



Citi Liquid DR Indices

A Distinct Perspective on International Investor Sentiment

Depository Receipt Services
Updated March 2008



Citi Liquid DR Indices

Depository Receipt Services at Citi, a leading depository bank, has developed six Liquid DR Indices that are an excellent gauge of international investor sentiment toward non-U.S. markets.

Security selection is based on distinctive and objective rules:

- U.S. exchange cross-listed or single-listed ADR, New York Registry Share, or Global Share, or London Stock Exchange traded GDR.
 - London-traded GDRs have been included in the Asian and CEEMEA indices to more completely capture U.S. and international sentiment toward the Indian, Korean, Taiwanese and CEEMEA markets. Single-listed ADRs have been added to better represent the Chinese and Russian markets.
- Minimum free-float market cap of US\$250 million.
- Minimum \$US value of trading of \$2 million/day for U.S.-listed ADRs, or \$1 million/day for London-traded GDRs.
- The indices are calculated and maintained by Standard & Poor's Custom Index Group.

Overview

Citi has developed six innovative liquidity-based DR¹ indices.²

World ex-U.S. Liquid DR Index

- Bloomberg ticker symbol: CLDRWXUS
- Benchmark: MSCI All Country World ex-U.S. (MXWDU)

AsiaPac ex-Japan Liquid DR Index

- Bloomberg ticker symbol: CLDRAPAC
- Benchmark: MSCI Asia Pacific ex-Japan (MXAPJ)

AsiaPac Growth Economies Liquid DR Index

- Bloomberg ticker symbol: CLDREAS
- Benchmark: MSCI Emerging Markets Asia (MXMS)

EuroPac Liquid DR Index

- Bloomberg ticker symbol: CLDREPAC
- Benchmark: MSCI EAFE³ (MXEA)

LatAm Liquid DR Index

- Bloomberg ticker symbol: CLDRLAT
- Benchmark: MSCI Latin America (MXLA)

CEEMEA Liquid DR Index

- Bloomberg ticker symbol: CLDREMEA
- Benchmark: MSCI Europe, Middle East and Africa (MSEUEMEA)

Results are calculated daily and are available on Bloomberg or the Citi ADR web site, www.citi.com/adr.

Citi has also developed six liquidity-based DR total return sub-indices that include both dividend income and price appreciation. Please see page 11 for details

¹ A DR (Depository Receipt) is a negotiable certificate evidencing ownership of shares of a non-U.S. company that are publicly available primarily to U.S. investors. A GDR (Global Depository Receipt) is a DR that is not registered in the U.S. and is traded in one or more European markets. The term DR is used to represent both U.S.-listed ADRs and London-traded GDRs.

² Citi Liquid DR Indices start on December 31, 2000. Citi has contracted with Standard & Poor's to maintain and calculate the indices.

³ Morgan Stanley Capital International, Europe Australasia and Far East Index.

Benefits

Citi's Liquid DR Index returns are an excellent gauge of U.S. and international investor sentiment toward non-U.S. markets, and provide a potentially cost-effective trading tool for investors.

Liquid DR Indices focus on international investor activity.

MSCI benchmarks contain ordinary shares that are primarily held by local investors and commingle U.S., international and local sentiment toward non-U.S. markets.

At the end of the U.S. trading day the Liquid DR Indices provide a timely gauge of U.S. and international investor sentiment because all of their constituent stocks trade in the U.S. and/or London time zones.

MSCI benchmarks contain ordinary shares that trade in local time zones. Local markets may have closed up to 14 hours earlier than the U.S. market closing and the end-of-day index updates.

- Returns are highly correlated to regional MSCI benchmarks.
- Highly correlated returns are achieved with only a small fraction of the number of constituents in the MSCI benchmarks and other DR indices.

