

Holding-Based vs. Returns-Based Style Analysis

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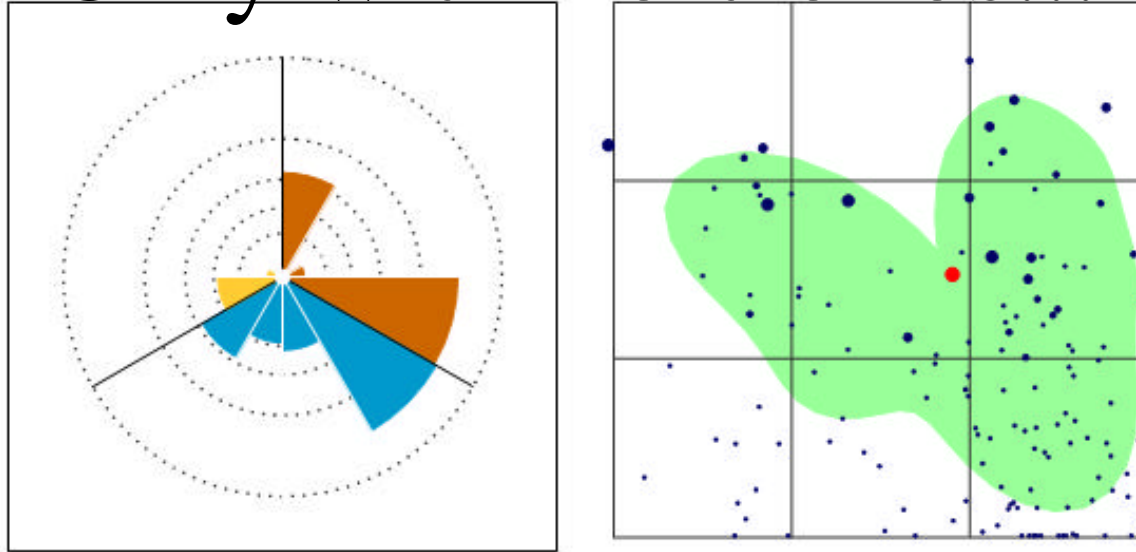


Two Methods of Style Analysis

- **Holdings-Based**
 - Direct examination of portfolio holdings
 - Average information 3 months old
 - Expensive, requires substantial database
- **Returns-Based**
 - Statistical analysis of historical total returns
 - Average information 18 months old
 - Low cost, requires minimal database



Only with Portfolios...



Information Economy

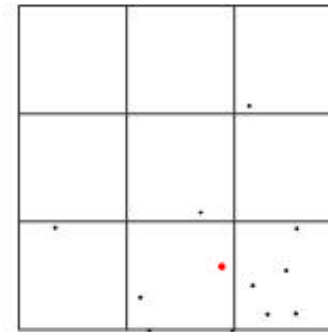
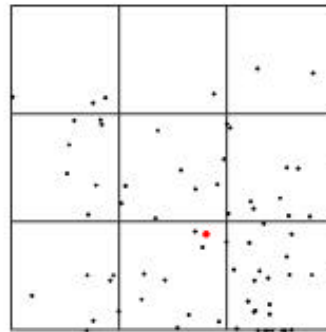
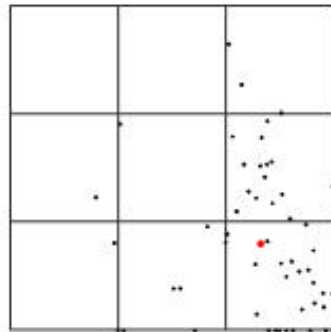
Software	11
Hardware	0
Media	0
Telecommunications	31

