Investment Style Box and the Three-Factor Model

The Morningstar Style Box is a mutual fund investment style and performance classification system. The box grid or 3-by-3 table looks like a tic-tac-toe game. The Morningstar Style Boxes with Market Capitalization in the vertical dimension and Investment Style (a combination of price/ earnings ratio and price/book equity ratio) in the horizontal dimension first appeared in an article by Don Phillips entitled "Morningstar's Style Boxes: A Better Way to Look at Funds", *Morningstar Mutual Funds*, Vol. 17, No. 3, May 15, 1992, pages 1-2.

The pseudo-scientific Fama-French Three-Factor Model of return for stock portfolio pricing with two logically circular price-entailing risk factors, size (market capitalization) in the vertical dimension and value (book equity/market equity ratio) in the horizontal dimension, and a market-related factor in the third dimension, first appeared in an article by Eugene F. Fama and Kenneth R. French entitled "The Cross-Section of Expected Stock Returns," *Journal of Finance*, Vol. 47, No. 2, June, 1992, pages 427-465.

Book equity/market equity ratio is equal to book equity per share/share price ratio. Thus the Morningstar Style Box is one face (in the X-Y plane) of the Three-Factor Model (in X-Y-Z space).The Z dimension is excess market return above a risk-free rate and is based on a broad market proxy. The X and Y axes are fallacious due to circular reasoning.

The Morningstar performance ranking is relative to other funds in the same performance category for comparison and is not an absolute measure of size, style or returns. The number of categories for size and style and the location of break-points between categories on the continuum of size and style are arbitrary. The size and style categories are used instead of charts as a simplified form of market timing, which is unscientific. Morningstar, Inc. is headquartered in Chicago, Illinois. Mr. Phillips is silent about any connection to the University of Chicago Graduate School of Business, Mr. Fama, the Fama-French Three-Factor Model, or the size and value risk factors.

An article by Tom Lauricella entitled "Morningstar to Alter Classification Method", *The Wall Street Journal*, 25 March 2002, page C17, and a Morningstar press release of the same date, provide background about the Morningstar style box origins. Excerpts follow.

Morningstar Inc. is changing the methodology underlying its widely used system of classifying the investment styles of mutual funds. The changes will alter where hundreds of funds are classified in the ubiquitous Morningstar style box. The Morningstar style box carves the fund world into nine squares based on the market capitalization (size factor) of the companies that a fund invests in and whether those stocks fall into "value" (the ratio of book value of equity to market value of equity, or book-to-price ratio) or "growth" (price-to-earnings ratio) camps or somewhere in between, which Morningstar calls "blend."

The changes in style-box definitions, which are expected to be unveiled today and put into effect by the end of May, won't automatically result in a change in the Morningstar

performance category to which each fund is assigned. Those categories are used to rank a fund's performance against similar funds. However, Morningstar analysts could soon decide to shift funds into different performance categories, which would then affect performance rankings, says Morningstar managing director Don Phillips.

The intent of the new methodology is to provide a "cleaner" picture of a fund's style, says Mr. Phillips, who created the style box. Since the style box was introduced 10 years ago, just two factors—a stock's price-to-earnings ratio and price-to-book ratio—have been used to evaluate a fund's holdings and determine the appropriate style box.

The new system will continue to use those two factors but will add eight other measures to determine if a holding is a growth or value stock. The new factors include price-to-cash flow and long-term projected earnings growth. In all, stocks will be ranked on five "value factors" and five "growth factors."

The changes are an outgrowth of the Chicago firm's move into non-mutual-fund business lines, such as stock research and the launch of a family of 16 stock indexes. "It's meant to be part of an integrated school of thought," Mr. Phillips says.

Also changing is the method used to divvy up the world into small-, mid- and large-cap stocks. The result, says Mr. Phillips, will be slightly fewer mid-cap stocks, mainly because the line between midsize stocks and small-caps will be slightly higher. Such category changes could have a big impact on performance rankings.