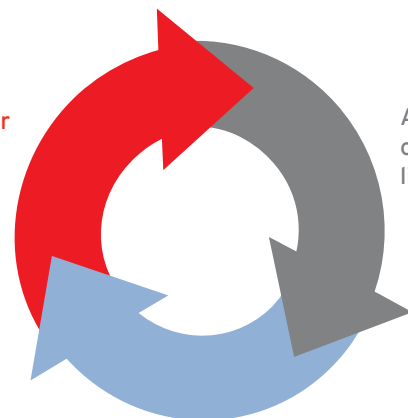
Why liquidity is important to the global investor

Liquidity provides the best measure of investor sentiment

- Traders prefer to deal in liquid issues, and both sell-side and buy-side analysts prefer to cover liquid issues.
- Even a small trade of an illiquid stock can give a misleading signal to investors. Liquid stocks are more easily traded and are not subject to price aberrations due to large trades.
- Without the ability to move into and out of positions of sufficient size, institutions are reluctant to add a security to their managed portfolios.

Traders prefer to deal in liquid issues

Analysts cover liquid stocks



Institutional investors buy shares they can trade easily without moving the price

Citi's Liquid DR Index Methodology

Methodology Contents

Index Calculation 4

Index Maintenance..... 6

Total Return Indices and Calculation 11

Divisor Analysis..... 12

Share Changes..... 13

To avoid distortions in market performance and weighting, the indices are free-float market cap weighted rather than total capitalization weighted. The indices start on December 31, 2000, and are assigned a base value of 100. Citi has contracted with Standard & Poor's to calculate and maintain the indices. The methodology used to calculate the indices is similar to that of the S&P 500 Index except that the constituents are free-float market cap weighted instead of total capitalization weighted, and constituent selection is rules-based rather than committee-based.

Index Calculation

Citi's Liquid DR Indices are calculated using a base-weighted aggregate methodology. That means the level of the index reflects the free-float market value of all component stocks relative to a particular base period. The free-float market value of a company is determined by multiplying the price of its stock by the number of available shares outstanding.⁴ Statisticians call an index of a set of combined variables (such as price and number of shares) a composite index. An indexed number is used to represent the results of this calculation in order to make the value easier to work with and track over time.

The indices' base period is December 31, 2000. The free-float market value of the stocks in the indices during the base period has been set equal to an indexed value of 100. The formula used to calculate the indices is fairly straightforward. However, the calculation of adjustments to the indices (commonly called index maintenance) is more complex.

In practice, the daily calculation of each of Citi's Liquid DR Indices is computed by dividing the free-float market value of the constituents of the index by a number called the Index Divisor. The Divisor is the only link to the original base period value of each index. The Divisor keeps the index comparable over time and is the manipulation point for all index maintenance adjustments.

An example of how an index is calculated, using three stocks for illustrative purposes, can be found on the next page.

First, a starting point, or base period, is selected. Second, the initial value of the three-stock index at the base period is calculated. Each company's number of available shares outstanding (excluding DRs) on that date is multiplied by its price per share to determine the free-float market value of each stock. Third, the three market values are summed. The total is the base period market value for the index. Finally, that total then is indexed – set equal to 100 – and used to calculate the base period divisor. The base period divisor in this example (base period free-float market value divided by base period index value) is 100,000.

Suppose that the next day, Day 2 in the example, the per-share price of each of the three stocks in our hypothetical index goes up exactly 10%. Since there have been no changes in the number of available shares outstanding, the market value of each company in the index will go up 10%. That new market value is divided by the Index Divisor, which remained unchanged at 100,000. The new closing value of the index is 110, also exactly 10% higher than the previous day's closing value.

The following three-stock example illustrates the exact steps used every day to calculate the Citi Liquid DR Indices. The indices are always calculated by adding the free-float market values of its components and dividing that sum by the latest Index Divisor.

⁴ As defined by Standard & Poor's. A company's investible equity capital, or free-float, is the amount of share capital that remains after corporate cross-holdings, stakes of controlling shareholders and their families, government holdings and legally restricted shares are removed from its equity capital base.