Service Economy

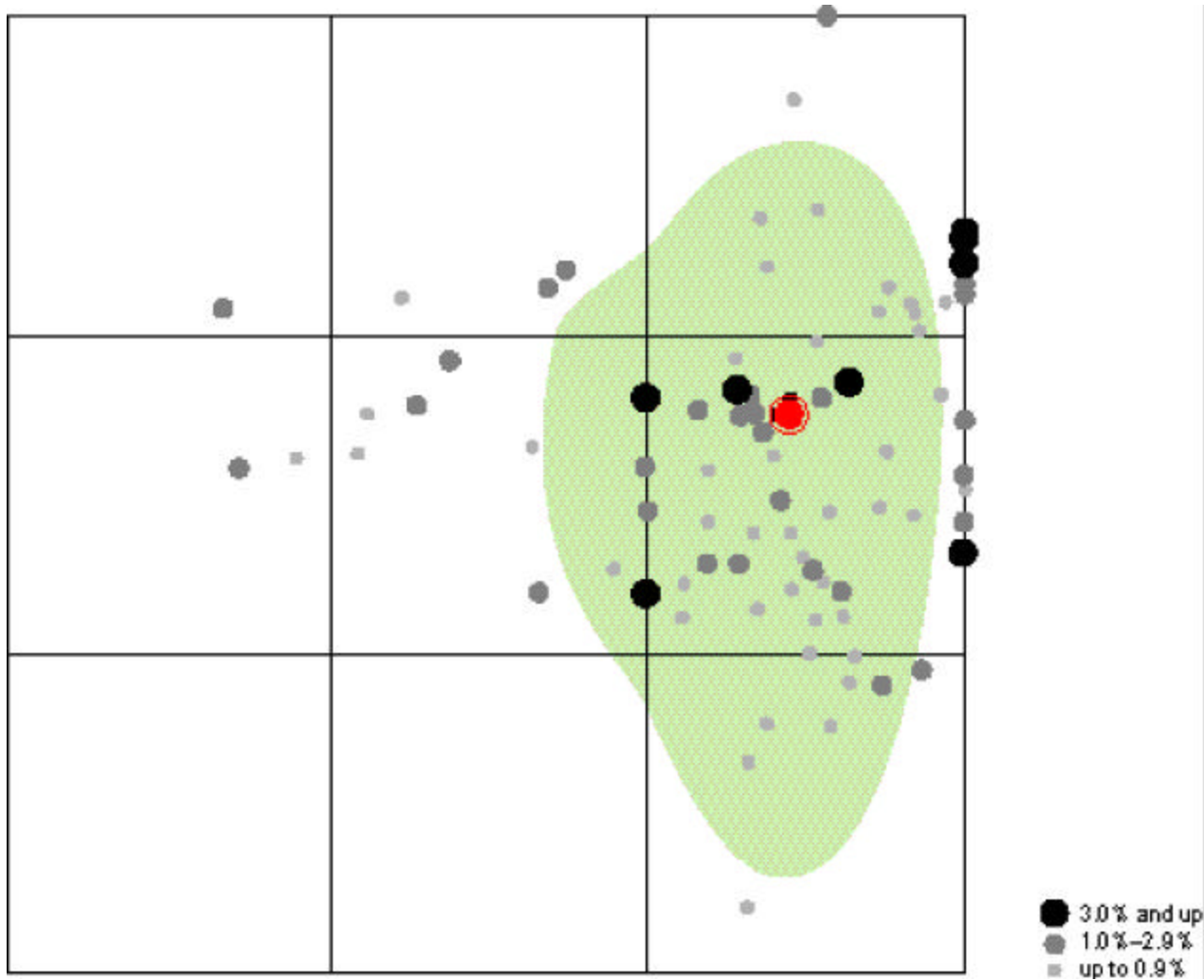
Healthcare	32
Consumer	5
Business	4
Financial	8

