

# How MatchMaker Works

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# 1. Spearman correlations

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MatchMaker uses the Spearman statistical technique to compute a correlation coefficient for any two sets of weekly or daily price data.

A special list is first created for each data set. This list contains weekly or daily price changes for the ticker (stock, group, sector, mutual fund, index, etc.). Each data set is then ranked separately.

The rank orders for the two lists are then evaluated for commonality and a correlation coefficient is computed based on the two ranked lists. The closer the two rank lists are to each other, the better the fit and the stronger the correlation. Spearman correlation coefficients range in value from 1000 to -1000, where 1000 is a perfect fit and a -1000 is a perfect adverse fit.

For example, if Ford and Chrysler both changed in price by exactly the same percentage each day for a year, their correlation coefficient for that year would be a perfect 1000. A correlation coefficient of zero indicates that the two sets of data move in a completely random fashion from each other. In such a case, there is no fit, .i.e., no affinity.

AIQ has deemed that correlation coefficients of 500 and higher indicate strong affinity. Under this assumption, any stock with a coefficient of 500 or higher, when compared to a particular group of stocks, would be eligible for inclusion in that group. You may choose a different level if you do not find this effective.

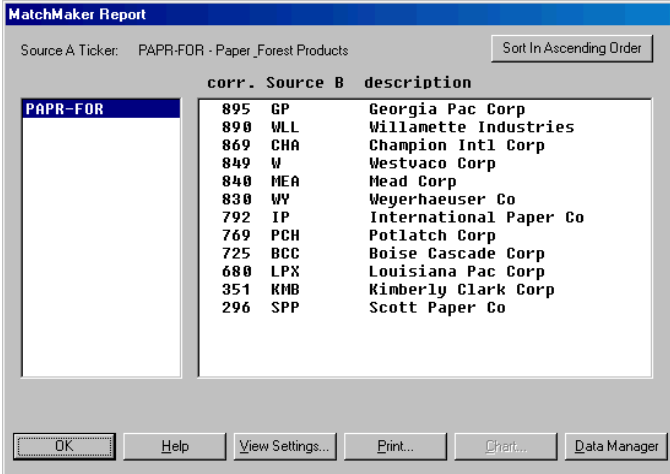
## 2. An example of using MatchMaker

The following is an example of how MatchMaker is used to restructure one of the S&P 500 industry groups. The example group is Paper and Forest Products (group PAPR-FOR).

To begin this analysis, you would proceed as follows:

- Access the *Strategies* function from the MatchMaker drop-down menu, or from the toolbar.
- Select the **Check Stocks** option from the *Group/Sector Strategies* dialog box. (Selecting one of the predefined strategies is always the easiest way to begin a MatchMaker analysis.)
- In the *Check Stocks in Groups* dialog box, click the **Correlate all Stocks in Group** option button, and type **PAPR-FOR** in the text box for the parent group. This tells MatchMaker to compute correlations for all the stocks in group PAPR-FOR against their parent group index.
- Click **OK**.
- The MatchMaker Report screen appears after all 12 of the stocks originally in this group have been analyzed against the index of the group.

The analysis shows that 10 stocks in the group have correlation coefficients above the 500 limit that AIQ has arbitrarily set as the minimum satisfactory value. Only two stocks are below 500. If you are using the group as an indicator of stock price movement, you would want to trade Georgia Pacific and not Scott or Kimberly Clark.



The screenshot shows the MatchMaker Report window. The title bar is "MatchMaker Report". Below the title bar, there is a field for "Source A Ticker:" containing "PAPR-FOR - Paper\_Forest Products" and a button "Sort In Ascending Order". The main area contains a table with three columns: "corr.", "Source B", and "description". The table lists 12 stocks with their correlation coefficients and descriptions. At the bottom of the window, there are buttons for "OK", "Help", "View Settings...", "Print...", "Chart...", and "Data Manager".

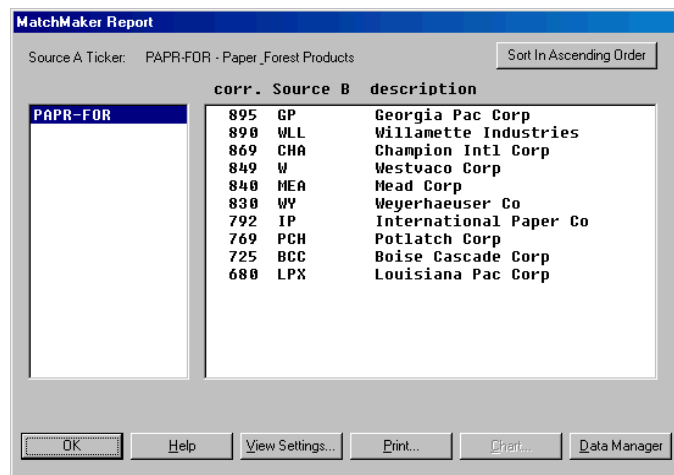
corr.	Source B	description
	PAPR-FOR	
895	GP	Georgia Pac Corp
890	WLL	Willamette Industries
869	CHA	Champion Intl Corp
849	W	Westvaco Corp
840	HEA	Head Corp
830	WY	Weyerhaeuser Co
792	IP	International Paper Co
769	PCH	Potlatch Corp
725	BCC	Boise Cascade Corp
680	LPX	Louisiana Pac Corp
351	KMB	Kimberly Clark Corp
296	SPP	Scott Paper Co

*Initial MatchMaker analysis of Group PAPR-FOR*

Remember that this group was originally formed because these are all S&P 500 companies that deal with paper products.

