

Asset Allocation 2016

Economic Cycle

October 15, 2015

Summary of Asset Class Valuation Models

	U.S. Large Cap	U.S. Small Cap	Developed International	Emerging Markets	Interest Rate	Credit
9/30/2015	-1.62	-1.05	-1.19	-0.48	0.81	-0.17
9/30/2014	-0.65	-0.66	-0.84	0.68	0.36	-0.41
YoY Change	-0.97	-0.39	-0.35	-1.16	0.45	0.24

Key Points

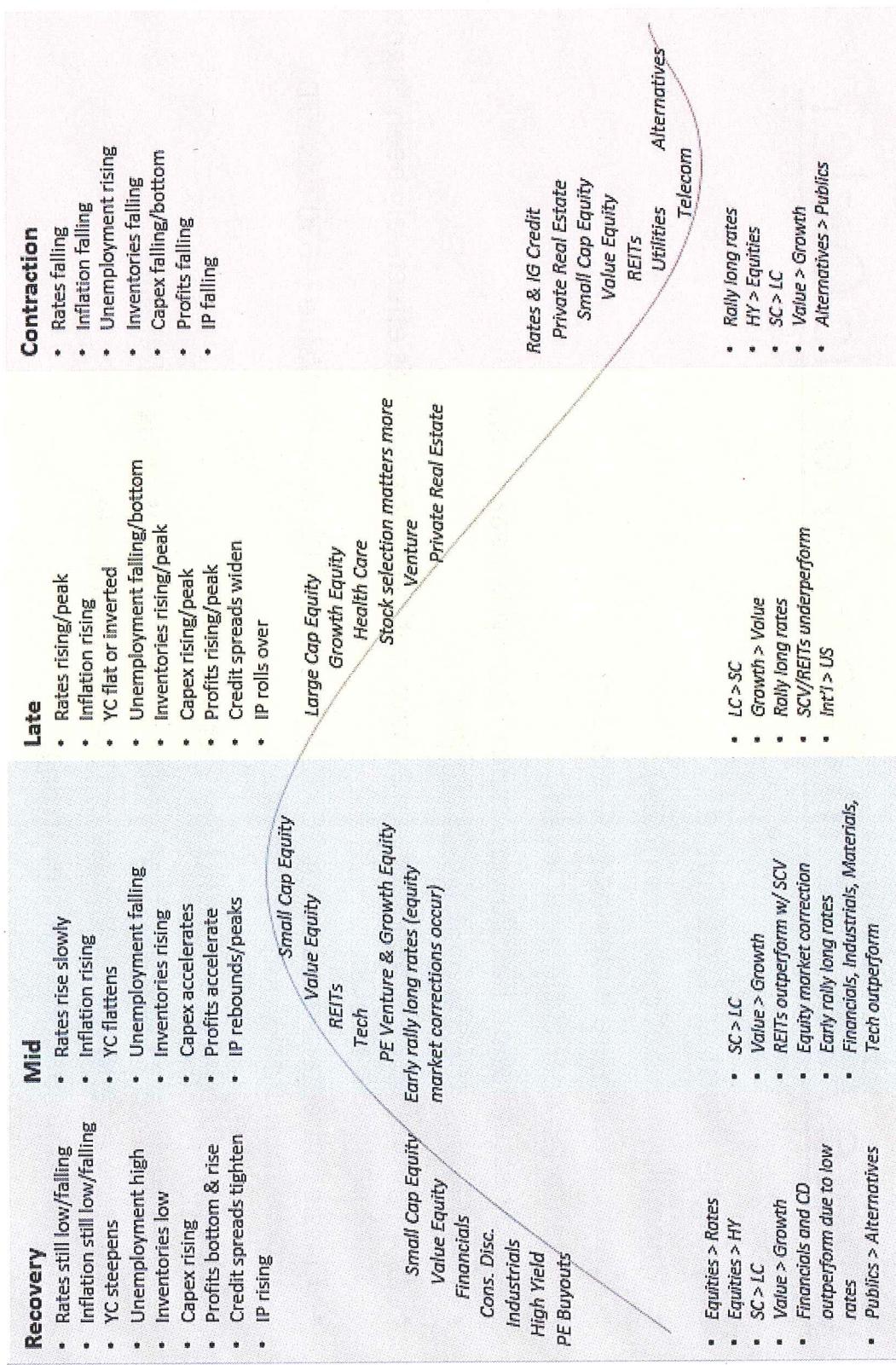
- Liquidity model shows modest positive slope, but no signs of stress.
- Feel positive about EAFE due to CB easing, but model is negative, so we're taking both into account.
- Less excited about US LC, but valuations look less expensive, so hold the course.
- When we get a sell signal (likely to happen in 2016), we recommend reducing equities across the board (int'l less). We would assess relative valuations at that time to determine how to allocate capital.
- Rates: Rates have consistently been below market expectations. Short end rates continue to rise, but less than implied by market. Long rates likely to be contained absent inflation.
- Credit: Spreads have room to retrace to mid-cycle highs of fall 2011.

