Tutorial : Financial Instrument Codes

This document describes different financial instrument naming standards used to identify securities or exchanges on which they are traded.

This document is organized as following: Section 1 describes the ticker codes. Sections 2 and 3 describe two National Securities Identifying Numbers (NSIN), respectively CUSIP (for North-America) and SEDOL (for United Kingdom and Ireland), which are related to the ISIN code; Section 4 describes the International Securities Identifying Number (ISIN); Section 5 describes the Reuters Instrument Code (RIC) used by Thomson Reuters to identify financial information and indices. Finally, Section 6 gives some exercises in order to demonstrate how these different instruments naming work.

Ticker Code

A ticker symbol is an abbreviation which identifies in a unique way publicly traded shares of a stock on a stock market. That way, a tradable instrument can be tracked throughout trading settlements and price reporting systems. A ticker code can have letters, numbers or both.

Ticker Code in the U.S.A

The ticker code in U.S.A has been developed by Standard & Poor's. Before this ticker symbol was introduced, a company could have had many different symbols as they varied between the different stock markets. They now are unique identifiers assigned to each security traded on a market.

Ticker Code in the United Kingdom

Prior to 1996, ticker codes in the U.K. were known as the EPICs (Exchange Price Information Computer). Now, they are called TIDM (Tradable Instrument Display Mnemonics).

Ticker Code in Australia

In the ASX, a 3-character code typically indicates ordinary shares in a company. The listed company's codes have 3 characters. It represents that company and all securities issued by this company will incorporate this 3-character code.

Examples of Ticker Codes

United States:

- Microsoft: MSFT

- Google: GOOG

United Kingdom:

- HSBC: HSBA

- Barclays: BARC

Australia:

- BHP Billiton Limited: BHP

- ANZ Group CFD: ANZ

Committee on Uniform Security Identification Procedures (CUSIP)

The Committee on Uniform Security Identification Procedures (CUSIP) is a 9-character alphanumeric code. It identifies a North American (USA & Canada) security. This code is owned by the American Bankers Association and operated by Standard & Poor's. It comes from a lack of uniformity in the naming which created a lot of problems such as getting common stock in error or for instance, an American express holder might have got back AMAX (American Metal Climax) information instead of AMEX by mistake.

This code is organized as following:

- The first 6 characters (CUSIP-6) identify the issuer and is assigned alphabetically from a series;

- The 7th and 8th characters identify the exact issue: numbers are used for equities and letters for fixed incomes;

- The 9th character is automatically generated as a checksum (check digit) with the 10 – Double add double technique.

Calculation of the check digit

1. Starting with the right-most digit, replace each alternate digit with the sum of the digits of its double.

2. Take the sum of these digits. Take its last digit.

3. The check digit is 10 minus the last digit.

N.B.: A CUSIP code can have letters as well as numbers. Before doing these steps to calculate it, you should convert these letters in numbers. The letter 'A' will be replaced by 10, 'B' by 11 and so on. Special characters can be used: * = 36, @=37 and #=38.

Example

1. Microsoft Corporation: CUSIP code: 594918104

We can see that the check digit is 4. To calculate it, we must convert any letters in numbers. As this CUSIP code doesn't have any letters, we can calculate the check digit directly.

Number:	5 9 4 9 1 8 1 0
Double alternate digits (starting with the right-most digit)	5 18 4 18 1 16 1 0
Add digits	5 9 4 9 1 7 1 0
Add all digits	36
Last digit of the sum	6
Check digit	10 – 6= 4

2. Google Inc.: CUSIP code is 38259P508

We can see that the check digit is 8. We first will convert the letter P in a number: 25. Then we repeat the same stages as the previous example:

Number:	3 8 2 5 9 25 5 0
Double alternate digits (starting with the right-most digit)	3 16 2 10 9 50 5 0
Add digits	3 7 2 1 9 5 5 0
Add all digits	32
Last digit of the sum	2
Check digit	10 – 2 = 8

Stock Exchange Daily Official List (SEDOL)

A SEDOL is a 7-character alphanumeric code. It identifies securities from the United Kingdom and Ireland. The NNA is the London Stock Exchange which assigns the numbers on request by the security issuer. SEDOLs codes are allocated sequentially and with no inherent meaning for each market an instrument is traded on.

