TradeSim®

Advanced Trading Simulator and Back Tester

Application Note 7

Simulating CFD's using Variable Margin Requirement

✓ TradeSim Standard, Professional, Enterprise Editions
✓ Metastock Version 7.xx and above
✓ TradeSim Version 6.4.0 and above
✓ Metastock/TradeSim plugin to Metastock Version 8.3.0

Last Update 23 March 2009

Contents

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Introduction

With TradeSim it is possible and important to be able to simulate your Trading system under the same conditions that you would actually trade it. When trading stocks under margin where each stock assumes a different margin requirement it is important to be able to take into account the differing margin requirements. Some back testing software assumes a single margin requirement for all trades and securities. This can be misleading for trading systems that are sensitive to the actual margin requirement value

TradeSim facilitates variable margin requirement by including extended data fields, which allows extended data to be stored for each trade in the trade database. This data includes margin requirement for stocks, point value and initial margin for futures as well as transaction cost and trade rank.

You can either store this data in the trade database at the time the trade database is created in MetaStock or starting with Version 6.4.0 and above, you can now load this data after a trade database has been loaded into TradeSim. When the data is loaded post trade database creation this data is not stored with the trade database and so will needed to be reapplied each time a trade database is loaded into TradeSim.

Specifying Margin Requirement Data

Each CFD provider will have a list of the securities that they allow you to trade on margin as well as the corresponding margin requirement. This data is needed if you are going to back test a system where each security has its own margin requirement that may or may not be the same as other securities. In this case back testers such as the one built into MetaStock, which can only handle one margin at a time, are fairly useless in testing this scenario or being able to benchmark different CFD providers.

Method 1: Hard coding Margin Requirement data.

You can use the AssignValue function in the TradeSim/MetaStock plugin to assign an extended value to each security and hence each trade in the trade database. However the only problem is that for anything over ten or so symbols it starts getting tedious as you need to have an entry for each symbol.

AssignValue

```
ExtFml("TradeSim.AssignValue",ATTRIBUTE,SYMBOL,VALUE);
```

Valid Attributes are {PointValue, InitialMargin, MaxLoss, TransactionCost, TradeRank, }

A call to this function sets the value of any one of the extended data values depending on the symbol. For example this is a useful way of assigning a different set of commodity values to different markets (symbols).

For example the following MetaStock code sets a few margin requirement values.

```
ExtFml("TradeSim.InitializeValues");     { always include this call }

ExtFml("TradeSim.AssignValue",MarginReq,"AAC", 100);

ExtFml("TradeSim.AssignValue",MarginReq,"ABC", 15);

ExtFml("TradeSim.AssignValue",MarginReq,"ABS", 25);

ExtFml("TradeSim.AssignValue",MarginReq,"ADB", 25);

ExtFml("TradeSim.AssignValue",MarginReq,"ADZ", 100);
```

When the exploration is run, any trade data with the matching symbol of ABC will have 15 written into its data field and so on for all of the other securities that have been assigned. For those securities which are not assigned a value they will have nothing written to the extended data field and will assume the default value when loaded into TradeSim and as specified in the TradeSim trade parameters.

Method 2: Including Margin Requirement Data from a table file

Once you have the CFD vendors Margin Requirement list you will then need to edit and convert the list into a text file, which contains symbol versus the margin requirement in percentage. This can be done with a text editor such as Notepad that comes with Windows.

Using a Table File to specify the extended values

If you have table file, which specifies an extended value for each symbol, then this can be used instead of repeatedly calling the AssignValue from within Metastock. To do this you need to organize a list of values in one text file. For example the following example organizes CFD margin requirement values in a text file called [C:\TradeSimData\Table Files\CFD Margin Table ASX.txt]. As you can see in the example below there is only one value per symbol with the symbol and value arranged in two columns. A hash character at the start of a line indicates that the following information on that line is a comment and should be ignored.

> **Note:** If your table file has additional data then this data may need to be edited with Microsoft Excel® or a suitable text editor with column formatting.

