

Active Asset Allocation Models for ETF Investors

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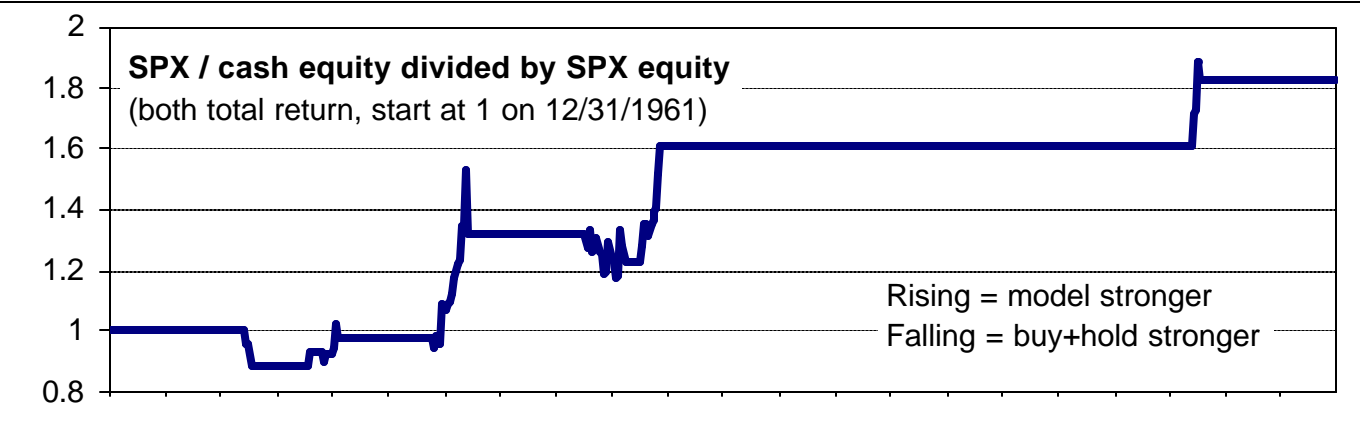
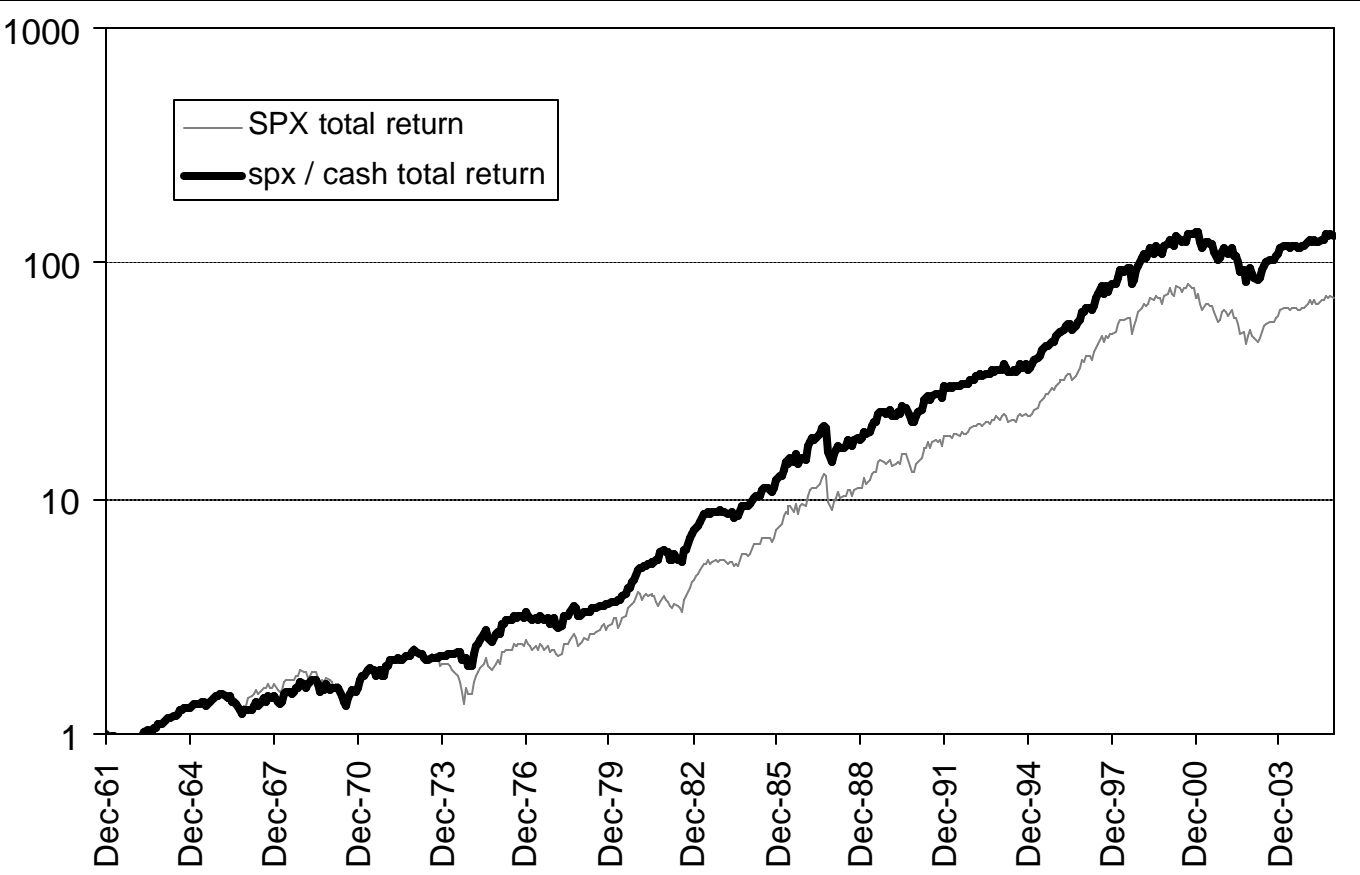
Summary

- Yield curve model for stocks versus cash
- Small versus large cap allocation model
- U.S. versus foreign stock allocation model
- Growth versus value allocation model

Yield curve filter for S&P 500

- Compare 10-year yields (Treasury notes) and 90-day yields (Treasury bills) on the last day of each month, available on Federal Reserve web site.
- Be in cash whenever the T-bill yield exceeds the 10-year yield
- Be in S&P 500 (SPY) otherwise