Press Release [Excerpts]

Morningstar, Inc. Enhances Proprietary Investment Style Box Methodology

CHICAGO, Mar 25, 2002 – Morningstar, Inc., a leading global investment research firm, today announced that it is making several enhancements to its proprietary investment Style Box methodology. The new methodology will better capture the style characteristics of individual stocks and lays the groundwork for investors and advisors to build better portfolios and monitor them more precisely. The changes will begin appearing in Morningstar products by midyear.

Created and introduced in 1992 by Morningstar Managing Director Don Phillips, the Morningstar Style Box was designed to provide an intuitive visual representation of a fund's investment "style." It allowed investors to assess a fund based on its holdings, instead of the fund name or an ambiguous categorization. The original Morningstar Style Box methodology, which classifies a fund by its market capitalization and growth or value orientation, has become the industry standard for categorizing and tracking managed investment portfolios. The nine-square grid uses a vertical axis to distinguish among small-, mid-, and large-cap, and the horizontal axis separates value, blend, and growth funds.

"Morningstar's original style evaluation methodology was designed primarily for categorizing equity mutual funds. Our new Style Box methodology better measures the characteristics of individual stocks and introduces a building-block system that links what are often treated as four separate processes--stock research, fund research, portfolio assembly, and market monitoring. We believe that a shared analytical framework will lead to better portfolio construction and fund usage," Phillips said.

In addition, Morningstar recently announced it is launching a family of 16 stock indexes based on the same 10-factor methodology used for assessing individual securities. Nine of the indexes will be based on the individual squares of the Style Box and will contain the securities within a specific style square. Also, seven aggregate indexes will include one broad market index as well as three defined by capitalization and three defined by style. The Morningstar Indexes will allow for analytical consistency as investors research stocks, managed products, and the market as a whole.

To develop the new Style Box methodology, Morningstar consulted with leading institutional investors and investment advisors.

U.S. SEC Form 8-K

Date of Report (Date of earliest event reported): **July 1, 2005**

Management

13. I have a question that may come under the heading of fair disclosure. I have not been able to find an answer in the Form 10-K, Prospectus, SAI or other company documents filed with the SEC.

What is the formal education (universities attended, degrees earned, and dates) of Don Phillips, CEO and Managing Director of Morningstar, Inc.?

You may have missed it, but we included background information on our management team on pages 80-83 of our final prospectus, and you can also read our management team biographies by clicking on the manager's name at the following url:
http://corporate.morningstar.com/US/asp/subject.aspx?xmlfile=175.xml.

Don Phillips is currently a managing director of Morningstar and has served on our board of directors since August 1999. He holds a bachelor's degree in English from the University of Texas [at Austin], which he attended from 1980 to 1985, and a master's degree in American Literature from the University of Chicago, which he attended from 1985 to 1986.

Morningstar Investable Indexes and Index Funds

http://indexes.morningstar.com/Index/Index.asp

Morningstar Indexes consists of a family of 16 indexes that track the U.S. market by capitalization and investment style using a comprehensive, rule-based approach. The Morningstar Index family is based on the same methodology as the well-known Morningstar Style Box, and it provides an integrated framework that can be used for all stages of investment process.

Broad Market Index:
Targets 97% market capitalization coverage.
Cap Indexes:
Large Cap: 70% market capitalization.
Mid Cap: 20% market capitalization.
Small Cap: 7% market capitalization.
Composite Style Indexes:
Value, Core, and Growth indexes are defined by 10 variables. Over 36-month rolling cycles, each index represents 1/3 of the overall market.
Style Indexes:
The nine segments of the well known Style Box are specified by style and market capitalization.

http://indexes.morningstar.com/Index/FAQ_AboutIndexes.asp
Index names and ticker symbols.
http://indexes.morningstar.com/Index/PDF/Brochure.pdf
There are a variety of avenues for licensing the Morningstar Indexes.

Morningstar Management

http://www.morningstar.com/AboutUs/Management.html
http://www.morningstar.com/AboutUs/Management.html?name=mansueto

Joe Mansueto, Chairman, Founder, Chief Executive Officer, Morningstar, Inc.

Joe Mansueto founded Morningstar in 1984 and serves as chairman and chief executive officer.