Views

- Expect above-average 5-7 year returns: Developed Non-US Equities and Interest Rates.
- Expect average 5-7 year returns: TIPS, ILBs, Barclays Agg, Bank Loans, US Large Cap, US Small Cap, EME
- Expect below-average 5-7 year returns: High Yield, EMD \$, EMD Local

Economic Cycles & Asset Class Returns

Howard Marks: "Rule number one: Most things will prove to be cyclical. Rule number two: Some of the greatest opportunities for gain and loss come when other people forget rule number one."

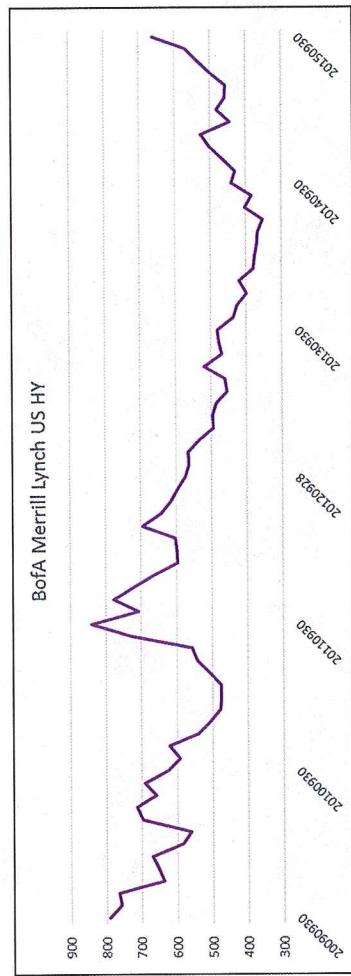
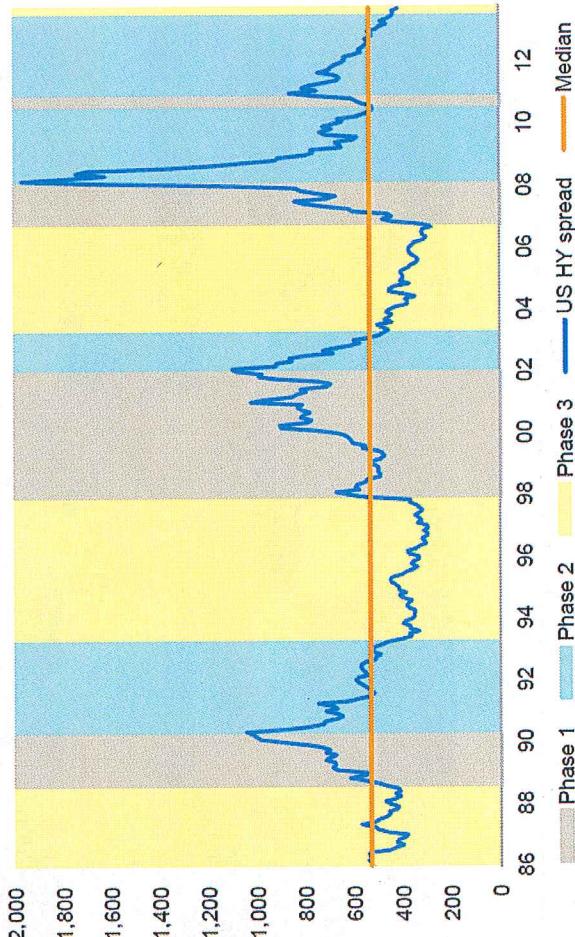
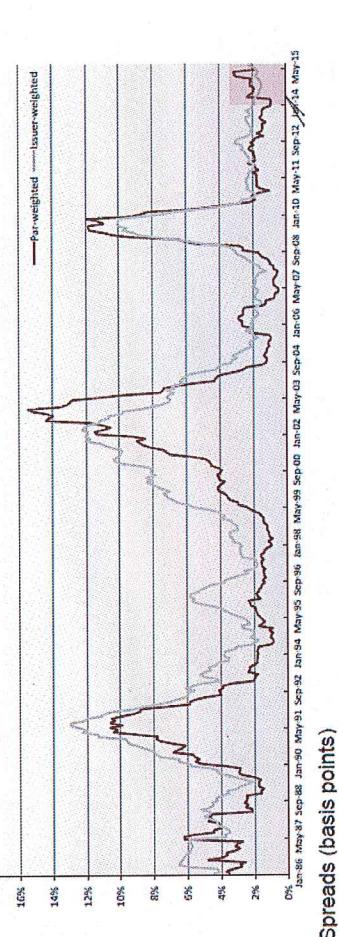


Where Are We in the Economic Cycle?