Citi's Liquid DR Index Calculation Formula

$$\frac{\text{Free-Float Market Value of Index Constituents}}{\text{Latest Index Divisor}} = \text{Citi's Index Value}$$

Sample: Three-Stock Index Calculation

Step 1: Calculate Three-Stock Index Market Value for Day 1 (Base Period)

Stock	Share Price	# Available Shares Outstanding	Free-Float Market Cap
A	\$20.00	50,000	\$1,000,000
B	\$30.00	100,000	\$3,000,000
C	\$40.00	150,000	\$6,000,000
Day 1 (Base Period) Market Value			\$10,000,000

Step 2: Index Base Period Market Value and Determine Base Period Divisor

Set Base Period Market Value equal to an Index number of 100.

$$\$10,000,000 = 100$$

Determine Divisor for Base Period.

$$\text{Latest Index Divisor} = \frac{\text{Free-Float Market Value}}{\text{Base Period Index Number}} = \frac{\$10,000,000}{100} = \$100,000$$

Step 3: Calculate Three-Stock Index Value for Day 2

Stock	Share Price	# Available Shares Outstanding	Free-Float Market Cap
A	\$22.00	50,000	\$1,100,000
B	\$33.00	100,000	\$3,300,000
C	\$44.00	150,000	\$6,600,000
Day 2 Market Value			\$11,000,000

$$\frac{\text{Day 2 Market Value}}{\text{Latest Index Divisor}} = \text{Index Value} = \frac{\$11,000,000}{100,000} = 110$$

Day 2 Three-Stock Index Value = 110

Index Maintenance

Maintaining each index includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends and stock price adjustments due to restructuring or spinoffs. Some corporate actions, such as stock splits and stock dividends, require simple changes in the available shares outstanding and the stock prices of the companies in the index. Other corporate actions, such as share issuances, change the value of the index and require an Index Divisor adjustment to prevent the value of the index from changing due to the corporate action.

Adjusting the Index Divisor for a change in market value leaves the value of the index unaffected by the

corporate action. This helps keep the value of the index accurate as a barometer of stock market performance, and ensures that the movement of the index does not reflect the corporate actions of the companies in it. Divisor adjustments are made after the close of trading and after the calculation of the closing value of the index.

The following table summarizes the types of Citi's Liquid DR Index maintenance adjustments and indicates whether a Divisor adjustment is required. More detailed examples of the most frequently occurring Index Divisor adjustments are shown on the following pages.

Types of Maintenance and Adjustments		
Type of Corporate Action	Adjustment Factor	Divisor Adjustment Required
Company Change (Addition & Removal)	Add new company market value minus old company market value	Yes
Share Issuance (e.g., change >=5%)	Shares outstanding plus Newly Issued Shares	Yes
Share Repurchase (e.g., change >=5%)	Shares outstanding minus Repurchased Shares	Yes
Spinoff	$\frac{\text{Price of Parent company minus Price of Spinoff Company}}{\text{Share Exchange Ratio}}$	Yes
Stock Split (e.g., 2 x 1)	Shares Outstanding multiplied by 2 Stock price divided by 2	No
Special Cash Dividends	Share Price minus Special Dividend	Yes
Rights Offering	$\frac{\text{Price of Parent company minus Price of Rights}}{\text{Right Ratio}}$	Yes

Company Addition and Removal

In this example, shares in company D replace shares in company B in the index. This is equivalent to a company change in the index and requires a Divisor adjustment. The key to making this adjustment is that the value of the index is temporarily frozen after the close of trading while the Divisor

is adjusted for the difference in market value of the two companies. The index value does not change; only the divisor changes. In this example, the market value of company D is twice that of company B. Therefore, the Index Divisor increases.

Divisor Adjustment – Company Addition and Removal

Step 1: Calculate Index Value as of Day 2			
Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$30.00	50,000	\$1,500,000
Company B	\$30.00	100,000	\$3,000,000
Company C	\$50.00	150,000	\$7,500,000
Total			\$12,000,000

$$\frac{\text{Total Market Value}}{\text{Latest Index Divisor}} = \text{Index Value} \quad \frac{\$12,000,000}{100,000} = 120$$

Step 2: Replace shares in Company B with shares in Company D after the close of trading on Day 2			
Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$30.00	50,000	\$1,500,000
Company D	\$40.00	150,000	\$6,000,000
Company C	\$50.00	150,000	\$7,500,000
Total			\$15,000,000

Solve for new Divisor:

$$\frac{15,000,000}{\text{New Divisor}} = 120 \quad \frac{15,000,000}{120} = 125,000$$

New Divisor = 125,000

Share Issuance

This example shows a share issuance by company A of 50 million new common shares. As a result, its market value increases. Once again, the index value does not change, but a Divisor adjustment is required. The increase in shares outstanding for company A also increases the Index Divisor.