To indicate to the AssignValue function that you are using a table file instead of a symbol you need to insert the full filename including path where the symbol parameter normally goes and then prefix it with '@' character as the following example shows.

```
ExtFml( "TradeSim.AssignValue",MarginReq,"@C:\TradeSimData\TableFiles\MR\CFD
Margin Table ASX.txt ",0);
```

The following MetaStock formula code shows a complete trading system that also embeds the margin requirement data from a margin requirement table file.

```
EntryTrigger:=ref(Cross(MACD(),Mov(MACD(),9,E)),-1);

EntryPrice := OPEN;

ExitTrigger := ref(Cross(Mov(MACD(),9,E),MACD()),-1);

ExitPrice := OPEN;


InitialStop:=0;


ExtFml( "TradeSim.Initialize");


ExtFml( "TradeSim.AssignValue",MarginReq,"@C:\TradeSimData\TableFiles\MR\CFD
Margin Table ASX.txt",0);


ExtFml( "TradeSim.RecordTrades",

       "Margin Req Table" { MACD Crossover Test"},      { Trade Database
Filename }

       LONG,                  { Trade Position Type }

       EntryTrigger,          { Entry Trigger }

       EntryPrice,            { Entry Price }

       InitialStop,           { Optional Initial Stop }
```
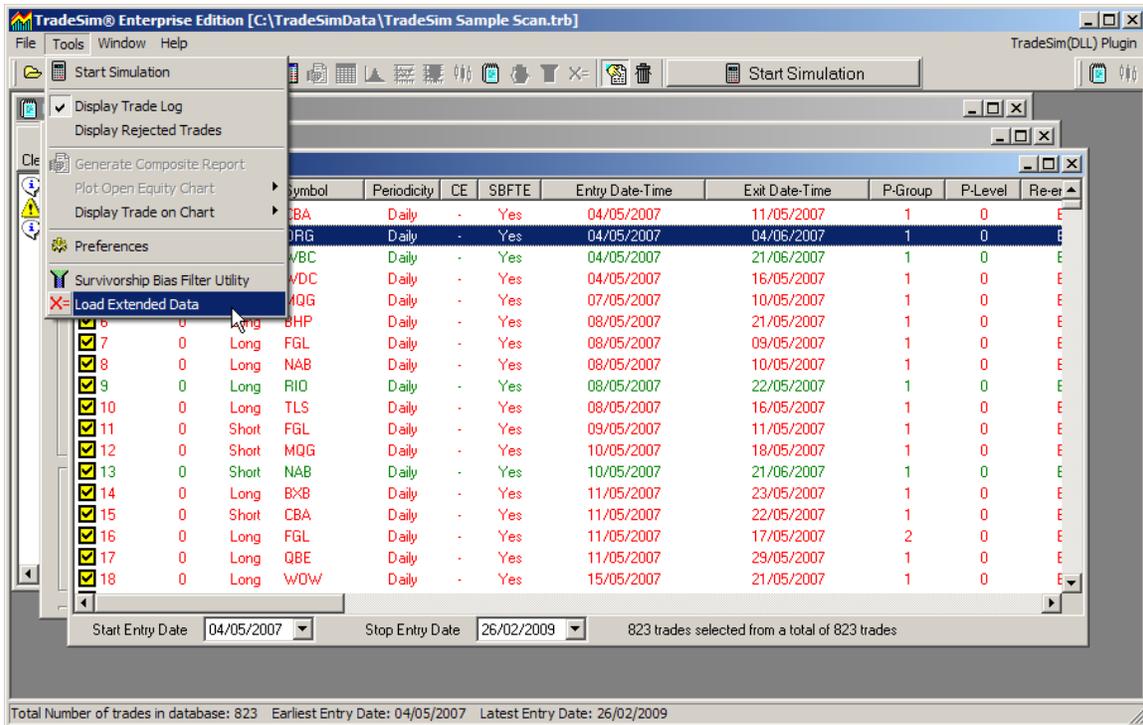
```
        ExitTrigger,           { Exit Trigger }

        ExitPrice,             { Exit Price }

        START);                { Recorder Control }
```

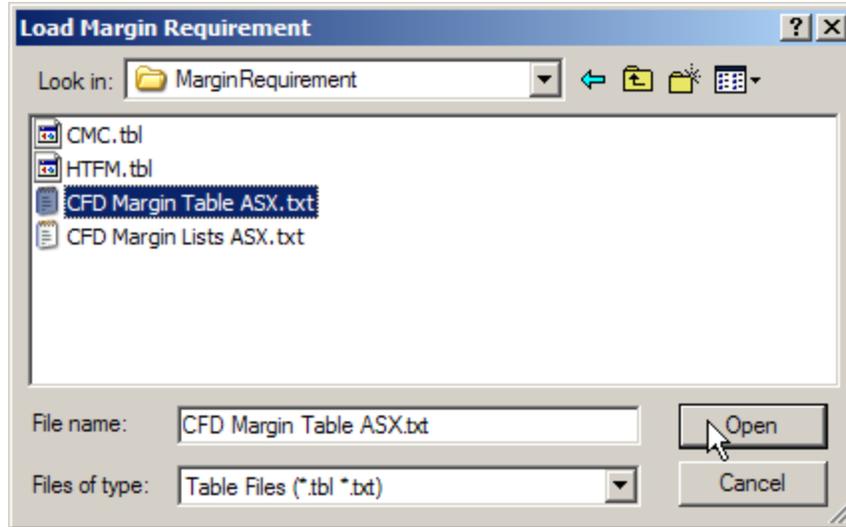## Method 3: Loading the Margin Requirement Data after a trade database has been created.