Performance of the yield curve filter with the S&P 500 index, 1962-2005



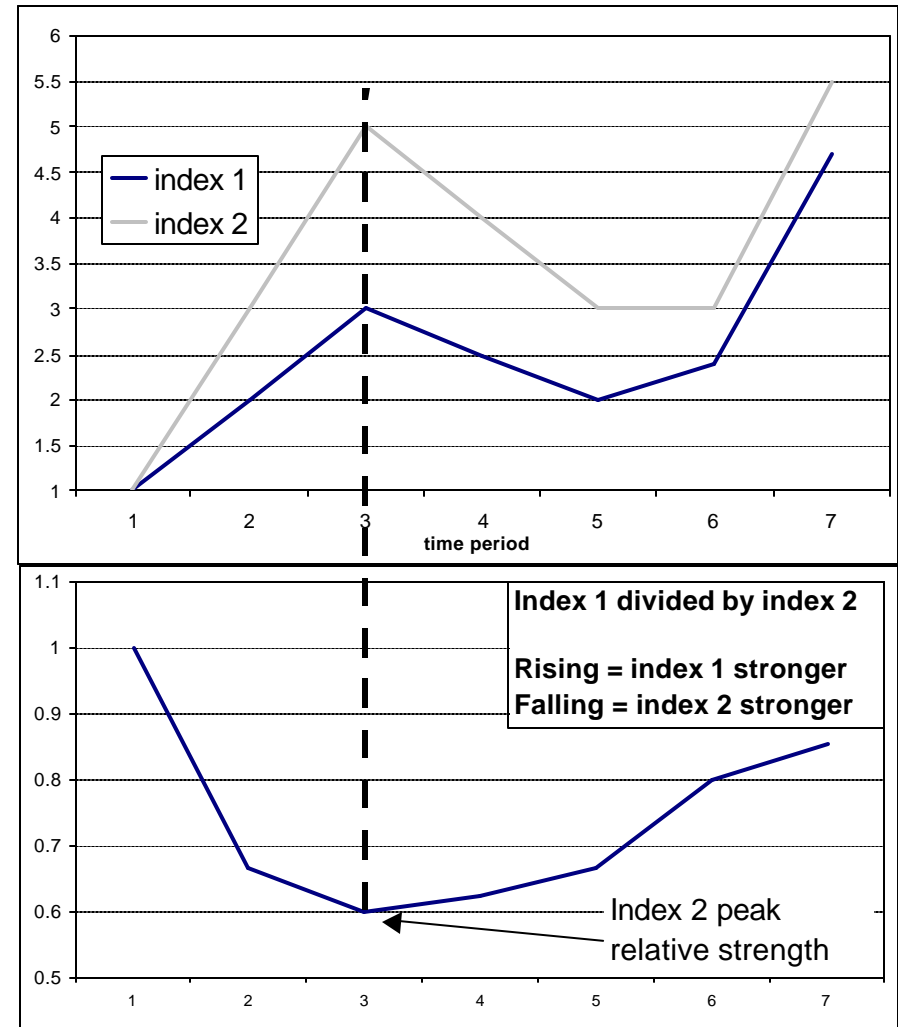
Results of yield curve filter 1962-2005

- The yield curve filter kicked in 9 times
- In the S&P 500 91% of the time, in T-bills 9% of the time
- During the period the S&P 500 returned 10.2%/year with 45% drawdown (monthly data), compared to 11.7% return with 39% drawdown using the yield curve filter.

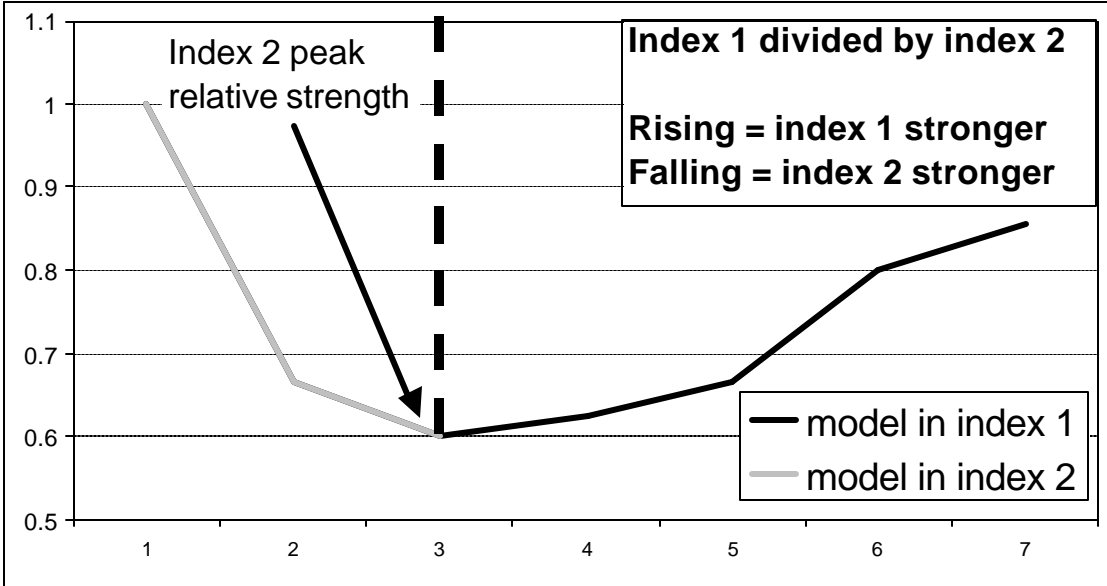
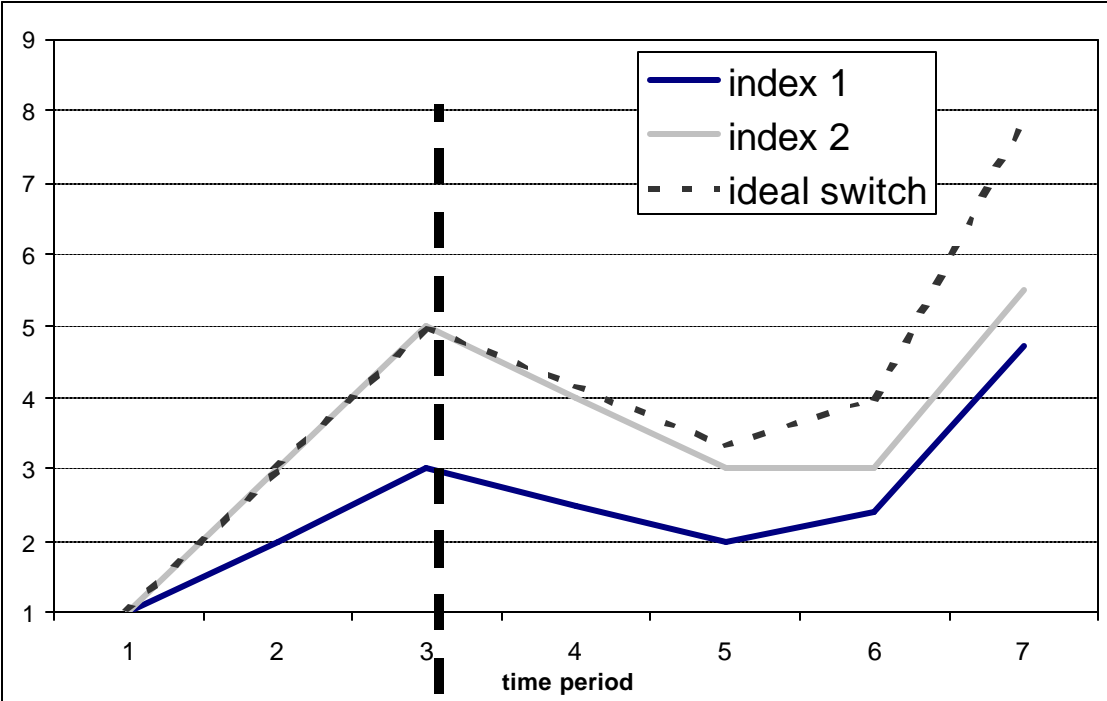
Yield curve filter in effect		While yield curve filter in effect	
from	to	SPX returned	T-bills returned
Sep-66	Feb-67	15.1%	2.4%
Jan-69	Feb-69	-5.0%	0.5%
Jul-69	Sep-69	-3.9%	1.1%
Nov-69	Feb-70	-6.8%	2.0%
Jun-73	Jul-74	-21.2%	8.7%
Aug-74	Oct-74	-5.6%	1.8%
Dec-78	May-80	27.6%	16.5%
Nov-80	Sep-81	-4.6%	12.7%
Aug-00	Jan-01	-4.0%	2.8%

Concept of relative strength

- Divide index_1 by index_2 . These indexes may reflect price or total return.
- Rising ratio means index_1 (numerator) is stronger.
- Falling ratio means index_2 (denominator) is stronger.
- Relative strength leadership does not tell you whether either or both indexes are showing profits or losses.