Divisor Adjustment – Share Issuance

Step 1: Calculate Index Value as of Day 3			
Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$40.00	50,000	\$2,000,000
Company D	\$45.00	150,000	\$6,750,000
Company C	\$55.00	150,000	\$8,250,000
Total			\$17,000,000

$$\frac{\text{Total Market Value}}{\text{Latest Index Divisor}} = \text{Index Value} \quad \frac{\$17,000,000}{125,000} = 136$$

Step 2: Company A shares outstanding increased by 50,000 at close of trading on Day 3			
Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$40.00	100,000	\$4,000,000
Company D	\$45.00	150,000	\$6,750,000
Company C	\$55.00	150,000	\$8,250,000
Total			\$19,000,000

Solve for new Divisor:

$$\frac{19,000,000}{\text{New Divisor}} = 136 \quad \frac{19,000,000}{136} = 139,705.9$$

New Divisor = 139,705.9

Company Spinoff

Company C plans to spinoff part of its operating business to shareholders. As a result, the stock price of company C will drop by \$10, the when-issued price of the spinoff

company. A Divisor adjustment is required to compensate for the drop in stock price and market value of company C. As a result, the Index Divisor is adjusted downward.

Divisor Adjustment – Company Spinoff

Step 1: Calculate Index Value as of Day 4			
Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$35.00	100,000	\$3,500,000
Company D	\$40.00	150,000	\$6,000,000
Company C	\$50.00	150,000	\$7,500,000
Total			\$17,000,000

$$\frac{\text{Total Market Value}}{\text{Latest Index Divisor}} = \text{Index Value} \quad \frac{\$17,000,000}{139,705.9} = 122$$

Step 2: XYZ is spun off to shareholders of Company C effective Day 5. XYZ is not included in the index. At the close of trading on Day 4, the stock price of Company C is adjusted downward by \$10 for the spinoff. Calculate New Divisor.

Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$35.00	100,000	\$3,500,000
Company D	\$40.00	150,000	\$6,000,000
Company C	\$40.00	150,000	\$6,000,000
Total			\$15,500,000

Solve for new Divisor:

$$\frac{15,500,000}{\text{New Divisor}} = 122 \quad \frac{15,500,000}{122} = 127,049.2$$

New Divisor = 127,049.2

Stock Splits and Stock Dividends

Transactions regarding stock splits and stock dividends do not affect the Divisor of the index because the resulting market value of a company is unchanged. Both the stock price and the number of shares outstanding are adjusted such that

there is no change in the market value of the company. All stock split and dividend adjustments are made after the close of trading on the day before the ex-dividend date.

Stock Split

Company A announces a 2-for-1 stock split effective Day 6. At close of trading on Day 5, Company A's stock price and shares are adjusted.

Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$40.00	100,000	\$4,000,000
Company D	\$45.00	150,000	\$6,750,000
Company C	\$50.00	150,000	\$7,500,000
Total			\$18,250,000

$$\frac{\text{Total Market Value}}{\text{Latest Index Divisor}} = \text{Index Value} \quad \frac{\$18,250,000}{127,049.2} = 144$$

Stock	Share Price	# of Common Shares Outstanding	Market Value
Company A	\$20.00	200,000	\$4,000,000
Company D	\$45.00	150,000	\$6,750,000
Company C	\$50.00	150,000	\$7,500,000
Total			\$18,250,000

$$\frac{18,250,000}{127,049.2} = 144$$

The Index Divisor is not adjusted for a stock split because there is no change in market value.

Total Return Indices and Calculation

Citi has also developed six innovative liquidity-based DR Total Return (TR) sub-indices.