Even if you have created a trade database with or without extended data embedded into it you can still assign the extended data afterwards. In some instances it is not possible to regenerate the trade database in exactly the same way as it was generated previously. For example if a random function is used to generate the entry or exit conditions then each time a trade database is created it will be different so it is important to be able to load extended data post database creation.

Starting with Version 6.4.0 of TradeSim a 'Load Extended Data' option as been incorporated into the 'Tools' menu. This allows you to load up a table file and apply the table of values to the currently loaded trade database. This feature allows for a quick comparison of different vendors without having to regenerate the trade database.

After you have loaded a trade database into TradeSim select 'Load Extended Data' from the tools menu.
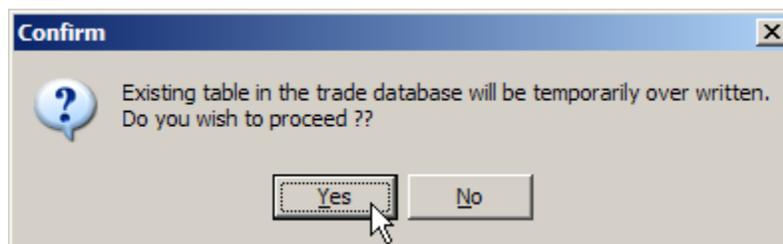

The 'Load Extended Data' window will popup.

Now load up the margin requirement table [CFD Margin Table ASX.txt].

Click 'Open'

Now click on 'Apply Table to Trade Database' toolbar button.

Click 'Yes' and TradeSim will go through the trade database and modify the extended data for each symbol it finds a match in the table file. If not all of the symbols in the table file were matched up a message box will popup to alert you.

Click 'OK' and then inspect the 'Load Extended Data' window. As you can see the number of trades matched to the trade database is specified in the last column.

Now inspect the Trade Database manager and scroll across to view the Margin Requirement values. I have enabled the 'Trade Database Inspector' so I can see all of the other values for each trade.

> **Note:** To view the Trade Database Inspector right click on the Trade Database Manager and select 'Trade Database Inspector'.

Running a simulation.

