowest ranking constituents will be removed and replaced by the higher ranking resulting companies.

- If the resulting companies satisfy the Gaming Sector Screen and rank lower than the lowest ranking constituent, but some or all of the them rank higher than the highest ranking stock on the reserve list, the original constituent will be removed and replaced by the highest ranking resulting company.
- If the resulting companies satisfy the Gaming Sector Screen and rank lower than the lowest ranking constituent and the highest ranking stock on the reserve list, the original constituent will be removed and replaced by the highest ranking stock on the reserve list.

## 7.4 Suspension

If a constituent is suspended from trading, the decision to remove it from the index will base on the reasons for suspension.

## 7.5 Bankruptcy

If a constituent company enters into bankruptcy proceedings or is adjudged bankrupt, it will be removed from the index and the highest ranking stock in the reserve list will be added to the index.

## **8. Regular Review and Periodic Share Adjustments of Indices**

Constituents of CES G10 are reviewed every 6 months. Constituents and constituent weights are adjusted following to the regular review.

## 8.1 Review Period

Constituents of CES G10 are reviewed in June and December every year and index reconstitution and float share adjustments are implemented after the market close on the second Friday of each June and December (“Review Effective Date”).

## 8.2 Data Used for Regular Review

Data used for June review includes trading data and financial data from 1<sup>st</sup> May of the previous year to 30<sup>th</sup> April of the review year (in case of an IPO, data since its fourth trading day are used). Data used for December review includes trading data and financial data from 1<sup>st</sup> November of the previous year to 31<sup>st</sup> October of the review year (in case of an IPO, data since its fourth trading day are used).

## 8.3 Float Share Adjustments

Free float shares adjustment for CES G10 is reviewed semi-annually. The adjustment will be implemented after the market close on the second Friday of June and December. See Rule 4.4: “Free Float”, Rule 4.5: “Category-Weight Method” and Section 5: “Maintenance of Constituent Shares and Capping Factor Adjustments”

## 8.4 Index Reconstitution

The indices are reconstituted based on the selection criteria in Section 3 together with the following additional rules:

### 8.4.1 Buffer Zone

To minimize index turnover, a buffer zone rule is employed during the reconstitution of CES G10.

- Candidate stocks rank within the top 8 will have the priority to be

added into the index and the existing constituents ranking within the top 12 will also have the priority to be retained in the index. If the application of the buffer zone rule has resulted in having more than 10 constituents, then the existing constituents with the lowest ranking will be removed from the index. On the contrary, if the application of the buffer zone rule has resulted in having less than 10 constituents, the candidate stocks with the highest ranking will be added into the index.

- If the number of constituents falls below 10, non-constituents will only be added if they fulfilled the Liquidity Screen test (See Rule 3.2). This will potentially result in having less than the required number of constituents in the Index, the buffer zone rule will not be applicable to the index.

## 8.5 Reserve List Maintenance

A reserve list of index constituents is established in each regular review for CES G10 to implement non-regular adjustment. (See Section 9)

## 8.6 Long Suspension Stocks

**Existing index constituents.** Index constituents that have been suspended during the review period:

- Constituents that have been suspended for 3 months or more and have not resumed trading as of the Review Cutoff Date will be classified as candidate for removal.
- Constituents that have been suspended for close to 3 months as of the Review Cutoff Date may be considered as candidate for removal.
- Constituents that had been suspended for 3 months during the review period but have resumed trading will be retained in the index in principle if they meet the criteria.

**For stocks not included in the index.** Stocks that are not index constituents and have been suspended during the review period:

- ❑ Stocks that have been suspended for 3 months or more and have not resumed trading as of the Review Cutoff Date will not be selected as candidate.
- ❑ Stocks that have been suspended for close to 3 months as of the Review Cutoff Date may be considered as candidate.
- ❑ Stocks that have been suspended for 3 months or more during the review period can be included in the index only if trading has been resumed for 3 months.

## 9. Constituent Reserve List

In order to enhance the predictability and transparency of non-regular index reconstitution, CES G10 adopts a reserve list policy which is used to implement non-regular index reconstitution between regular reviews.

- ❑ The reserve list is created for each regular review of index constituents. Two stocks are included in the reserve list of CES G10.
- ❑ If non-regular index reconstitution is required (due to delisting, merger, etc) leading to a vacancy in constituent stocks, the highest ranking stock on the reserve list will be added to the index.
- ❑ When the stocks on the reserve list are used up, candidate stocks will be added to the respective reserve list. CESC and CSIC will then publish the new reserve list in a timely manner.



## **10. Amendments and Supplements to Index Methodology**

In response to market development and clients' feedback, CESC and CSIC will amend or supplement the Index Methodology from time to time as appropriate. Proposed changes will be announced to the market prior to implementation.

