

# Columbine Alpha Around the World

By John S. Brush, Ph.D.

April 22, 2004

## Introduction

We have just completed our annual re-optimization of the international versions of the Columbine Alpha price momentum factor. In addition to reporting the characteristics of the updated models to our clients, we thought this might be a good time to review the basic components of international price momentum modeling.

The table at the end of this report sets out our analysis of the price momentum characteristics of twenty-four international equity markets across the ten years ending in 2003. Each country's 2004 version of the Columbine Alpha Factor model has been designed to exploit these differing characteristics.

## Short-Term vs. Long-Term

In almost every country in the world short-term price momentum is a reversal phenomenon. That is, price changes over the past month or so typically reverse direction in the following month. There are some countries where this doesn't hold (Germany, Sweden, New Zealand), but in most markets a strategy of simply buying stocks that have declined in the past month generates positive alpha. The time horizon of this forecast is only one month; this leads to a turnover rate of about 600% a year. Transaction costs will wipe out any potential gains from such a strategy for most investors.

In contrast, longer term price momentum in most countries is positive, or trend-following. Price change trends exhibited over the past six to twelve months tend to continue into the future. The forecast time horizon can be as long as twelve months. Buying stocks exhibiting positive long-term change also generates positive alpha, and the longer forecast horizon dramatically reduces the turnover problem.

## Columbine's Approach

Exploiting these two opposing phenomena to produce a practically usable price momentum measure is a challenge Columbine Capital Services has met for several decades. To assess a stock's future return potential our international Columbine Alpha Factor models apply a proprietary weighting structure to the

data series of the stock's monthly price changes and corresponding market changes over the past twelve months. Each country's unique pattern of price momentum effects determines the shape of the weighting structure for its Columbine Alpha Factor model. The approach is designed to be appropriate for a forecast time horizon of six months, with some consideration given to shorter and longer holding periods.

If there is short-term reversal present in a country it turns out that the weighting applied to price changes over the most recent one or two past months should be reduced from what might otherwise appear optimal. If the short-term reversal effect is particularly strong, even zero or negative weights on these past periods may be appropriate in that market.

This can be confusing to users when interpreting the Columbine Alpha Factor's responses to a stock's recent price behavior. For example, the most attractive stocks in France are those that have outperformed other stocks over the past year, but have underperformed over the past month. The countries with a single asterisk next to their country code in the table exhibit this characteristic: short term weakness in price improves future price appreciation potential and Columbine Alpha rankings. However, as observed weakness ages past two months, return potential decreases and the Columbine Alpha rankings correspondingly decline.

A few countries (Japan, Singapore, Malaysia) have reversed long- *and* short-term trends. In these markets positive relative strength over any past time horizon implies future weakness. New Zealand is unique with strong short-term positive momentum and weak long-term reversal momentum.

The international versions of the Columbine Alpha Factor will continue to use the weighting structures described in the table until our next annual re-optimization early in 2005.

**Columbine Capital Services, Inc.**

**Table 1. Short and Long Term Trends and Columbine Alpha**

19-Apr-04

<b>Country</b>	<b>Short Term Reversal?</b>	<b>Long Term Positive Trend?</b>	<b>Alpha</b>
AUS	Slight	Yes	6.4%
AUT	None	Yes	8.1%
BEL	Slight	Yes	11.3%
CAN	Slight	Yes	8.5%
CHE	Strong	Some	4.8%
DEU	None	Yes	5.9%
DNK	Slight	Some	5.3%
ESP	Slight	Yes	3.5%
FIN*	Strong	Some	4.3%
FRA*	Strong	Yes	5.2%
GBR*	Strong	Yes	6.4%
HKG	Strong	Some	4.4%
IRL	Strong	Yes	8.5%
ITA	Slight	Yes	10.1%
JPN**	Strong	Strong reversed	3.7%
KOR	Slight	Yes	9.3%
MYS**	Strong	Strong reversed	7.3%
NLD	None	Weak reversed	6.4%
NOR*	Very strong	Some	2.6%
NZL	None	Weak reversed	3.9%
PRT	Slight	Some	2.4%
SGP	Very strong	Strong reversed	5.8%
SWE	None	Some	8.7%
ZAF	Slight	Yes	11.8%
Generic	Slight	Some	

*Alpha is weighted 1,2 decile 1,3,6,12 months holding excess universe, average weight 6 months.*

*\*Negative short-term weights, positive long-term weights applied to past price change*

*\*\*Negative short- and long-term weights applied to past price change*