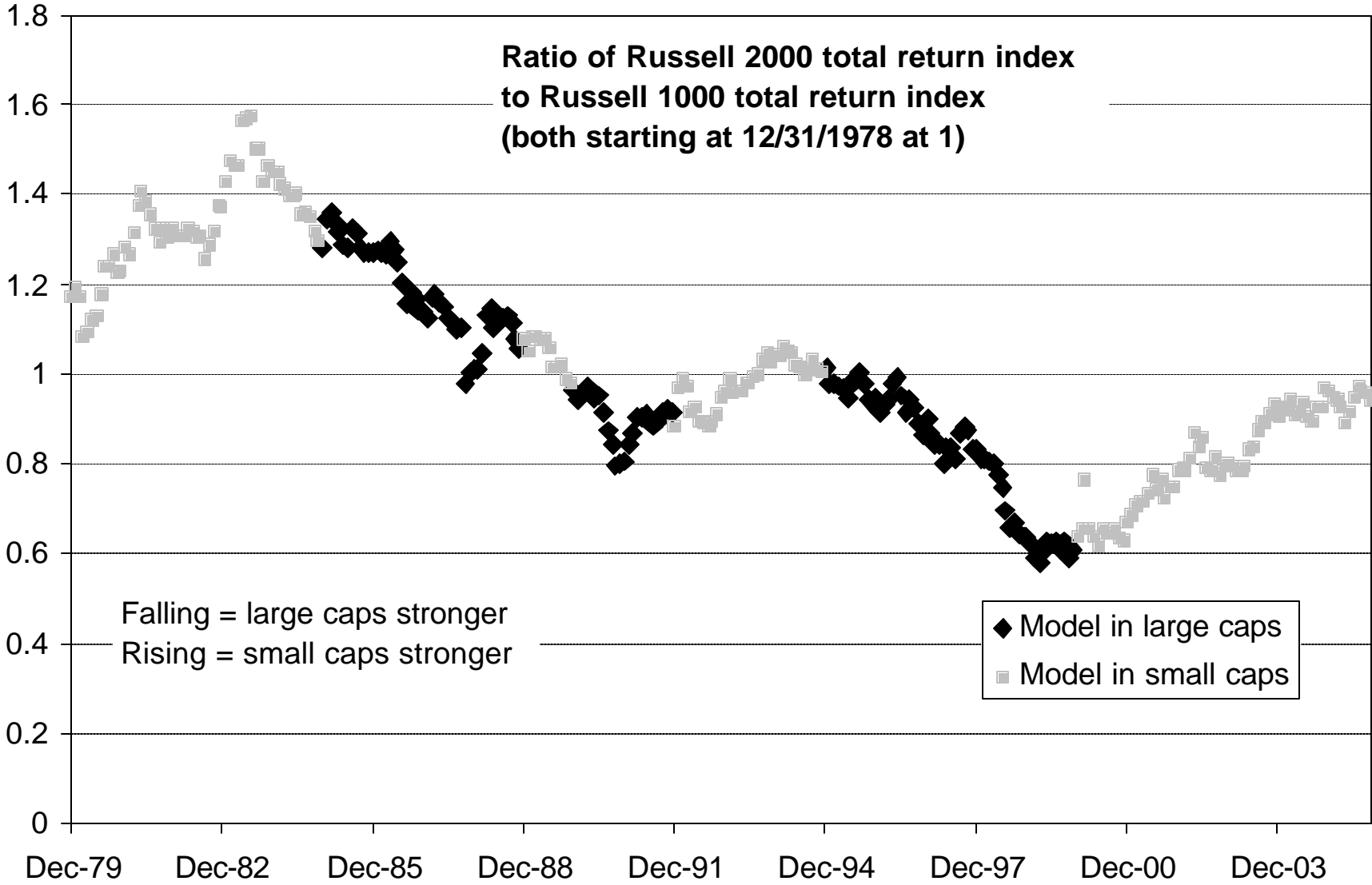
Hypothetical ideal relative strength switching model

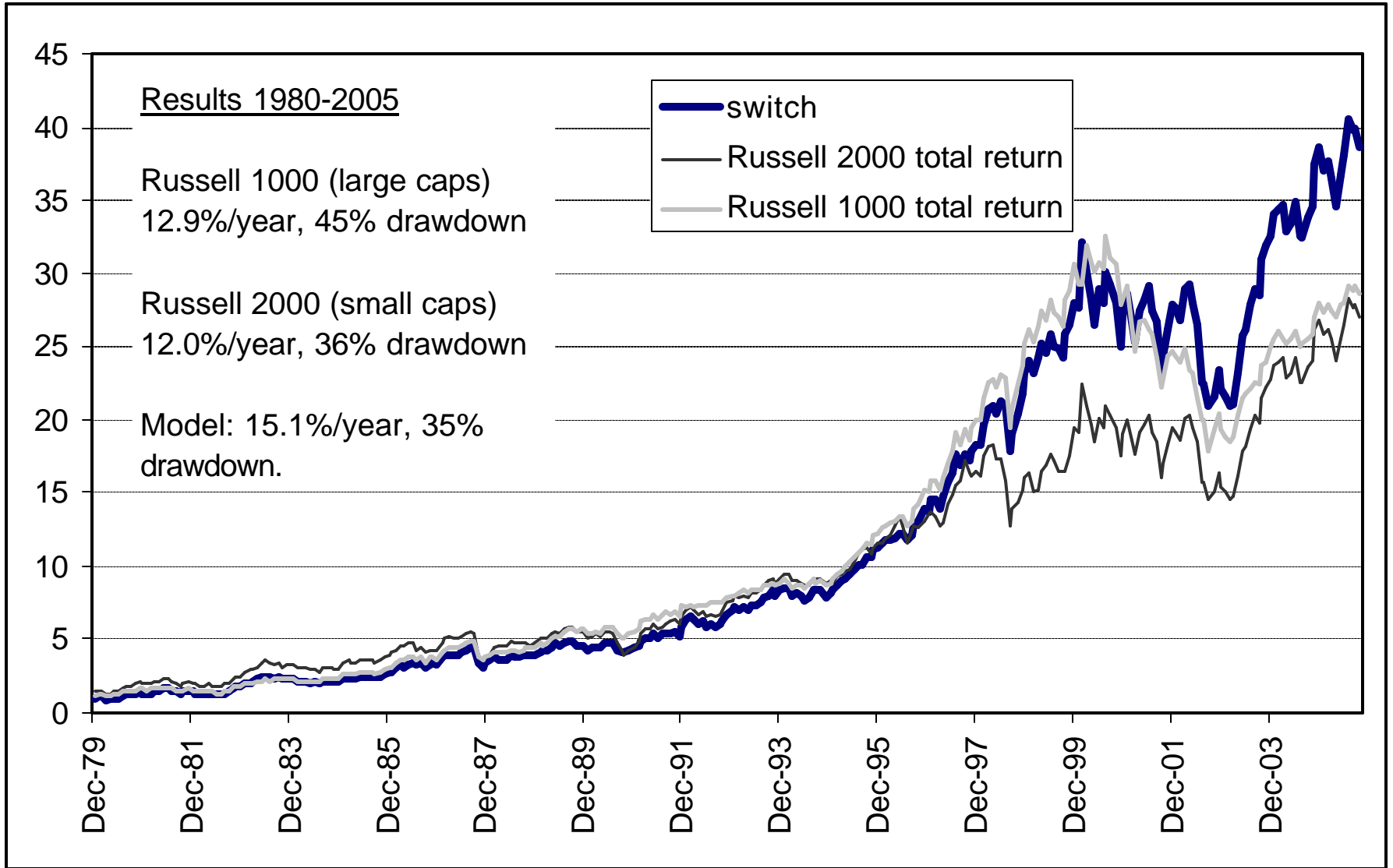


Small cap vs. large cap (blend)

- On the last trading day of each year see whether the small or the large cap benchmark had the greater total return.
- For the coming year, invest in whichever style was more profitable during the previous year.
- Can implement using mutual fund averages (Lipper) or Russell 1000/Russell 2000 ETF's.