## **11. Information Disclosure**

To maintain the objectiveness, independence and authority of the indices, CESC has adopted a stringent information disclosure policy to ensure transparency, openness and fairness.

- Any personnel of CESC and CSIC are forbidden to divulge any information to any third party, including private media interviews before such information is disclosed to the public.
- Media used for information disclosure includes but not limited to website of CESC and CSIC.
- In general, result of the regular index review is published two weeks before the effective date. Non-regular adjustment in constituents will be published as soon as practicable. Changes in index methodology and index maintenance rules are usually published two weeks before the effective date.

## **12. Index Dissemination**

### **12.1 Index Code**

Index Name	Abbreviation	Index Currency (Real Time)	Index Code (Real Time)
CES Gaming Top 10 Index	CES G10	HKD	CESG10

## 12.2 Dissemination Channels

CES G10 is disseminated via various channels to onshore and offshore markets:

- Broadcasted via HKEx's and CSIC's real time broadcast systems;
- Released real time globally via global information vendors;
- Published daily through the Internet at CESC's website:  
<http://www.cesc.com/>.
- Published daily through the Internet at CSIC's website:  
<http://www.csindex.com.cn/>.
- The total return indices of CES G10 is published daily after the close of trading through the Internet at CESC's website:  
<http://www.cesc.com/> and CSIC's website:  
<http://www.csindex.com.cn/>

## 12.3 Dissemination Frequency

CES G10 is calculated every one second and disseminated every five seconds.

## Appendix A: Free Float

Some of the issued shares are almost illiquid within a specific period of time owing to sales restriction or strategic holding and so on. The investment opportunity of the index will not be truly reflected if these non-negotiable shares are included in compilation of the index. Hence, a free float market capitalisation weighted method is used to calculate the index.

### 1. Scope of Free Float

Free float is defined as the issued shares tradable in the open stock market. The restricted shares and any holdings of shares classified under the six categories listed below will be deemed as non-free float shares for HK securities:

- (1) Long term holdings by founders, their families and senior executives of the company: Shares held by founders or founders' families as well as shares held by board members, supervisors and members of the senior management team etc.
- (2) Government holdings: Shares held by the government or agencies.
- (3) Strategic holdings: Shares held by strategic investors for long-term strategic interests subject to lock-up period.
- (4) Frozen shares: Frozen shares held by investors.
- (5) Restricted employee shares: Shares held by employees including employee pension plan, annuities for employees or management staff subject to lock up period.
- (6) Cross holdings: Two or more listed companies holding shares of other listed company(ies) which results in cross holdings.

## **2. Identification of Free Float**

(1) Restricted shares subject to lock-up period are deemed as non-free float.

(2) For non-restricted shares, the shares are deemed as non-free float if the shareholding held by shareholders classified under the six categories above together with persons acting in concert exceeds 5%. For the avoidance of doubt, any shareholdings, including any of the above six categories of less than 5% is treated as free float.

(3) Restricted shares after the lock-up period are treated the same way as non-restricted shares.

## **3. Information Source**

Free float is determined using all public information that is required to be disclosed by existing laws and regulations, which includes:

- (1) Prospectus and listing notice;
- (2) Financial report; and
- (3) Company announcement.

## **4. Adjustment of Free Float**

Free float changes resulting from shareholder actions are implemented in the semi-annual index regular review. The adjustment will take effect after the market close on the second Friday of June and December.

## Appendix B: Definition

1. Gaming Stocks - Companies which are the owners and operators of casino and gaming facilities, including companies providing lottery and betting services. Companies are classified based primarily on its majority of revenues.
2. Review Data Cutoff Date (“Review Cutoff Date”) – the cutoff date for June and December review on 30th April or 31st October as the case may be.
3. Adjusted price of ex-dividend and ex-right – the reference price published by the exchanges on the ex-right (dividend) day which is used to notify investors that the intrinsic value of the stocks have been diluted due to dividend or rights offering.

a) Dividend

$$\text{Ex-dividend price} = \text{Closing price before ex-dividend day} - \text{Dividend per share}$$

b) Bonus issue

$$\text{Ex-bonus price} = \frac{\text{Closing price before ex-bonus day}}{1 + \text{Bonus issue ratio}}$$

c) Rights issue

$$\text{Ex-right price} = \frac{\text{Closing price before ex-right day} + \text{Rights issue price} \times \text{Rights issue ratio}}{1 + \text{Rights issue ratio}}$$

d) Stock split and stock consolidation

$$\text{Ex-right price} = \text{Closing price before ex-right} \times \frac{\text{Total number of shares before ex-right day}}{\text{Total number of shares on ex-right day}}$$

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