Manufacturing Economy

Consumer Goods	4
Industrial Materials	0
Energy	0
Utilities	0



Holdings Analysis: Ownership Zones



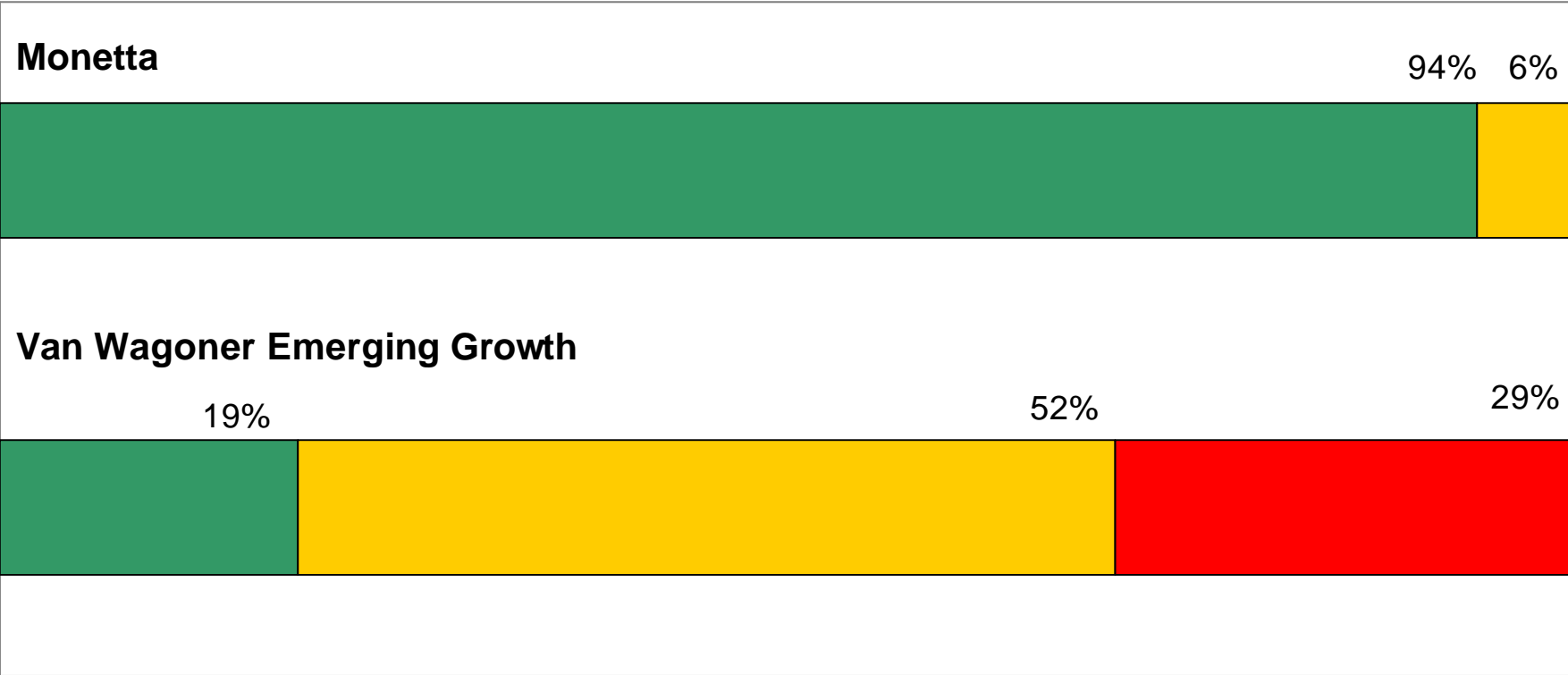
Holdings Analysis: Stock Intersection

Portfolio Manager					
New Portfolio Import Export Combine Rename Delete Print Alerts Updates Definitions					
Portfolios: <input type="text" value="-M*401k"/>		Views: <input type="text" value="+ Stock Intersection"/>		Set this view as default	
Back to Tracking		Modify this portfolio		Analyze this portfolio with these tools 	
% of Net Assets	Underlying Stocks - Holding	Ticker Symbol	% of Portfolio Net Assets	Market Value (\$)	Holding Portfolio Date
	Pfizer	<u>PFE</u>	1.31	149.42	
2.76	Vanguard 500 Index	<u>VFINX</u>	0.94	\$107.06	03-31-2002
2.75	Harbor Capital Appreciation	<u>HACAX</u>	0.37	\$42.36	03-31-2002
	Johnson & Johnson	<u>JNJ</u>	1.16	132.47	
2.20	Vanguard 500 Index	<u>VFINX</u>	0.75	\$85.34	03-31-2002
3.06	Harbor Capital Appreciation	<u>HACAX</u>	0.41	\$47.13	03-31-2002
	Intel	<u>INTC</u>	1.14	130.02	
2.26	Vanguard 500 Index	<u>VFINX</u>	0.77	\$87.67	03-31-2002
2.75	Harbor Capital Appreciation	<u>HACAX</u>	0.37	\$42.36	03-31-2002
	American Intl Grp	<u>AIG</u>	1.14	129.44	
2.09	Vanguard 500 Index	<u>VFINX</u>	0.71	\$81.07	03-31-2002
3.14	Harbor Capital Appreciation	<u>HACAX</u>	0.42	\$48.37	03-31-2002