To enable the Margin Requirement extended data to be used in a simulation make sure you enable it in the trade parameters. Also for those trades where there is no Margin Requirement extended data, the Margin Requirement specified in the trade parameters will be substituted.
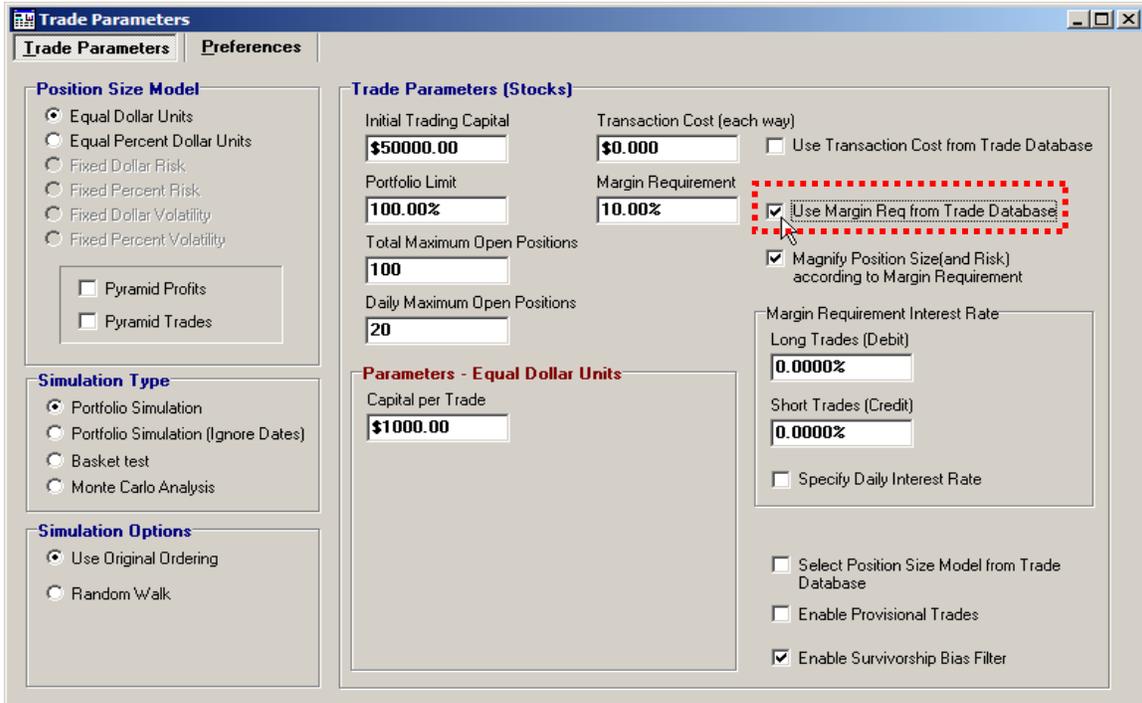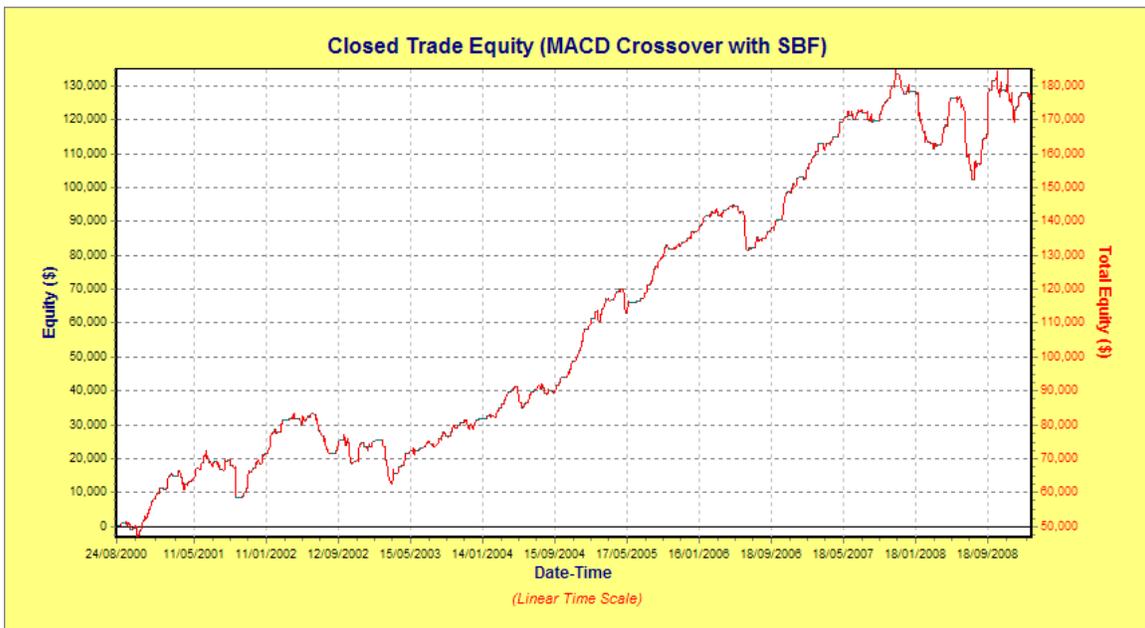