In 2001, Mansueto was recognized by *SmartMoney* magazine as one of 30 power brokers. He received the Distinguished Entrepreneurial Alumnus Award from the University of Chicago Graduate School of Business in 2000. In 1993, he was given the KPMG Peat Marwick High Tech Entrepreneur of the Year Award, and in 1992 won the Rosenthal Award for Excellence in Investment Research from the University of Chicago.

Before founding Morningstar, Mansueto was a securities analyst at Harris Associates. He holds a bachelor's degree in business administration from the University of Chicago and a master's degree in business administration from the University of Chicago Graduate School of Business. [CEO Joe Mansueto, AB '78, MBA '80, Chicago GSB Club]

http://www.morningstar.com/AboutUs/Management.html?name=phillips

Don Phillips, Managing Director, Morningstar, Inc. [Donald James Phillips II]

Don Phillips has been a managing director of Morningstar, Inc. since 2000. He is responsible for corporate strategy, research, and corporate communications. He has served on the company's board of directors since 1988.

Phillips joined Morningstar in 1986 as the company's first mutual fund analyst and soon became editor of its flagship publication, *Morningstar Mutual Funds™*, establishing the editorial voice for which the company is best known. Phillips **helped** to develop the Morningstar® Style Box™, the Morningstar® Rating™, and other distinctive proprietary Morningstar innovations that have become industry standards.

Journalists regularly turn to Phillips for his insight on industry trends. *Investment Advisor* magazine has named him to its list of the most influential people in the financial planning industry. *Financial Planning* magazine has named Phillips one of the planning industry's "Movers & Shakers." *Registered Rep.* has named him one of the investment industry's 10 key players.

Phillips holds a bachelor's degree [school and years not specified] from the University of Texas [campus location not specified] and a master's degree [school and years not specified] from the University of Chicago.

Morningstar, Inc. Board of Directors
http://corporate.morningstar.com/US/asp/subject.aspx?xmlfile=433.xml

Joe Mansueto
Chairman
Joe Mansueto founded Morningstar in 1984. He has served as our chairman since our inception, and as our chief executive officer from inception to 1996 and from 2000 to the present. He holds a bachelor's degree in business administration from the University of Chicago and a master's degree in business administration from the University of Chicago Graduate School of Business.

Don Phillips
Board Member
Don Phillips has been one of our managing directors since 2000. He is responsible for corporate strategy, research, and corporate communications. He joined us in 1986 as our first analyst. He served as our vice president and publisher from 1991 to 1996, as our president from 1996 to 1998, and as our chief executive officer from 1998 to 2000. He has served on our board of directors since August 1999. He also serves on the board of directors for Morningstar Japan. He holds a bachelor's degree in English [after five years] from the University of Texas [at Austin] and a master's degree in American literature from the University of Chicago.

Steve Kaplan
Board Member
Steve Kaplan served as a member of Morningstar's advisory board beginning in 1998 and was elected to the board of directors in 1999. Since 1988, he has been a professor at the University of Chicago Graduate School of Business where he currently is the Neubauer Family Professor of Entrepreneurship and Finance. Kaplan holds a bachelor's degree in

applied mathematics and economics from Harvard College and a Ph.D. in business economics from Harvard University. He also serves on the board of trustees of the Columbia Acorn Funds where he serves as a member of the governance and compliance committees. [A director of CRSP.]

http://gsbwww.uchicago.edu/fac/steven.kaplan/vita/snkcv.pdf
Experience
1988-present **GRADUATE SCHOOL OF BUSINESS (GSB), UNIVERSITY OF CHICAGO, CHICAGO, IL**
Neubauer Family Professor of Entrepreneurship and Finance, 1999-. Leon Carroll Marshall Professor of Finance, 1997-1999. Professor of Finance, 1995-1997. Associate Professor of Finance, 1992-1995. Assistant Professor of Finance, 1988-1992. Faculty director of Polsky Entrepreneurship Center, 1997 -.
Education
1983-1988 **HARVARD UNIVERSITY, CAMBRIDGE, MA**
Ph. D., Business Economics, 1988. Dissertation: "Sources of Value in Management Buyouts."
A.M., Business Economics, 1987. Included first year of M.B.A. program. Top-ranked student in first-year M.B.A. section.
1977-1981 **HARVARD COLLEGE, CAMBRIDGE, MA**
A.B. in Applied Mathematics, *summa cum laude*. Phi Beta Kappa.
Professional Activities
Academic
Research Associate, *National Bureau of Economic Research*, 1995-. Faculty Research Fellow, *National Bureau of Economic Research*, 1990-5.
Associate Editor, *Journal of Financial Economics*, 1991-, *European Financial Management*, 1994-, *Financial Management*, 1999-, *Journal of Empirical Finance 2001-, Journal of Finance*, 1994-2000, *Journal of Financial and Quantitative Analysis*. 1994-1998, *Review of Financial Studies*, 1993-1996.
Honors
Invited to present paper at 1995 *Nobel Symposium on Law and Finance* in Stockholm.
Omitted Information
Director, Center for Research in Securities Prices, Graduate School of Business, University of Chicago
[Eugene F. Fama is Chairman of CRSP.]