Holdings Analysis: Stock Popularity

Two mid-cap growth funds, one conventional, one more exotic

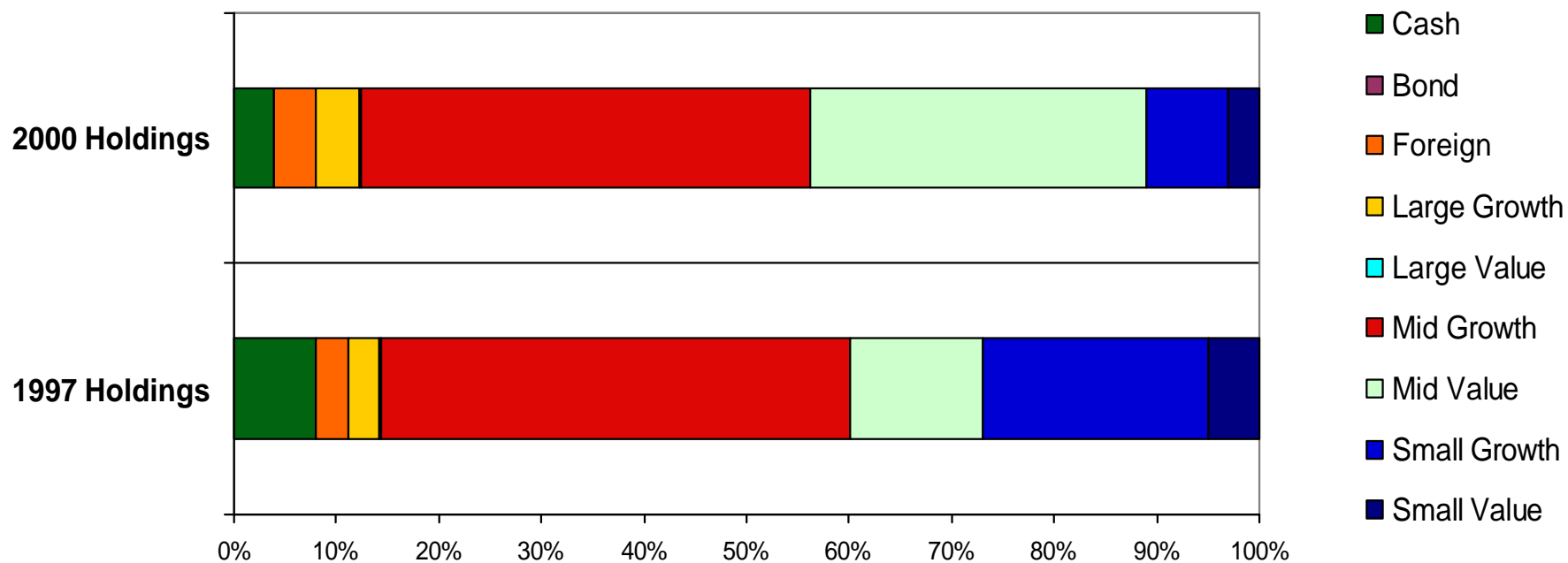


■ Widely Held ■ Less Widely Held ■ Rarely Held



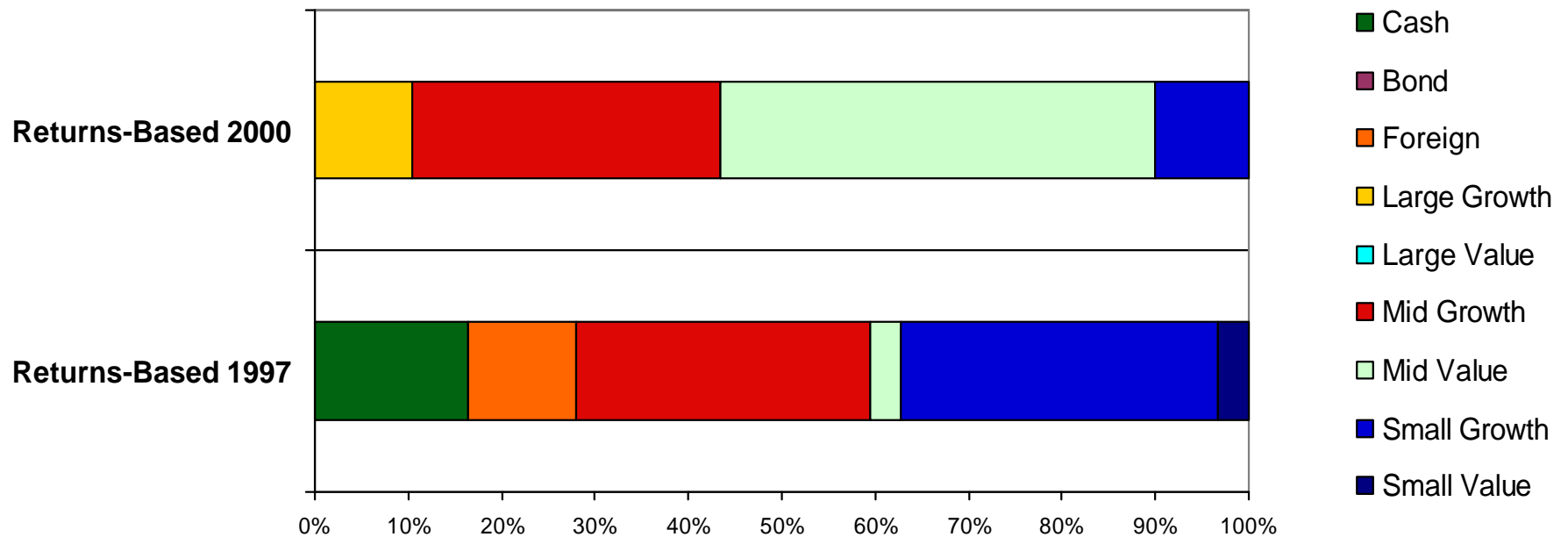
Example: Holdings-Based Analysis

T. Rowe Price Mid-Cap Growth

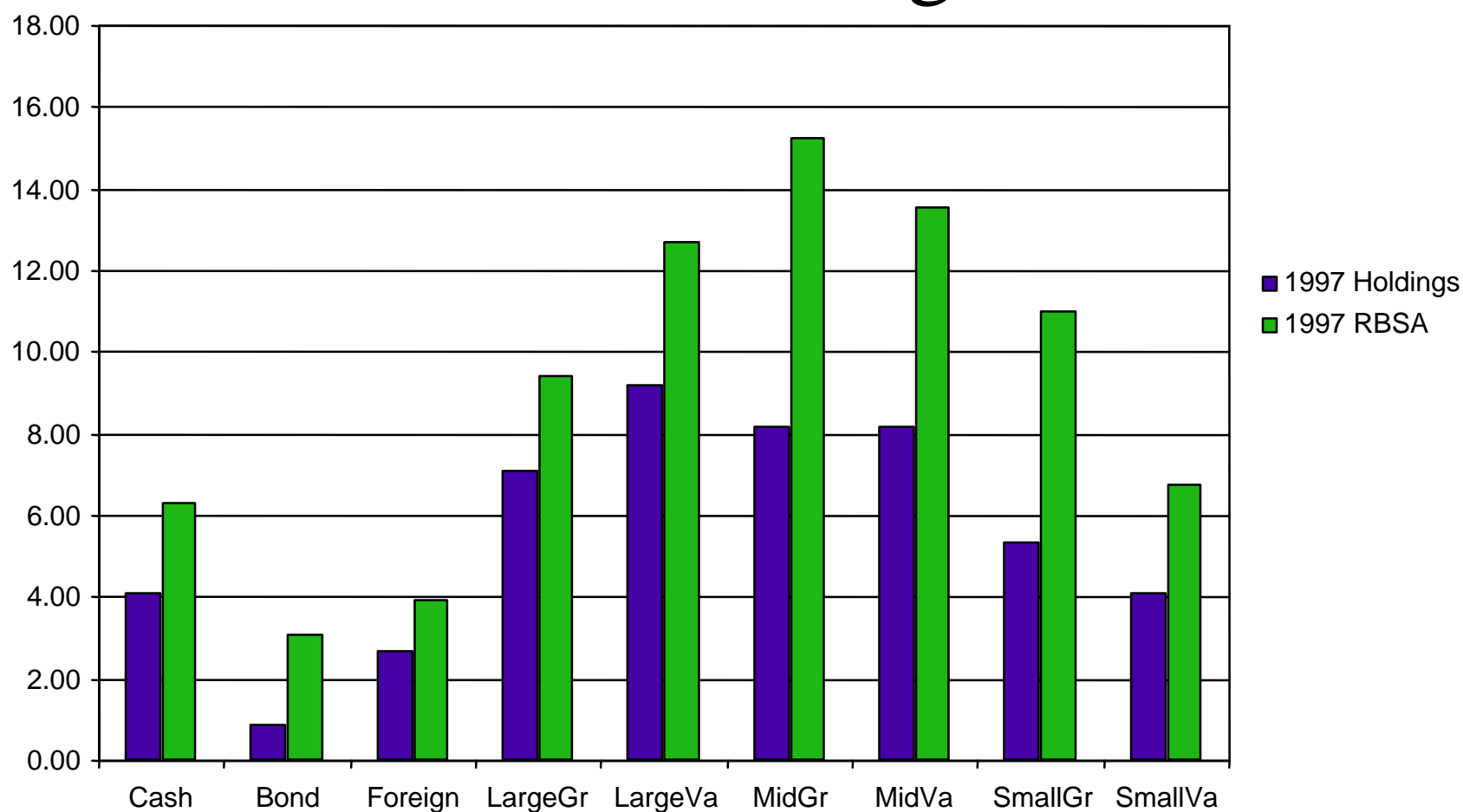