- Many Signs Point to Late Cycle
 - Unemployment at cycle low (5.1%).
 - Credit spreads are widening (+80 bps 1yr).
 - Inventories near cycle peak levels.
 - Capex acceleration has slowed, capex near cycle peak levels.
 - Net margins at cycle peak levels (10.6%).
 - Fed tightening: although short rates have not risen, the Fed has effectively been “tightening” since unwinding of QE.
 - Classic characteristics such as LC>SC (+240 bps YTD), Growth>Value (+650 bps YTD), momentum stocks outperforming.
- HOWEVER...Mid Cycle Could Be Extended.
 - One classic late cycle sign that is NOT present today is rising inflation.
 - This may extend the mid phase of this economic cycle.
 - Industrial production remains strong.

Credit Cycle

- High yield credit cycles last on average 9 years. Current cycle is 8 years old.
- Spreads beginning to widen, even ex-Energy.
- Defaults ticking up, but not meaningfully.
- BUT...leverage has actually decreased (not increased).



Phase	Credit spread behaviour	Characteristics
1: Downturn	Spread widening	<ul style="list-style-type: none"> The worst phase for corporates, as the recession in the economy hits economic activity Banks reduce their lending and tighten credit standards, and companies start to de-leverage their balance sheets in the face of declining cash flows and rising corporate default rates Central banks are easing monetary policy or cutting rates, as the economy is experiencing a slowdown or is in recession
2: Repair/recovery	Spread tightening	<ul style="list-style-type: none"> This repair of balance sheets and regeneration in cash flows are prominent features in the repair phase, which is aided by more accommodative monetary policy as central banks reflate the economy given anaemic growth The economy tends to be moving out of recession and into recovery mode
3: Expansion	Spread stability	<ul style="list-style-type: none"> As the economy recovers and there is improved business and consumer confidence, banks start to increase lending and corporate cash flow improves This creates the expansion part of the cycle when the economy is on a stronger footing, with increased confidence and lending once again spurring higher leverage and central banks eventually tightening policy to rein in signs of overheating in the economy

Current Cycle: 1/1/2008 – Present (Eight Years)