**Ratio of Russell 2000 total return index
to Russell 1000 total return index
(both starting at 12/31/1978 at 1)**





model in small caps

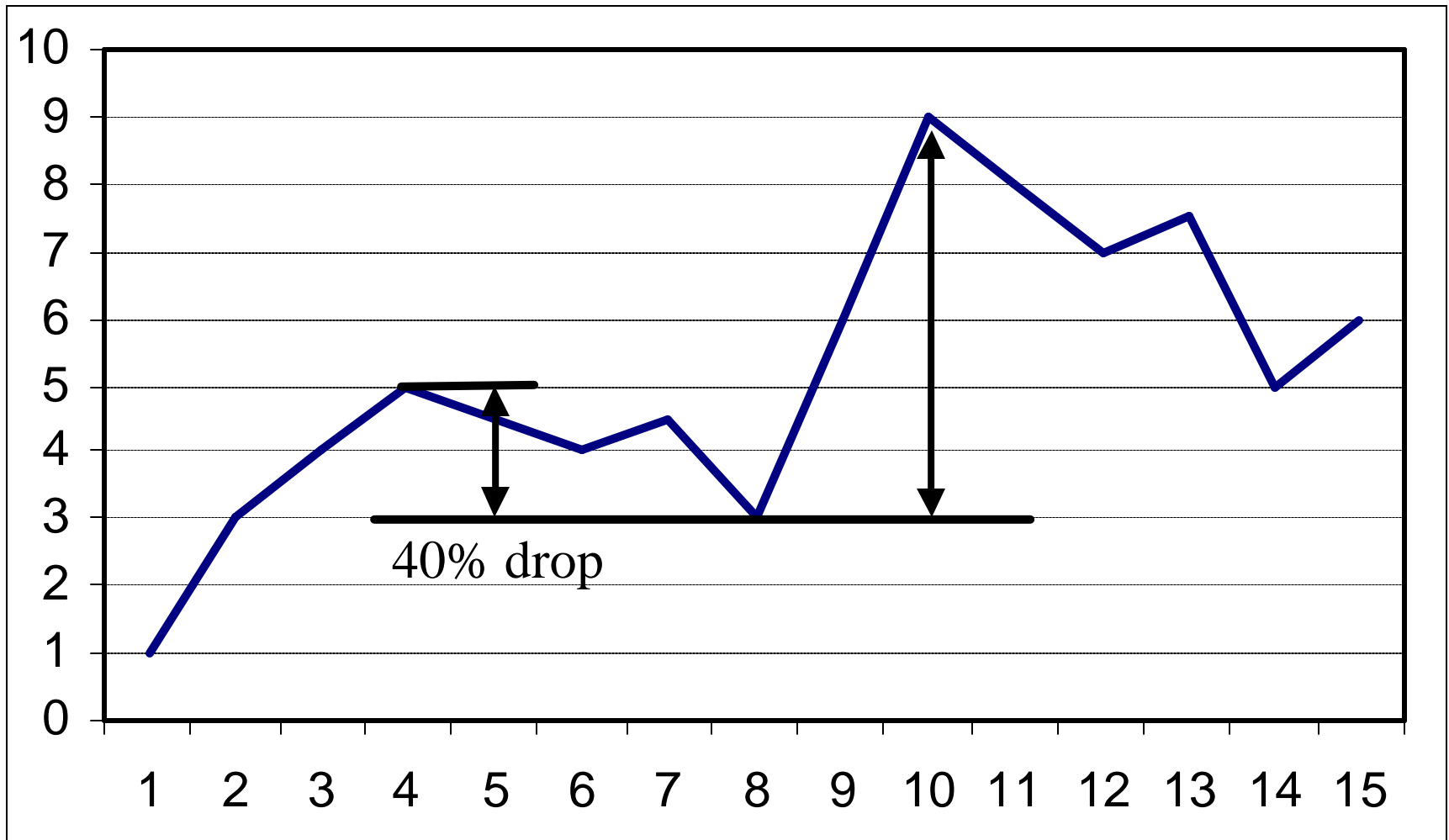
<u>from</u>	<u>to</u>	<u>large cap total return</u>	<u>small cap total return</u>
12/31/79	12/31/84	92.6%	111.5%
12/31/88	12/31/89	30.4%	16.3%
12/31/91	12/31/94	20.5%	38.2%
12/31/99	open trade	-6.4%	37.9%

as of 10/31/2005

model in large caps

<u>from</u>	<u>to</u>	<u>large cap total return</u>	<u>small cap total return</u>
12/31/84	12/31/88	88.2%	57.9%
12/31/89	12/31/91	27.4%	17.6%
12/31/94	12/31/99	244.2%	116.4%

Recognizing new trends in relative strength

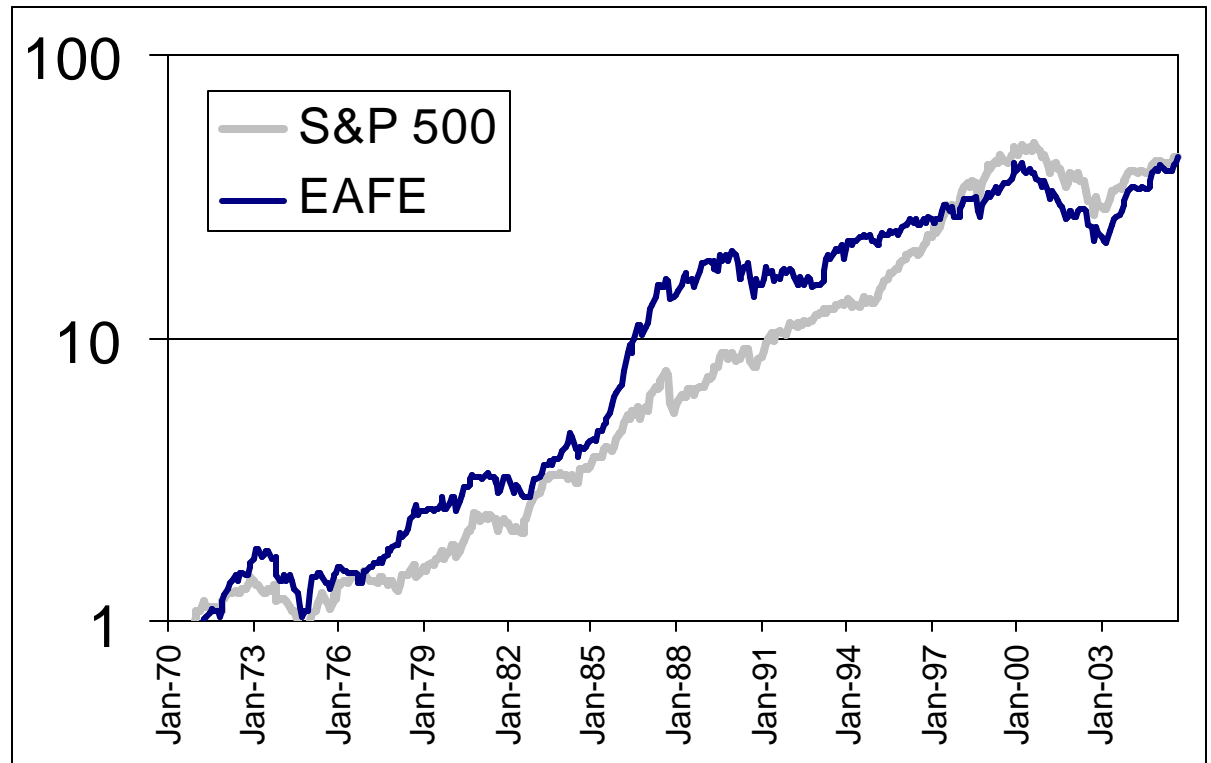


Foreign versus U.S. stock model

- Use MSCI EAFE as the benchmark for foreign stocks and S&P 500 as the U.S. benchmark.
- Calculate the ratio of EAFE / S&P 500 (price-only data) on the last day of each month.
- A new trend is defined by a 15% reversal in relative strength.

Total return on EAFE and S&P 500 indexes, starting at \$1 on 12/31/1969.