With 100% Margin Requirement the Closed Trade Equity chart looks like:-
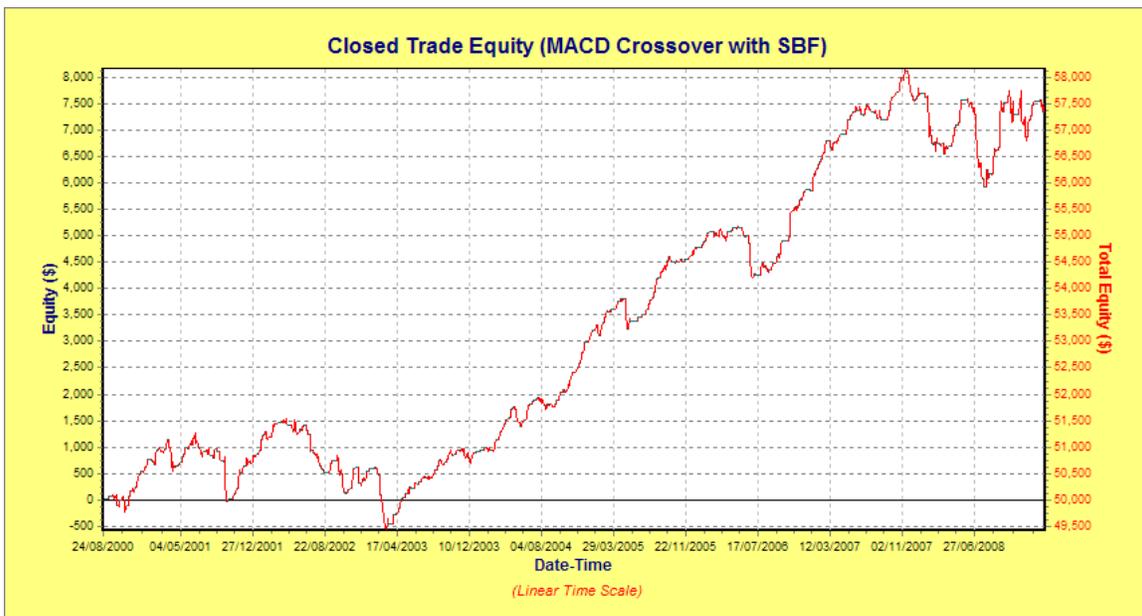
With 25% Margin Requirement the Closed Trade Equity chart looks like:-
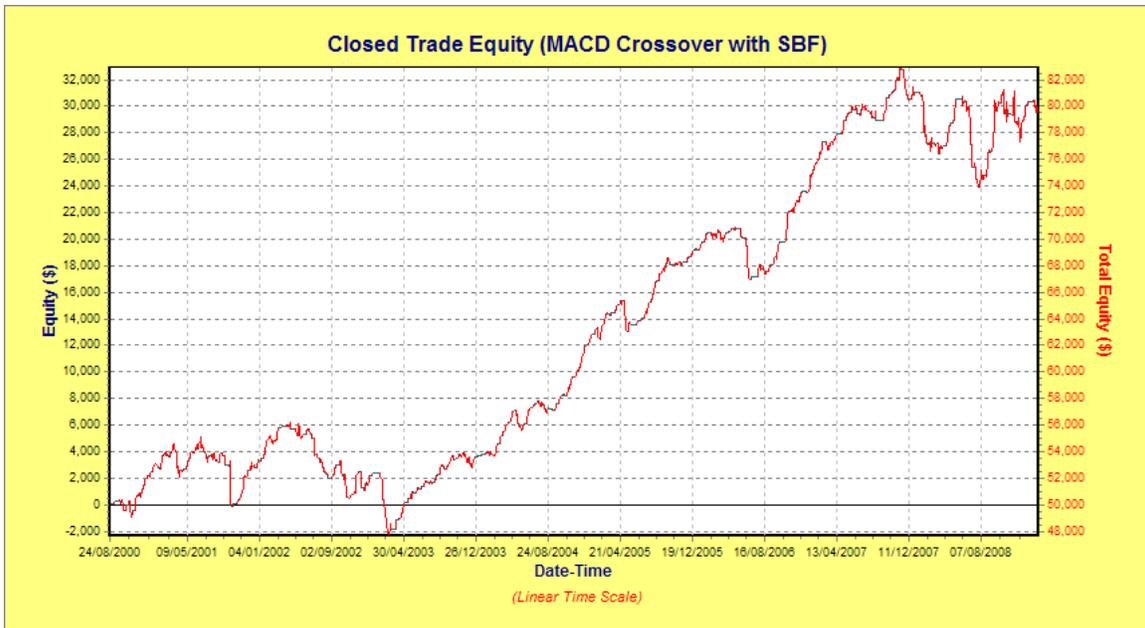
With Margin Requirement selected from the extended data in the trade database the Closed Trade Equity chart looks like:-.

Reference Literature

This list of references is by no means exhaustive but represents material, which is either recommended, or for general reading.

1) Compuvision Australia. TradeSim User Manual.

2) Equis. **Metastock for Windows 95/98 & NT**. This is the user manual that comes with Metastock Version 7.0 and is a prerequisite for using TradeSim.