Example: Returns-Based Analysis

T. Rowe Price Mid-Cap Growth



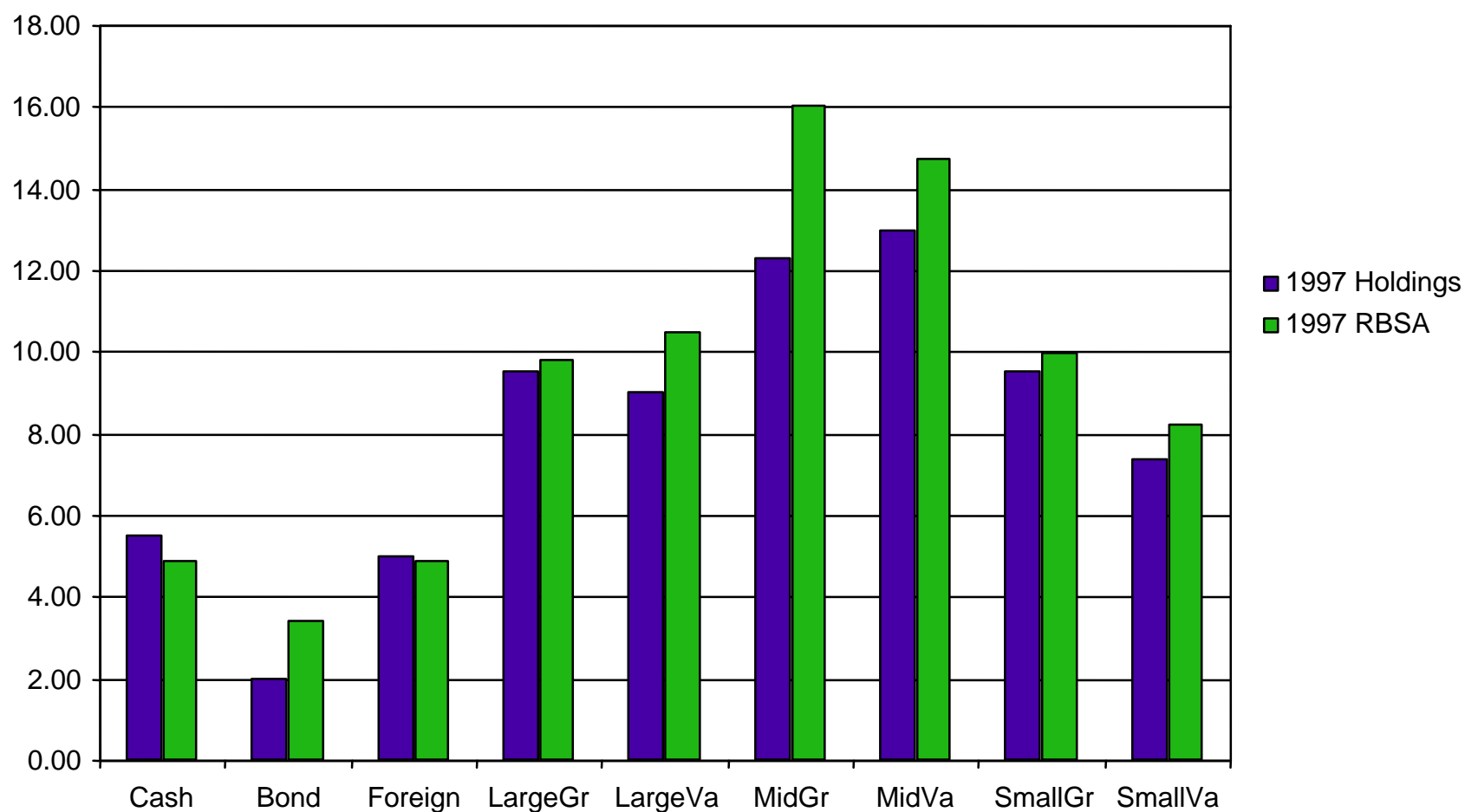
Errors in Predicting 2000 Holdings



Asset Classes of 586 U.S. Stock Funds – Mean Absolute Deviations



Errors in Predicting 2000 Returns-Based Results



Asset Classes of 586 U.S. Stock Funds – Mean Absolute Deviations



The Holdings-Based Advantage

- **Timeliness**
 - 12-month old portfolio fresher than a “brand new” returns-based style analysis
- **Accuracy**
 - 12-month old portfolio on average more accurate than a “brand new” returns-based style analysis
- **Precision**
 - The better the inputs, the better the forecasts



Resources

- “Estimating Portfolio Style: A Comparative Study of Portfolio-Based Fundamental Analysis and Returns-Based Style Analysis,” John Rekenthaler, Michele Gambera, and Joshua Charlson, Morningstar Research Paper, December 2001. Available online at http://datalab.morningstar.com/Midas/PDFs/ResearchPaper_1201.pdf
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