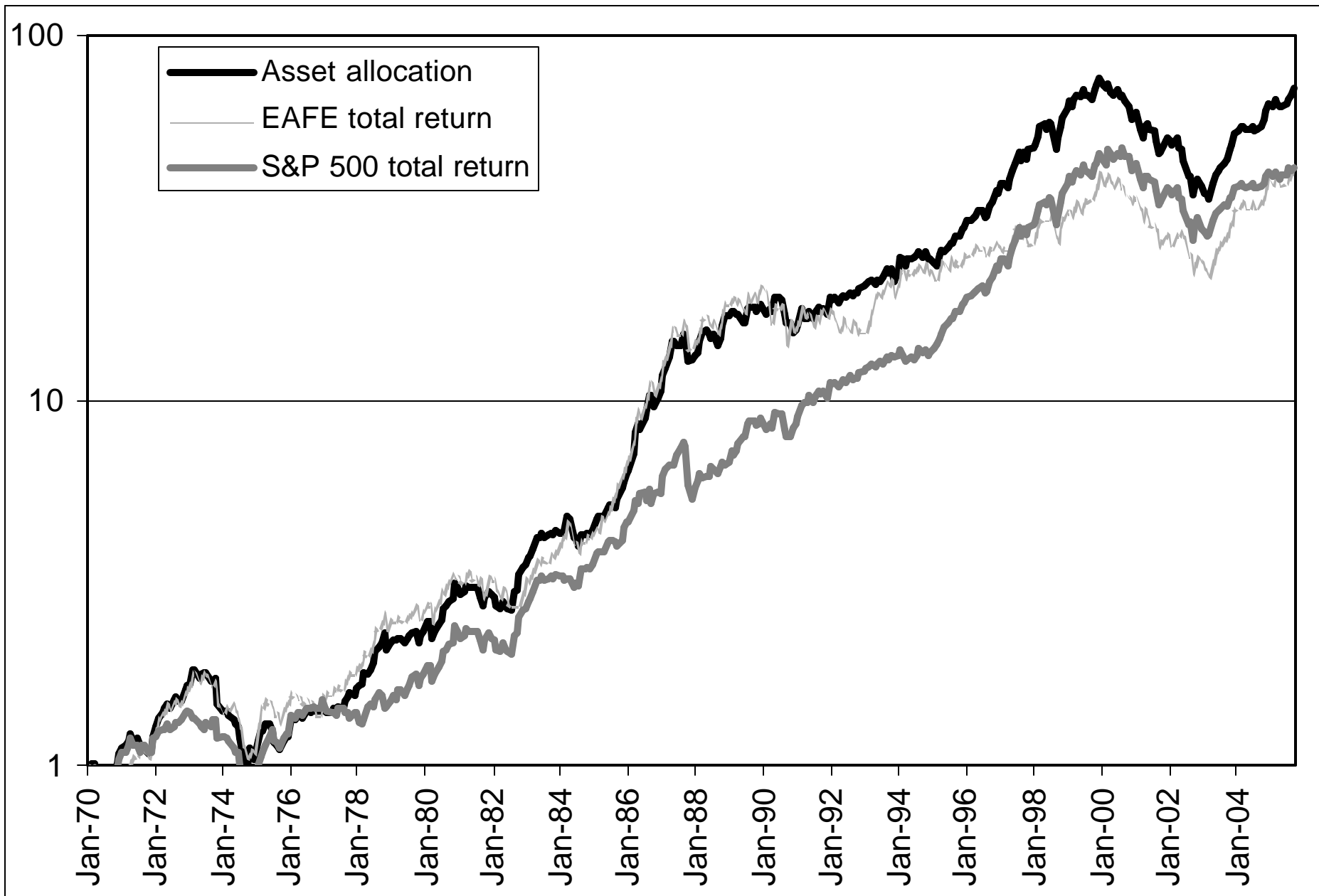
(log scale)



EAFE / S&P 500 (ratio of total returns above)

Note the huge variations in relative performance, 1985-1999





Results of EAFE vs SPX model

- 17 one-way switches from 1970-2005
- EAFE and S&P 500 total returns during the period were both 10.8%/year, with drawdowns of 47% and 45%, respectively (based on monthly data)
- Switching according to the model returned 12.4%/year, but with 53% drawdown.
- Of the 17 transactions, 9 have been successful. The gains have been greater than the losses.

Trade-by-trade results: EAFE vs. SPX momentum model

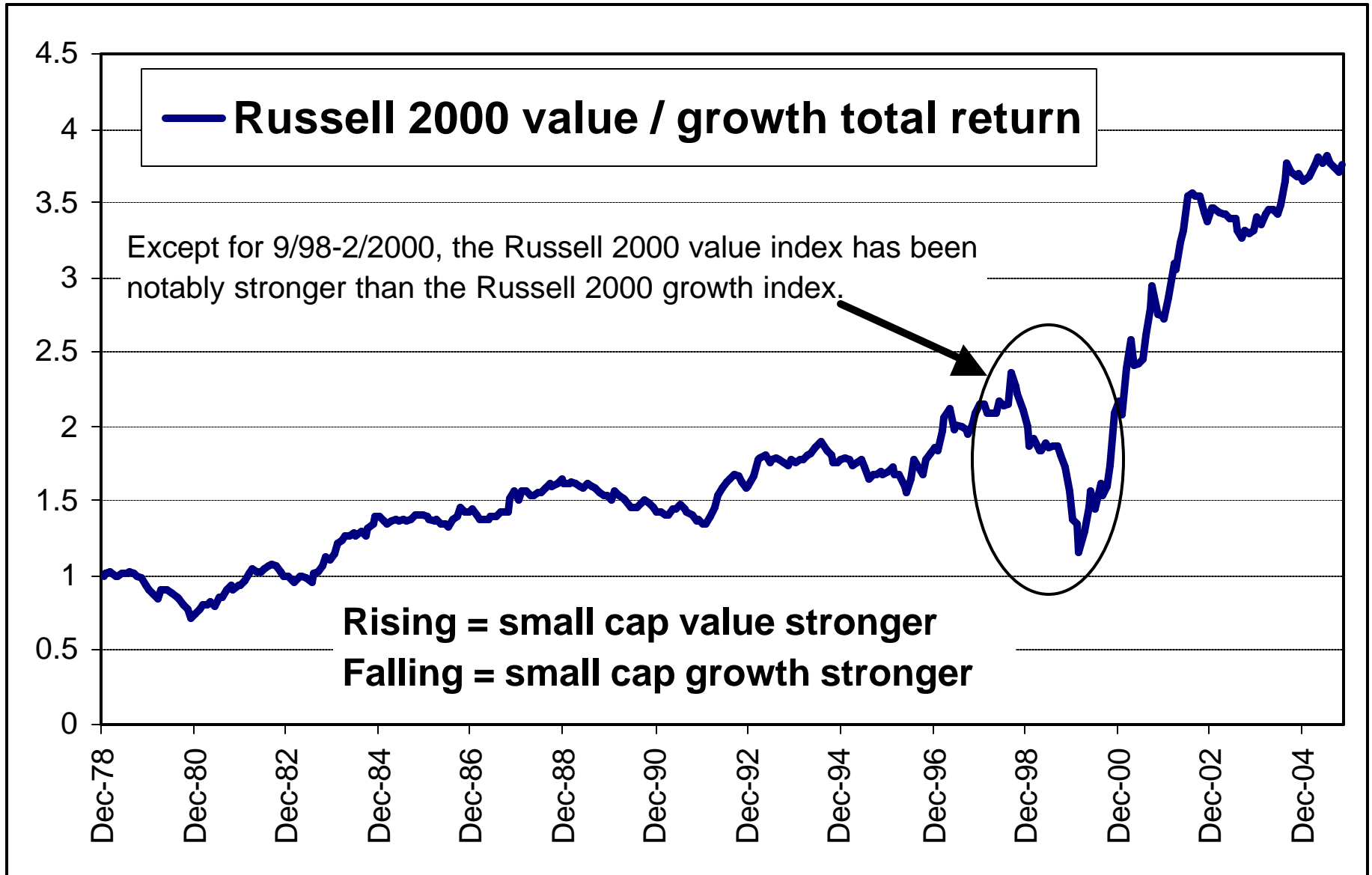
Model favored EAFE		While model favored EAFE					
<u>from</u>	<u>to</u>	<u>EAFE gained</u>	<u>S&P gained</u>	<u>comment</u>			
Jul-71	Dec-73	25.0%	9.9%	successful			
Feb-75	Jun-75	-1.1%	18.3%	unsuccessful			
Feb-77	Aug-79	66.5%	24.8%	successful			
Jan-84	Aug-84	-0.9%	4.9%	unsuccessful			
Mar-85	May-89	434.5%	148.3%	successful			
Oct-90	Mar-91	2.9%	25.3%	unsuccessful			
Apr-93	May-95	22.4%	28.6%	unsuccessful			
Feb-00	Oct-00	-10.3%	5.4%	unsuccessful			
Jun-02	Sep-05	57.3%	31.5%	successful (open position as of 10/31/2005)			