The next step is to reform the group index by eliminating those stocks with low correlations. This is an iterative process.

- First, drop the stock with the lowest correlation by removing the stock from the group, using the *Remove Ticker from List* function in *Data Manager*.
- Then, recompute the group using the *Compute Group/Sector Indices* function in *Data Manager*.
- Rerun the analysis, following the procedure described above.
- Continue dropping stocks until all of the remaining stocks meet the minimum correlation.



The screenshot shows a window titled "MatchMaker Report". At the top, it says "Source A Ticker: PAPR-FOR - Paper\_Forest Products" and "Sort In Ascending Order". Below this is a table with columns "corr.", "Source B", and "description". The table lists 10 stocks with their correlation coefficients and descriptions. At the bottom of the window are buttons for "OK", "Help", "View Settings...", "Print...", "Chart...", and "Data Manager".

corr.	Source B	description
PAPR-FOR		
895	GP	Georgia Pac Corp
890	WLL	Willamette Industries
869	CHA	Champion Intl Corp
849	W	Westvaco Corp
840	MEA	Mead Corp
830	WY	Weyerhaeuser Co
792	IP	International Paper Co
769	PCH	Potlatch Corp
725	BCC	Boise Cascade Corp
680	LPX	Louisiana Pac Corp

*MatchMaker analysis of modified Group PAPR-FOR*

Displayed is the result. The 10 stocks remaining in the group all have acceptable correlation coefficients. The group is now a better representation of paper products. How well does it work?

Shown is a chart which displays the newly modified Paper Products Group and two of the stocks in the group, Boise Cascade and Champion International. Notice the strong similarity in the three plots. The date arrow is set at 11/29/99, when the group index generated an upside Expert Rating of 98. The same day, several stocks within the group, including the two shown on the chart, also received high upside Expert Ratings. These stocks do in fact move with the group. When the group index gives a signal and one or more stocks give a signal, it is considered to be time to take a position.

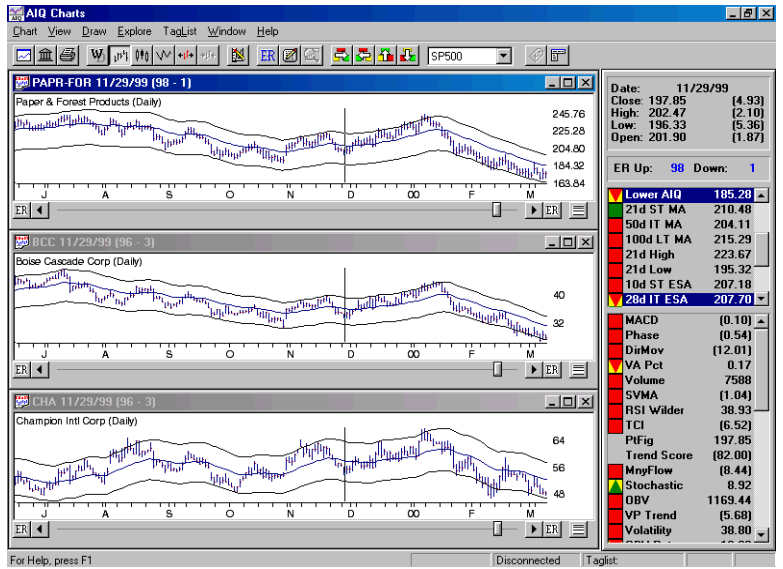


Chart of modified Paper Products Group (PAPR-FOR) and two stocks

### 3. Explanation of surrogate groups

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Since MatchMaker is capable of building groups with strong affinity, it can be used to build special groups of stocks that resemble a particular instrument such as a market index or a mutual fund. These groups, called surrogate groups, can be useful to both option traders and mutual fund investors.

The importance of surrogate groups stems from the fact that price is the only information available for instruments such as indices and mutual funds. Because volume figures are not available for these instruments, you are limited in the type of analysis that can be done. However, by creating a surrogate group index, you can obtain the volume data needed for more comprehensive and reliable analysis.

To construct a surrogate group, you begin by entering the instrument (a gold index for example) into your Master Ticker List. You then use MatchMaker to find those stocks in your data base that correlate best with the index. (Instructions on how to construct surrogate groups can be found in Chapter III, Predefined Strategies). The stocks with the highest correlation are placed into a group and a group index is computed. You can now follow this surrogate index which gives you volume, directional movement, accumulation, and distribution. You also now have sufficient information to compute Expert Ratings for the index. Creating such a surrogate index will allow you to make decisions for the trading of options on indexes that would not have been otherwise possible.