Since 2004, this code is organized as following:

- 1 alpha character

- 5 alphanumeric character

- 1 numeric check digit

N.B.: Vowels are never used in a SEDOL.

Calculation of the check digit

Like the ISIN check digit calculation, each alpha character is first converted in numbers before calculating the check digit. B = 11; C = 12 and so on. To check that a number is reported correctly, each digit of the SEDOL code is multiplied by a weight and the results are summed:

First	1
Second	3
Third	1
Fourth	7
Fifth	3
Sixth	9
Seventh (check digit)	1

To calculate it, the formula is: (10 – (weighted sum modulo 10)) modulo 10

Example:

1. The SEDOL code for HSBC in United Kingdom is: 0-540-528 (it does not start with an alpha character as it has been issued before 2004).

- The check digit is 8.

- We first weight each of the number: 0x1; 5x3; 4x1; 0x7; 5x3; 2x9

- So, we now have (0; 15; 4; 0; 15; 18).

- The total sum of these digits is 52.

  So we have (10 – (52 mod 10)) mod 10 = 8 mod 10 = 8.

2. The SEDOL code for Barclays is 3-134-865

- The check digit is 5.

- We weight each of the number: 3x1; 1x3; 3x1; 4x7; 8x3; 6x9

- Then we have the following numbers: (3; 3; 3; 28; 24; 54). The total sum is 115.

- (10 – (115 mod 10)) mod 10 = 5. We have verified that the check digit is 5.

International Securities Identifying Number (ISIN)

An ISIN is a 12-character alphanumeric code. It identifies a security (including bonds, commercial papers, equities & warrants). It is not a ticker symbol as it identifies a security and not the exchange (if any) on which it is traded. ISINs are slowly being introduced to the world, but for now it is still mostly used as a secondary measure of identifying securities.

This code is organized as following:

- 2 letters for the country code (US for USA for instance)

  o You can find these codes in the following website:

  http://www.iso.org/iso/country_names_and_code_elements

  o You can find the country decoding table in the following website:

  http://www.iso.org/iso/iso-3166-1_decoding_table

- 9 alpha-numeric characters for the National Security Identifier Number (NSIN) which is issued by a National Numbering Agency (NNA) designated for that country. For instance, in the USA and the Canada, NNA is the CUSIP Service Bureau and the NSIN is CUSIP (refer to section 2); in the UK and Ireland, NNA is the London Stock Exchange and NSIN is SEDOL (refer to section 3); in Australia, NNA is the Australian Securities Exchange and NSIN is the Australian Ticker Code (refer to section 1). If the NSIN has less than 9 digits, additional zeros are added before it and after the country code to have a 9 characters' code for the NSIN.

- 1 check digit. The method to calculate this digit is like the "10 Double add double" one. The check digit provides the mean of mathematically determining the accuracy of the whole number transmitted.

Calculation of the check digit:

1. Starting with the right-most digit, replace each alternate digit with the sum of the digits of its double.

2. Take the sum of these digits. Take its last digit.

3. The check digit is 10 minus the last digit.

N.B.: An ISIN code can have letters as well as numbers. Before doing these steps to calculate it, you should convert these letters in numbers. The letter 'A' will be replaced by 10, 'B' by 11 and so on.

Special characters can be used: * = 36, @=37 and #=38.

Example

The ISIN code for BHP Australia is AU000000BHP4. We can see that the check digit is 4.

Convert any letters in numbers: A = 10; U = 30; B=11; H=17 and P=25

We now have the following code: 1030000000111725 (without the check digit).