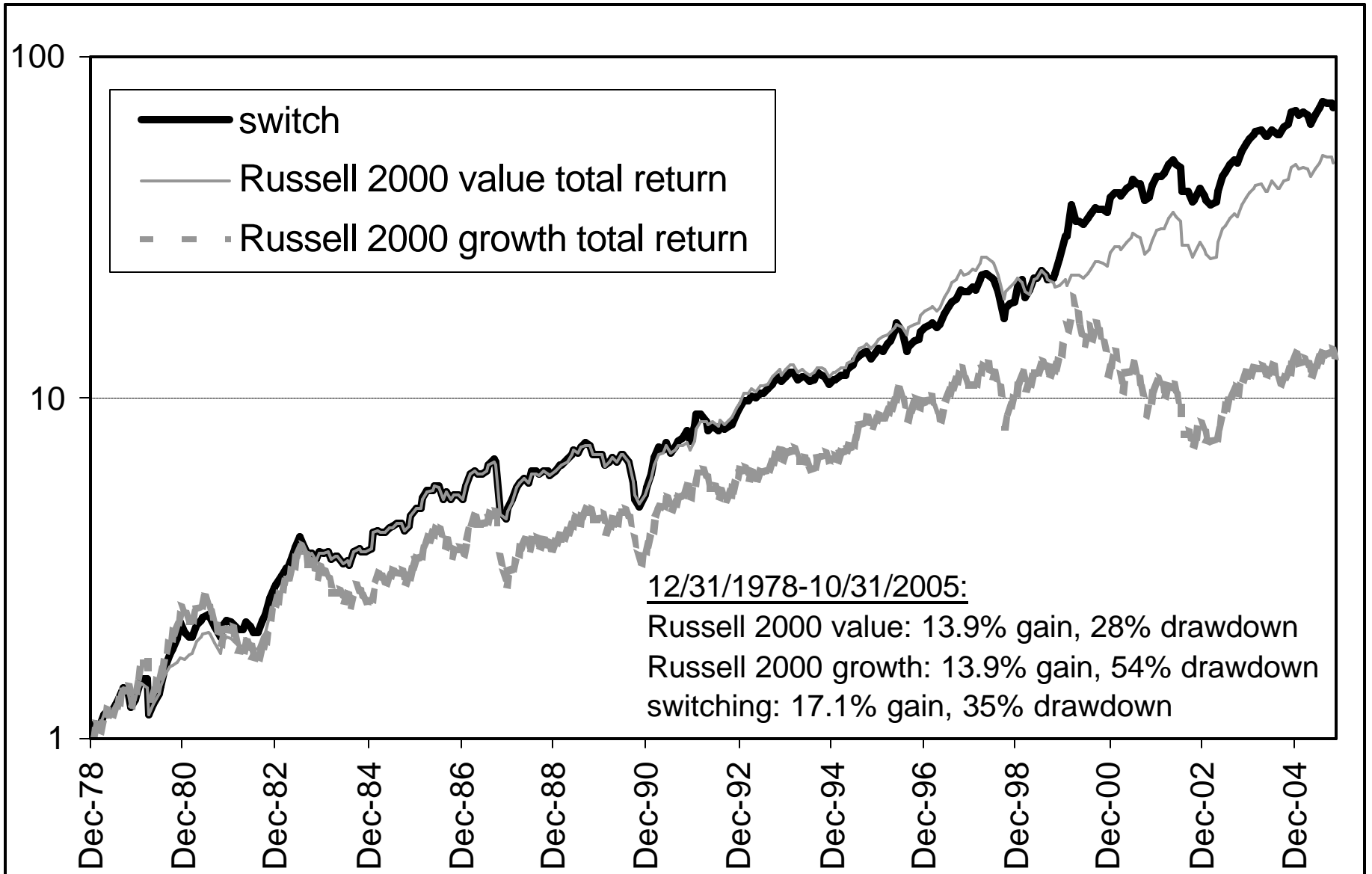
Model favored S&P 500		While model favored S&P 500			
<u>from</u>	<u>to</u>	<u>EAFE gain</u>	<u>S&P gain</u>	<u>comment</u>	
Dec-73	Feb-75	3.9%	-11.8%	unsuccessful	
Jun-75	Feb-77	9.5%	12.1%	successful	
Aug-79	Jan-84	60.0%	87.7%	successful	
Aug-84	Mar-85	25.2%	21.5%	unsuccessful	
May-89	Oct-90	-7.2%	-0.5%	successful	
Mar-91	Apr-93	13.2%	24.8%	successful	
May-95	Feb-00	70.6%	178.4%	successful	
Oct-00	Jun-02	-22.5%	-29.1%	unsuccessful	

Growth versus value model

- Select value and growth benchmarks for either large or small caps (eg: Russell 2000 value and growth indexes)
- Calculate the monthly total return indexes and find the ratio as of the last day of each month.
- Look for 10% reversals in the ratio to define new long term trends.

Small cap growth indexes have been generally weak compared to small cap growth mutual funds.





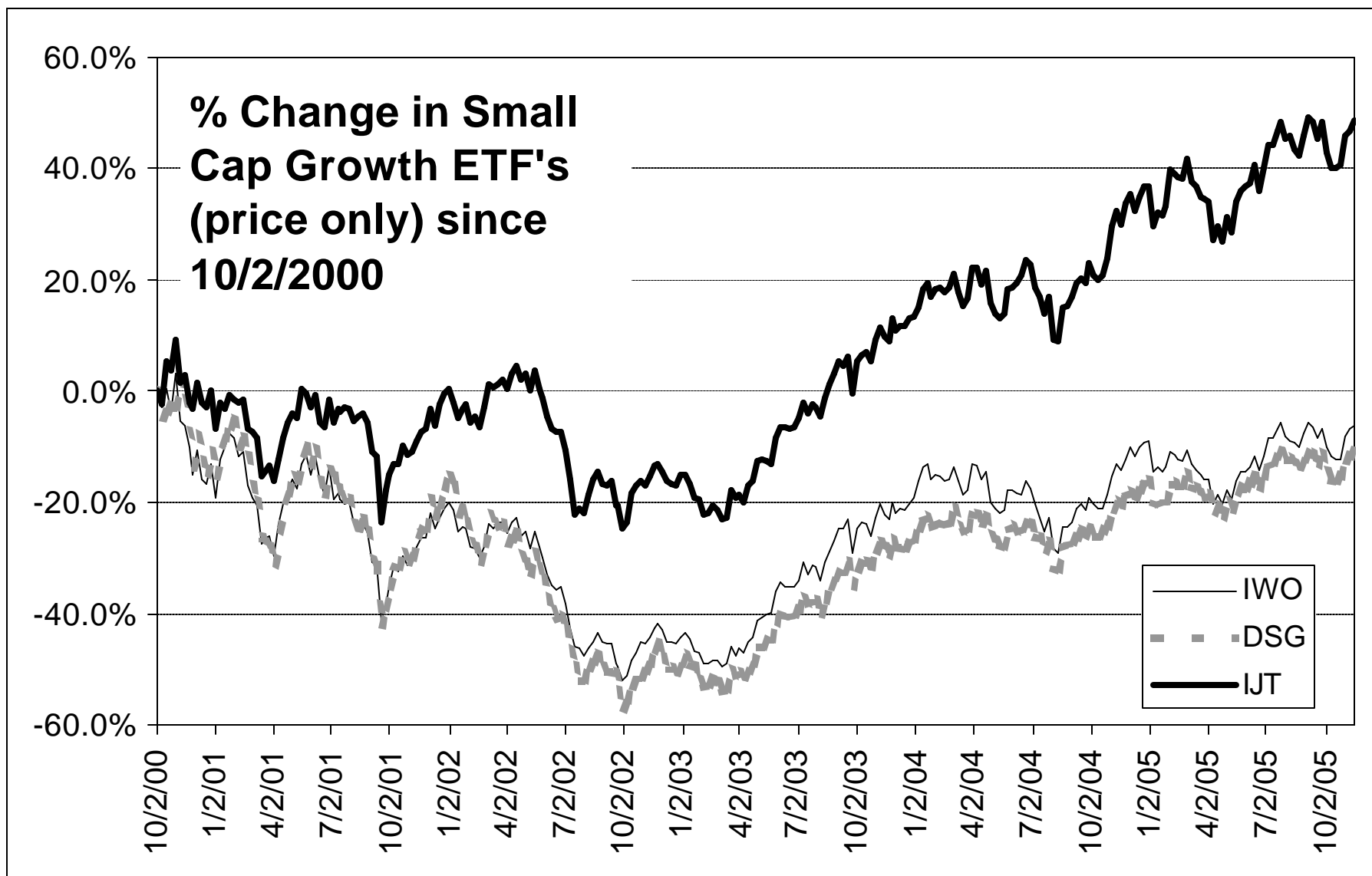
Results of 10% reversal on ratio of Russell 2000 value to Russell 2000 growth total return indexes.