Morningstar Associates, LLC Advisory Board

http://72.14.207.104/search?q=cache:U2nxulBrtGMJ:members.morningstar.com/PDF/ADVPartII.pdf+Morningstar+Advisory+Committee+Stulz&hl=en

FORM ADV Part II
Uniform Application for Investment Advisor Registration
Date 03/15/01

Schedule F, pages 13 and 14:

ADVISORY BOARD

The Advisory Board consists of some of the most recognized and well-respected individuals in the fields of finance, economics, and financial planning. Their purpose is to:

(a) Review ClearFuture and other such future online services or products Associates may develop (collectively, "Online Services").
(b) Review the methodology used in determining asset allocation and fund recommendation for users of the Online Services.
(c) Provide feedback in both oral and written form regarding the Online Services, including, but not limited to, feedback on the methodology.
(d) Participate in advisory board meetings, which Associates may schedule or otherwise call from time to time.

None of the Advisory Board members are employees of Morningstar. Each member receives a retainer fee plus reasonable travel and lodging expenses incurred in attending Associates' Advisory Board meetings.

CURRENT MEMBERS

Nicholas C. Barberis, Associate Professor of Finance, Graduate School of Business, University of Chicago. His research focuses on asset allocation, market efficiency, and behavioral finance.

Shlomo Berartzi, Assistant Professor, Anderson Graduate School of Management at UCLA. His research investigates defined contribution savings plans.

Rene M. Stulz, Everett D. Reese Chair of Banking and Monetary Economics, Director of the Dice Center for Research in Financial Economics, and Professor of Finance, Ohio State University. Professor Stulz has published more than fifty papers in finance and economics journals and is currently the Editor of the JOURNAL OF FINANCE.

Barton Waring, Managing Director, Client Advisory Group, Barclays Global Investors. Mr. Waring has extensive background in asset allocation, investment strategy and quantitative asset management.

Chicago GSB Club
http://chicagogsb.edu/news/archive.aspx
http://chicagogsb.edu/news/2005-04-29v_fama.aspx
Professor Fama wins first Deutsche Bank Prize
Fama teaches Theory of Financial Decisions I, a PhD-level course that is meant to be accessible to the motivated Chicago GSB MBA student. The course covers models for portfolio decisions by investors and the pricing of securities in capital markets.
http://chicagogsb.edu/news/2005-04-19h_manseuto.aspx
Mansueto keeps culture of entrepreneurship alive at Morningstar

Morningstar Timeline
http://www.morningstar.com/AboutUs/Timeline.html

1991
Morningstar launches *Mutual Funds OnDisc*, the company's First CD-ROM software for mutual funds, now called Morningstar Principia. [*OnDisc* had two levels of information. Level One contained 51 fields of data. Level Two contained much more information for each fund, including MPT (Modern Portfolio Theory) statistics and monthly return data back to 1976 when available.]

1992
Morningstar creates the nine-grid Morningstar Style Box methodology

1998
Morningstar creates a new investment Style Box

2002
Morningstar implements enhanced Star Rating, Style Box and Sector methodologies

---

Journal of Financial Planning, April, 1992, page 54: "These tools [Morningstar OnDisc] also might help you defend yourself in a lawsuit if you can demonstrate the analysis you did to make recommendations."