AsiaPac ex-Japan Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDRAPTR

AsiaPac Growth Economies Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDREATR

EuroPac Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDREPTR

LatAm Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDRLATR

CEEMEA Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDREMTR

World ex-U.S. Liquid DR Total Return Index

- Bloomberg ticker symbol: CLDRWXTR

Total Return Calculation

The total return for each index constituent is calculated by adding dividend income and price appreciation. Dividends are based on the ex-dividend date rather than the payment date because the marketplace price adjustment for the dividend occurs on the ex-dividend date.

To calculate the total return for a given time period, an indexed dividend for that time period is added to the closing Citi's Liquid DR Index value at the beginning of the time period. The indexed dividend is an index number that represents the dividend distribution of the companies in Citi's Liquid DR Index. It is calculated by adding the total daily dividends (based on the ex-dividend date) for all of the stocks in the Index for a given time period and then converting that sum to an indexed number by dividing it by the same Index Divisor that is used to calculate the actual Citi's Liquid DR Index.

The general formula to calculate the indexed dividend is:

$$\frac{\text{Total Daily Dividends}}{\text{Latest Index Divisor}} = \text{Indexed Dividend}$$

Divisor Analysis

Citi's Liquid DR Index Divisor can be used to analyze the impact of an event, such as a stock's price response to an earning surprise, on the value of Citi's Liquid DR Index.

The effect of the event on the Index can be estimated by determining the market value impact of an event and dividing by the Index Divisor. Likewise, an impact on the index can be viewed in reverse. The required change in market value to move Citi's Liquid DR Index one basis point, or 0.01%, can be

estimated by multiplying the Index Divisor by one basis point. The most frequent use of divisor analysis is to determine which stock or stocks moved the index on a particular day.

(Note: Divisor analysis should only be used to analyze the effect of corporate actions that do not require a divisor adjustment. Corporate actions that require a divisor adjustment do not change the index value.)

The general formula for divisor analysis is:

$$\frac{\text{Market Value Impact}}{\text{Index Divisor}} = \text{Impact on Index (Basis Points)}$$

Share Changes

A large part of Citi's Liquid DR Index maintenance process involves tracking the changes in the number of shares outstanding of each of the index constituents. One of the largest changes made to the Index Divisor is the divisor adjustment for the quarterly update of common shares outstanding for all companies in the Citi Liquid DR Indices. Four times a year, on a Friday near the end of each calendar quarter, the share totals of all the companies in the index are updated. After the totals are updated, the Index Divisor is adjusted to compensate for the net change in the market value of the index.

Calculating shares outstanding

Determining the exact number of common shares outstanding for the companies in the index is a formidable task. Shares outstanding are constantly changing. After much testing, Standard & Poor's has adopted a policy that share changes of less than 5% are only updated on a quarterly basis. Updating share changes of less than 5% on a quarterly basis still maintains the statistical accuracy of the index.

In addition, it preserves the mathematical properties of the Index Divisor. If Standard & Poor's changed the

number of shares outstanding in the index on a daily basis, adjustments would also need to be made to the divisor every day. Those changes would slowly erode the divisor's validity. Rounding errors would accumulate until they became statistically significant. As a result of this policy, the shares outstanding used in the calculation of the index are close to the number reported by constituent companies, but the two totals are rarely exactly the same.

Weekly review

Once a week the database containing the current available shares outstanding for the index companies, which is updated daily, is compared against the shares outstanding used to calculate the index. Any difference of 5% or more is screened for review. If appropriate, a share change will be implemented after the close of trading on the following Wednesday. Preannounced corporate actions such as restructurings or recapitalizations can significantly change a company's shares outstanding. Any changes of 5% or more are carefully reviewed, and when appropriate, an immediate adjustment is made to the number of shares outstanding used to calculate the index.

Depository Receipt Services at Citi

Depository Receipt Services is a leader in bringing quality issuers to U.S. and global capital markets and promoting Depository Receipts (DRs) as an effective capital markets tool. Citi began offering DRs in 1928 and today is widely recognized for providing non-U.S. companies with a gateway to the resources of Citi and the means to diversify shareholder bases and increase liquidity.

www.citi.com/adr

Global Transaction Services www.transactionservices.citigroup.com

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