		growth	value
While model in value		<u>change</u>	<u>change</u>
Feb-81	Feb-83	33.4%	58.2%
Sep-83	May-90	40.6%	93.7%
Apr-92	Jul-95	54.0%	66.1%
Jul-96	Nov-98	18.7%	41.0%
Mar-00	10/31/05	-24.7%	116.3%

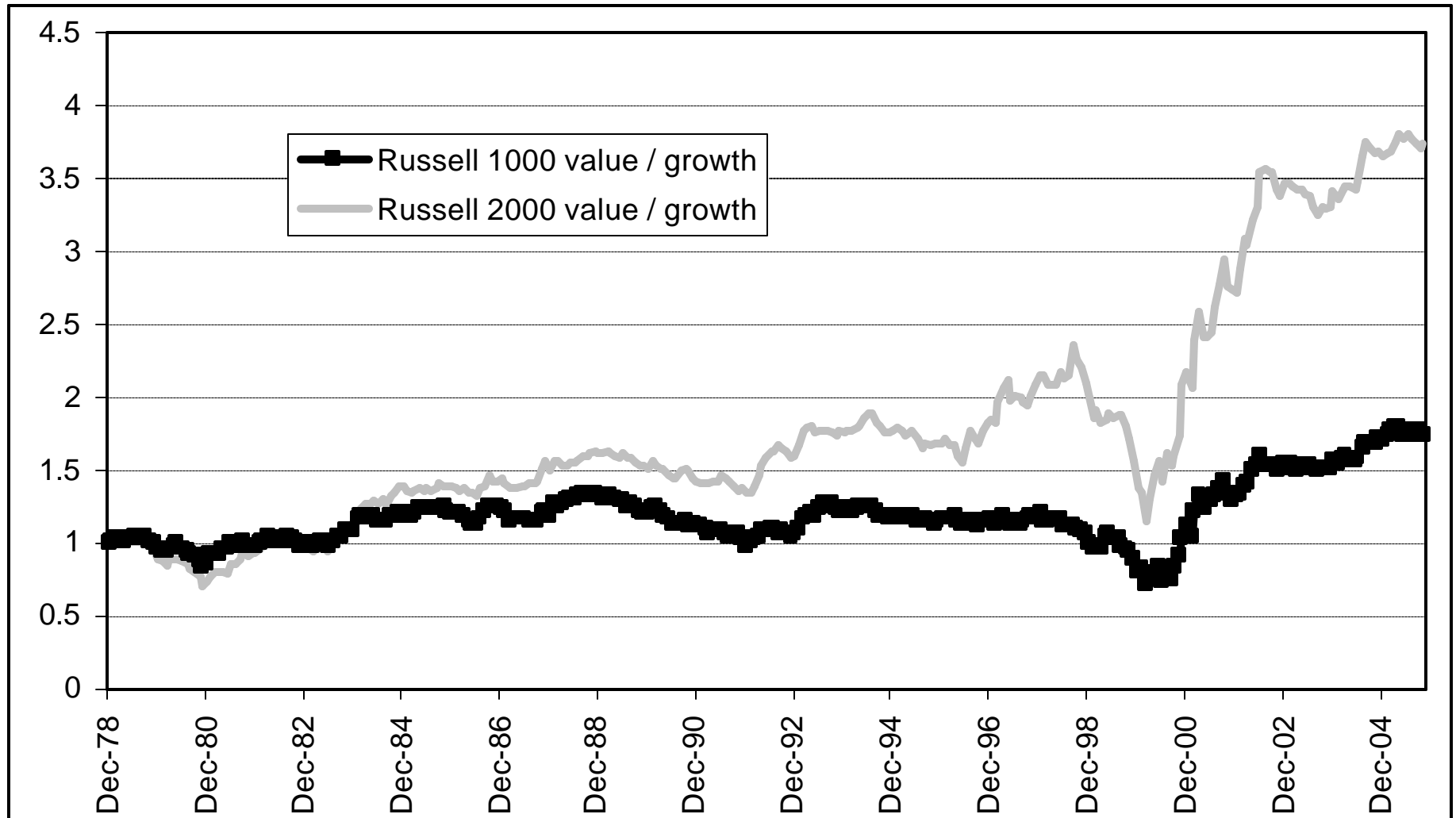
During this period it was difficult to make a good decision to be in growth over value.

		growth	value
While model in growth		<u>change</u>	<u>change</u>
Dec-78	Feb-81	120.8%	77.4%
Feb-83	Sep-83	11.3%	23.8%
May-90	Apr-92	17.5%	23.3%
Jul-95	Jul-96	3.0%	10.6%
Nov-98	Mar-00	70.5%	5.5%

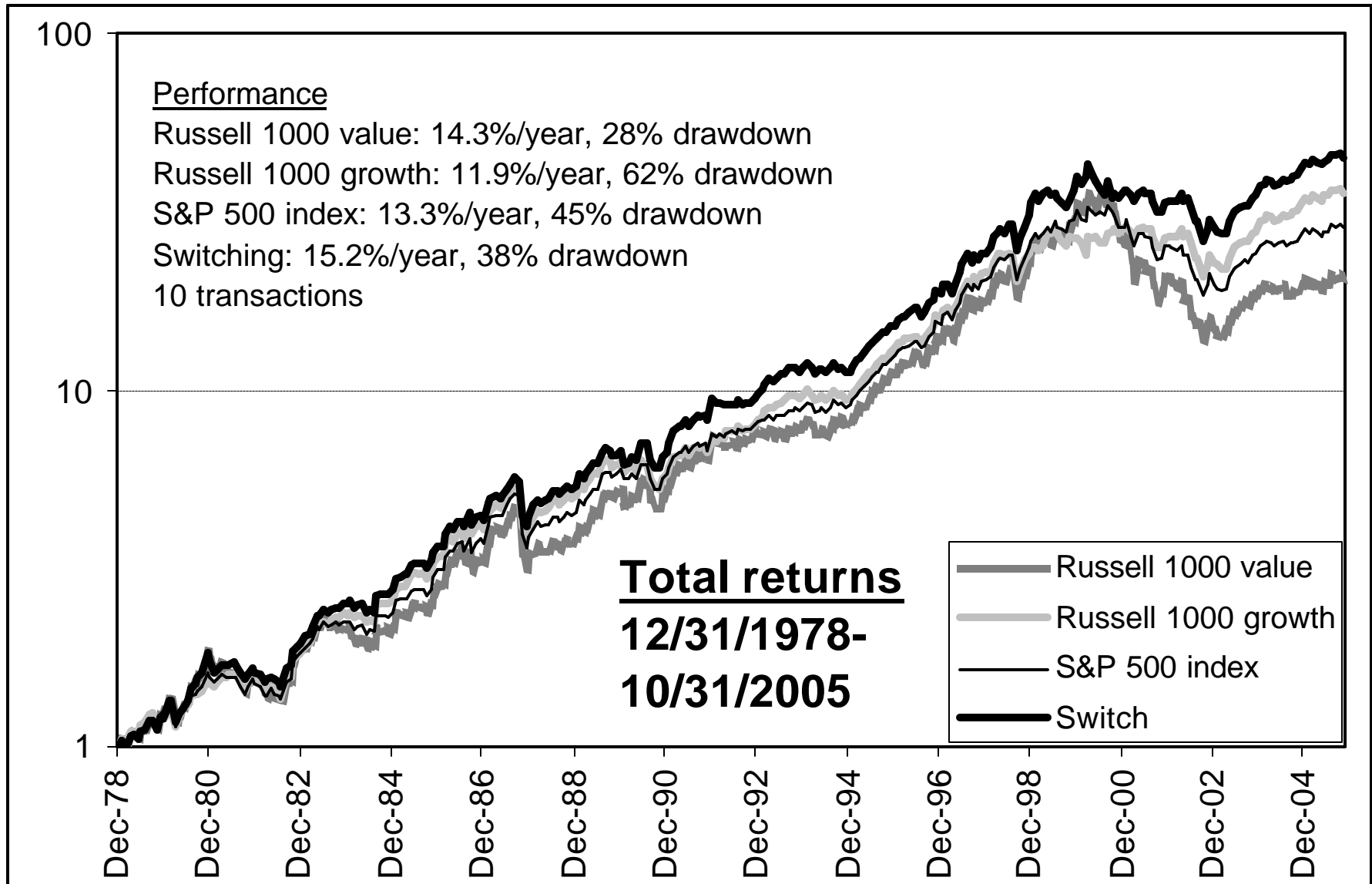
The S&P 600 Growth Index fared better than other small cap growth benchmarks (and better than small cap growth mutual funds) from 2000-2002.



