Multicollinearity

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Multicollinearity is a statistical term for a problem that is common in technical analysis. That is, when one unknowingly uses the same type of information more than once. Analysts need to be careful and not utilize technical indicators that reveal the same type of information.

Here is how John Bollinger states it: "A cardinal rule for the successful use of technical analysis requires avoiding multicollinearity amid indicators. Multicollinearity is simply the multiple counting of the same information. The use of four different indicators all derived from the same series of closing prices to confirm each other is a perfect example."

The issue of multicollinearity is a serious issue in technical analysis when your money is at stake. It is a problem because collinear variables contribute redundant information and can cause other variables to appear to be less important than they really are. One of the real problems is that sometimes multicollinearity is difficult to spot.

Technical indicators should be arranged in categories to keep from using too many from the same category. Here is a table that categorizes the indicators available at StockCharts.com:

Category	Indicators	
Momentum	Rate of Change (ROC)	
		Stochastics (%K, %D)
		Relative Strength Index (RSI)
		Commodity Channel Index (CCI)
		Williams %R (Wm%R)
		StochRSI
		TRIX
		Ultimate Oscillator
		Aroon
Trend	Moving Averages	
		Moving Average Convergence Divergence (MACD)
		Average True Range (ATR)
		Wilder's DMI (ADX)
		Price Oscillator (PPO)
Volume	Accumulation Distribution	
		Chaikin Money Flow (CMF)
		Volume Rate of Change
		Volume Oscillator (PVO)
		Demand Index
		On Balance Volume (OBV)
		Money Flow Index

The best way to quickly determine if an indicator is collinear with another one is to chart it. Make sure you have enough data on the chart to get a good indication. If they basically rise and fall in about the same areas, the odds are that they are collinear and you should just use one of them.

The first chart below shows some examples of indicators that are collinear. Notice that all three indicators are basically saying the same thing. If your analysis was that this was supportive information, you would be falling into the multicollinearity trap. Pick one of the indicators for your analysis and do not use the others.

Below are some examples of indicators that are not collinear. These three are not similar at all and, when interpreted correctly, each will give different information. It may be supportive or it may not.

Hewlett-Packard Co. (HPQ) NYSE   © StockCharts.com
HPQ Daily   16-Jul-2004 O:19.72 H:19.96 L:19.58 C:19.64 V:8.2M Chg:-0.01

Bottom Line: If you are randomly selecting indicators to support your analysis, you will more than likely fall into the multicollinearity trap of using multiple indicators that are all saying the same thing. They are not giving you any additional information; in fact, they are restricting your overall view of the market. Don't search for supporting information among collinear indicators, it is just misleading.