Number:	1 0 3 0 0 0 0 0 0 0 1 1 1 7 2 5
x2 alternate digits (starting with the right-most digit)	1 0 3 0 0 0 0 0 0 0 1 2 1 14 2 10
Add digits	1 0 3 0 0 0 0 0 0 0 1 2 1 5 2 1
Add all digits	16
Last digit of the sum	6
Check digit	10 – 6 = 4

- The ISIN Code for ANZ is: AU000000ANZ3

- HSBC: GB005405286

- Barclays: GB0031348658

- Microsoft: US5949181045

- Google: US38259P5089

Reuters Instrument Code (RIC)

Reuters Instrument Code (RIC) is a tick-like code used by the company 'Thomson Reuters' to identify financial information and indices. It is a structured code. Reuters Instrument Code is used to find news and market data as all financial instruments and economic data had RICS (bonds, stocks, currencies, etc.).

A RIC generally includes the following elements (but not necessarily all of them):

- A RIC Root, which identifies the most basic aspect of the instrument such as FIA (for FIAT), EUR (EURO)

- Period of time intervals which is primarily used in the foreign exchange or money market RICs such as ON (overnight), SW (Spot Week), or 1M (1 Month)

- One or more delimiters which are used to separate different component of a RIC (such as: ! or =)

- Source code which indicates the source of the data.

- Contributor code or market maker identifier: it identifies any organization or market maker identifier that contributes information/quotes to the network.

- Exchange Identifier: it identifies any exchange where instrument is traded.

- RICs can be displayed as:

- Full quotes: all information about one financial instrument will be found

- Extended chains: key information on several financial instruments will be displayed

- To display a chain, the code 0# is used before a RIC (for example an index). This will give the constituents of an index.

   NB: This section of the tutorial explains generally the main RIC forms of codes. To get more details about RICs please refer to the attached guide: "Reut_Dataguide1104" . The pages are given in each subsection to help you to find the needed details easily.

Equity (p.37)

Most of equity RICs are short alphabetic codes based on the company name, followed by an identifier that indicates where the instrument is traded. Usually, the root code used is the ticker code of the firm (refer to section 1).

For example:

- MSFT.O for Microsoft Corporation in NASDAQ
- GOOG.O for Google Inc. in NASDAQ

- HSBA.L for HSBC in London Stock Exchange

- BARC.L for Barclays in London Stock Exchange

- BHP.AX for BHP Billiton Limited in the Australian Stock Exchange

- ANZ.AX for ANZ Group CFD in the Australian Stock Exchange

Indices (p.40)

Index RICs symbols start with a dot in front of the code as, for instance, .SPX for S&P 500 or .DJI for Dow Jones Industrial Average. To get all the equities from an index, you should use 0# in front of the index RIC symbol. For example, 0#.AFLI, will give you the financial information you are looking for the 50 leaders of ASX according to S&P.

Bond Markets (p.51)

The general fixed income RICS has the following form:

DE113514=F

- 2 letters country code (DE stands for Deutsch) specifying the country of issue

- The official code (local code) which varies from market to market

- A delimiter sign, always = in bond markets

- A source code (when applicable). Here, F stands dor Franckfurt Stock Exchange

Spot Rates and Cross Rates (p.69)

To build the RIC for spot rates, you need to find the ISO code for the currency. To find it, you can refer to the excel file "Currency and funds code list". Once you have it, you must put the delimiter = at the end. Usually, the spot rate is shown against US Dollar. For instance:

- GBP= will give you the spot rate of US Dollar against British Pound Sterling

- AUD= will give you the spot rate of US Dollar against the Australian Dollar

To get the cross rate, you need to use the RIC for each of the currency you want to compare and add the delimiter = at the end of its. The first currency you wrote is the base currency, the second one is the counter-currency.

- EURAUD= will give you the cross rate between Euro and Australian Dollar. As the Euro RIC is first, this code will tell you how many AUD you will have for 1 euro.

Futures (p.83)

The futures do exist for stock indices, commodities and for the interest rate and bond markets as well. Once you know the Root code, you can easily build the future code:

For instance: USZ4

US is the root code for the United States Treasury Bonds. Z stands for the month December and then 4 means 2004 (5 would mean 2005 and so on).

You can also use an expansion chains for futures using 0# before the root code and add a colon at the end: 0#US:

The following dashboard lists the code for the months of the year:

January F	April J	July N	October V
February G	May K	August Q	November X
March H	June M	September U	December Z

To display futures contracts, the most convenient way is to use continuation RIC as it displays the current contract and you do not need to change the year or month code.