Compared to the swings between small cap growth and value, the disparities between large cap growth and value have been much smaller, and therefore less profitable to attempt to trade.



Asset allocation model on large cap value versus growth, 1979-2005



Model in value		Total return (% gain/loss) in:			
<u>from</u>	<u>to</u>	<u>RU 1000</u> <u>growth</u>	<u>RU 1000</u> <u>value</u>	<u>S&P 500</u>	
Mar-81	Nov-89	202.1%	291.2%	266.0%	successful
Apr-92	Oct-95	51.9%	60.1%	54.6%	successful
May-99	Oct-99	10.9%	-1.8%	5.2%	unsuccessful
May-00	Jun-00	7.6%	-4.6%	2.5%	unsuccessful
Sep-00	10/31/05	-37.0%	28.9%	-8.8%	successful

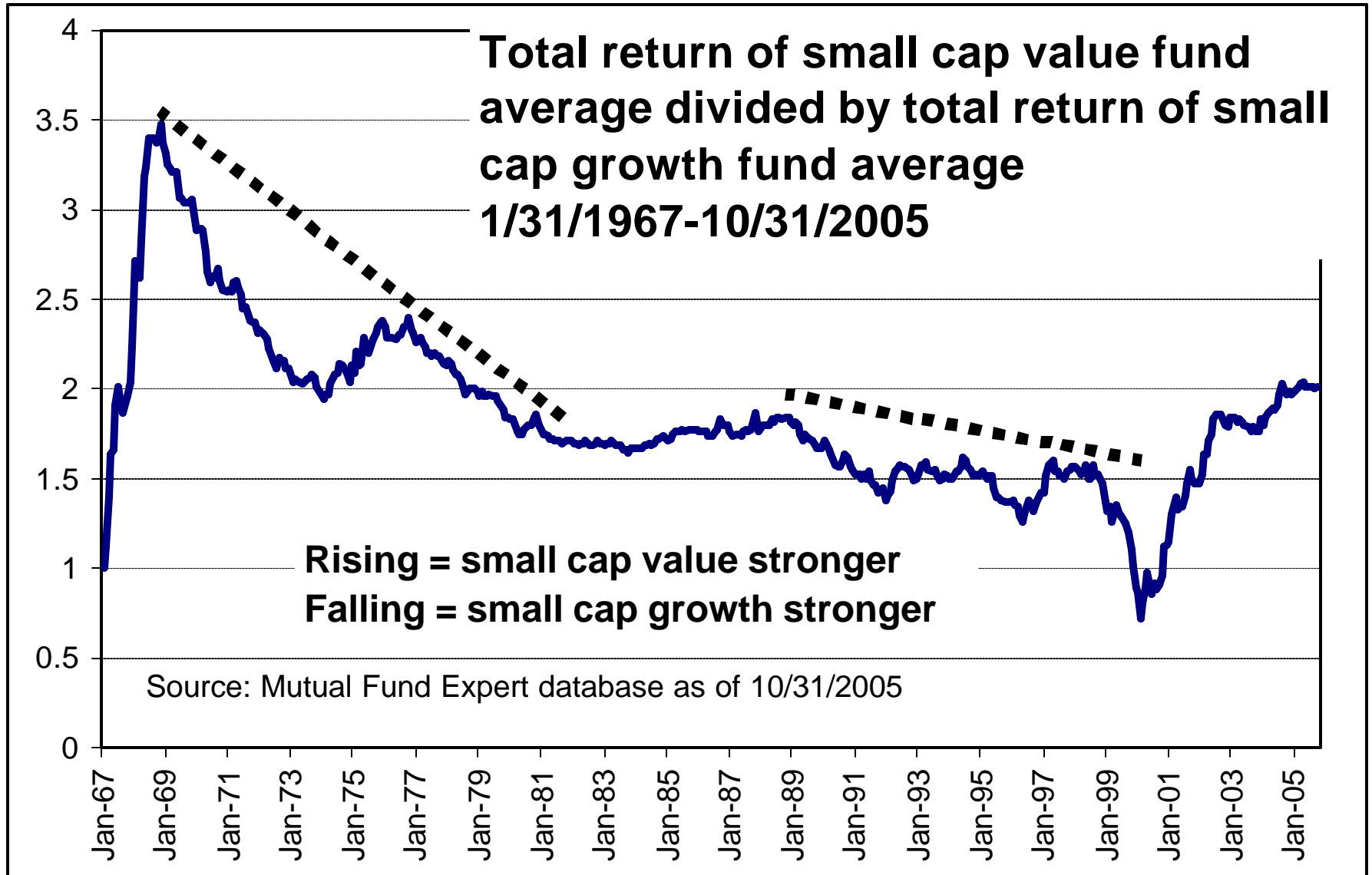
Results of 10% reversal on relative strength between Russell 1000 value and growth total return indexes.

model in growth		Total return (% gain/loss) in:			
<u>from</u>	<u>to</u>	<u>ru1000</u> <u>growth</u>	<u>ru 1000</u> <u>value</u>	<u>S&P 500</u>	
Dec-78	Mar-81	68.4%	57.5%	59.3%	successful
Nov-89	Apr-92	37.5%	23.4%	29.8%	successful
Oct-95	May-99	140.3%	124.6%	138.8%	successful
Oct-99	May-00	12.7%	0.0%	5.0%	successful
Jun-00	Sep-00	-5.4%	7.9%	-1.0%	unsuccessful

Conclusions

- Simple momentum strategies would have kept you on the right side of major market trends.
- These strategies can be implemented at low cost with available ETF's.
- These strategies would have been more profitable than buy and hold strategies but in most cases would not have reduced risk compared to buying and holding the safer investment.
- Therefore, I recommend using this type of model in conjunction with other risk-reducing strategies.

There have been huge opportunities in making the right long term choices between small cap growth and value.



Performance of switching to average of small cap blend funds versus large cap blend funds based on last year's stronger style, 1962-2005.

Results:

- Small cap blend fund average gained 13.2%/year with 37% drawdown
- Large cap blend fund average gained 10.7%/year with 46% drawdown.
- Switching between them gained 14.2%/year with 51% drawdown.