It is organized as follow:

- RIC root code
- Lower letter c (stands for continuation)
- Front contract number

When using a continuation RIC, be careful of the lower and upper case which are very important for this kind of RIC.

Options (p.89)

Options can be traded on a broad variety of financial instruments (equities, currencies, commodities, interest rate and bond futures, etc.).
To get direct information about options, you can use in TRTH speed guide.

Equity options are usually included these elements:

- Root RIC
- *
- .
- Exchange identifier
- Sometimes, an option chain extension

For instance:

- 0#IBM*.U (U stands for the OPRA Exchanges)

- 0#GOOG*.U

- 0#BARC.L

- 0#HSBA.L

- 0#BHP*.AX

- 0#ANZ*.AX

The interest-rate options incorporate the RIC root and a colon. Options on futures use the total future expression with a plus sign at the end of it.

N.B.: OPRA means Options Price Reporting Authority. It reports prices on US equity, index, currency and interest rate options from the following exchanges:

- AMEX .A

- BOSTON .B

- CHICAGO .W

- ISE .Y

- PACIFIC .P

- PHILADELPHIA .X

- NASDAQ .O

6. Exercices

CUSIP, SEDOL, ISIN

1. Find the check digits for the following CUSIP codes :

a. IBM: 45920010

b. General Motors: 62010A1051

2. Find the check digits for the following SEDOL codes:

a. Marks & Spencer: 312748

b. British Airways: 012905

3. Find the ISIN codes for all of the previous codes, and calculate their check digits

RIC

Using SpeedGuide and the Search option

1. Use the Speed Guide to look for the following indices: CAC40 In order to find it, you should start looking into the INDICES page of the speedguide. Navigate into these pages to find this index. Hint: this is a French index.

2. Use the Search button to find the following equity: Marks & Spencer in the London Stock Exchange. Do not hesitate to try different criterions to find this equity. You should try to select the exchange and write the name of the company you are looking for.

Some of the following questions will guide you for your search.

1. Find the RIC for the following equity:

a. General Motors in the Chicago stock exchange (Use the Search button)

2. Find the RIC for the following indices:

a. ASX All Ordinaries Index (Use the speedguide)

3. Find the RIC for the following options:

a. Sanofi Adventis from OPRA

b. NAB from the Australian Stock Exchange

4. Find the RIC for the following futures:

a. Currency listed contract for the Australian Dollar

b. Option on futures of Bulgari (Italian firm) (Use the speedguide)

5. Find the RIC for the following spot rates:

a. Japanese Yen (Use the excel document "Currency and funds list")

b. Norwegian Krone

6. Find the RIC for the following cross rates:

a. New-Zealand Dollar and Australian Dollar

b. Pakistan Rupee and Colombian Peso

7.References

http://en.wikipedia.org/wiki/Ticker_symbol

http://en.wikipedia.org/wiki/NSIN

http://www.investopedia.com/ask/answers/06/ISINnumberings
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http://en.wikipedia.org/wiki/SEDOL

http://www.londonstockexchange.com/products-and-
services/reference-data/sedol-master-
file/documentation/sedol-technical-specification.pdf

http://en.wikipedia.org/wiki/Reuters_Instrument_Code

http://handbook.reuters.com/index.php/Cracking_the_codes

http://www.asx.com.au

Financial Instrument Codes – Solutions to Exercises

CUSIP, SEDOL and ISIN

1.
   a. 1
   b. 5

2.
   a. 9
   b. 7

3.
   a. IBM: US4592001014
   b. General Motors: US62010A1051
   c. Marks & Spencer: GB0031274896
   d. British Airways: GB0001290575

RICs

Using SpeedGuide and the Search option

1. 0#.FCHI
2. MKS.L

1. GM.W
2. .AORD
3.
   a. 0#SNY*.U
   b. 0#NAB*.AX
4.
   a. 0#AUD:
   b. 0#BULG*.MI+
5.

a. JPY=

b. NOK=

6.

a. NZDAUD=

b. PKRCOP=