	nominal returns			2008	2009	2010	2011	2012	2013	2014	YTD 9/30/2015
	Contraction	Contraction/Recovery	Recovery				Mid	Mid	Mid	Mid	Mid/Late
LEGEND (LT Returns)											
US Large (+11.2%)	20+Yr STRIPS	EME	78.5	28	US REITs	58.5	20+Yr STRIPS	EME	43.3	20+Yr STRIPS	PE Venture
US Large Agg 5.2	Barclays Agg	High Yield 57.5	US SC Growth 29.1	Private Real Estate 14.3	US SC Value 18.1	US Small 38.8	US REITs 30.1	US REITs	30.1	Private Real Estate 10.1	
US LC Growth (+10.8%)	Short UST 2.6	US SC Growth 34.5	PE Growth Equity 27	PE Venture 13.5	US REITs 18.1	US SMID 36.8	PE Venture 25.9	PE Venture	25.9	Timber 8.4	
US LC Value (+11.3%)	Timber 9.5	US SMID 34.4	US Small 26.8	PE Growth Equity 11.1	US SMID 17.9	US SC Value 34.5	US LC Growth 14.9	US LC Growth	14.9	PE Buyout 7.9	
US SMID (+13.2%)	Private Real Estate 6.5	EAFE 31.8	US SMID 26.7	PE Buyout 8.5	US LC Value 17.7	US LC Growth 32.8	US Large 13.7	US Large	13.7	Hedge Funds 1.2	
US Small (+10.3%)	PE Venture -17.1	US LC Growth 31.6	US SC Value 24.5	US REITs 8.3	EAFE 17.3	US Large 32.4	PE Buyout 13	PE Buyout	13	Barclays Agg 1.1	
US SC Growth (+7.8%)	Hedge Funds -19.9	PE Growth Equity 31	PE Buyout 21	Barclays Agg 7.8	US Small 16.4	US LC Value 31.9	US LC Value 12.4	US LC Value	12.4	Short UST 0.01	
US SC Value (+12.4%)	EAFE (+8.9%)	US REITs 27.9	PE Venture 20.4	US LC Growth 4.6	US Large 16	PE Venture 25.3	PE Venture 12.2	PE Venture	12.2	US LC Growth -2.2	
EME (+10.2%)	PE Buyout -22.5	US Small 27.2	EME 18.9	High Yield 4.4	High Yield 15.6	EAFE 22.8	Private Real Estate 11.8	Private Real Estate	11.8	High Yield -2.5	
Short UST (+5.0%)	High Yield -26.3	US Large 26.5	High Yield 15.2	US Large 2.1	US LC Growth 14.6	PE Growth Equity 21	PE Growth Equity 10.5	PE Growth Equity	10.5	Timber 20+Yr STRIPS -2.7	
20+Yr STRIPS (+11.2%)	US SC Value -26.4	PE Buyout 24	US Large 15.1	Timber 1.6	US SC Growth 14.6	PE Buyout 19.3	PE Buyout 7.1	PE Buyout	7.1	US SMID -2.8	
Barclays Agg (+8.4%)	US Small -33.8	US LC Value 21.2	US LC Value 15.1	Short UST 0.2	PE Buyout 13.9	Private Real Estate 10.9	Barclays Agg 5.9	Private Real Estate	5.9	EAFE 5.3	
High Yield (+8.7%)	US LC Growth -34.9	US SC Value 20.6	US LC Growth 15.1	US LC Value -0.5	US LC Value 10.6	Timber 9.7	US SC Growth 5.6	US SC Growth	5.6	US Large -5.3	
Timber (+12.6%)	US SMID -36.8	Private Real Estate 16.9	Private Real Estate 13.1	US SMID -2.5	PE Growth Equity 8.7	Hedge Funds 9.2	Barclays Agg 4.9	Hedge Funds	4.9	US SC Growth -5.5	
Hedge Funds (+11.8%)	US Large -37	Hedge Funds 9.6	20+Yr STRIPS 10.9	US SC Growth -2.9	High Yield 7.7	High Yield 7.4	US SC Value 4.2	US SC Value	4.2	US SMID -6	
Private Real Estate (+9.2%)	US REITs -37.7	PE Venture 6.7	EME 7.8	US Small -4.2	PE Venture 6.7	Short UST 0.1	Hedge Funds 3.5	Short UST	0.1	Hedge Funds 3.5	
US REITs (+12.2%)	US SC Growth -38.5	Barclays Agg 5.9	Hedge Funds 6.5	US SC Value -5.5	Hedge Funds 4.6	US REITs 2.5	High Yield 2.5	High Yield	2.5	US SC Value -7.7	
PE Growth Equity (+6.9%)	US LC Value -39.2	Short UST 0.4	Hedge Funds 5	Hedge Funds -5.7	Barclays Agg -2	Barclays Agg 0.1	Barclays Agg 0.1	Short UST	0.1	US SC Value -10.1	
PE Buyout (+14%)	EAFE -43.4	Timber -4.8	Short UST 0.3	EAFE -12.1	EME 2.9	EME -2	EME -2	EME	-2	EME -15.5	
PE Growth Equity (+6.9%)	EME -53.3	20+Yr STRIPS -36	Timber -0.2	EME -18.4	Short UST 0.2	20+Yr STRIPS -20.9	20+Yr STRIPS -4.9	20+Yr STRIPS	-4.9	EAFE 29.5	
Annual Dispersion	112.8	46.7	14.9	76.9	18.0	64.2	51.3	51.3	51.3	29.5	
3m Rates (YoY Chg)	-3.1%	0.0%	1.0%	-0.1%	1.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Core CPI (YoY)	2.3%	1.7%	1.0%	-0.1%	1.7%	2.1%	1.8%	1.8%	1.7%	1.7%	
Unemployment	5.8%	9.3%	9.6%	9.0%	9.0%	8.1%	7.4%	7.4%	6.2%	5.1%	
Real GDP Growth (YoY)	-0.3%	-2.8%	2.5%	1.6%	2.2%	1.5%	2.4%	2.4%	2.4%	2.7%	
LEI (YoY % Chg)	-11%	-14%	8%	5%	2%	3%	6%	6%	6%	1%	
BBBOAS (YoY Chg)	459	(476)	(20)	77	(89)	(22)	20	20	20	82	
Inventories (YoY % Chg)	-4%	-7%	10%	10%	4%	2%	2%	2%	2%	-1%	
Capex (YoY % Chg)	-1%	-6%	9%	7%	8%	3%	3%	3%	3%	-3%	
Net Margin (YoY % Chg)	-1.8%	0.3%	1.2%	0.1%	0.2%	0.4%	0.4%	0.4%	0.4%	0%	
Industrial Production (YoY % Chg)	-3%	-11%	6%	3%	3%	2%	2%	2%	2%	1%	

Appendix

4/1/2001 – 1/1/2008 (Seven Years)

	2001	2002	2003	2004	2005	2006
	Contraction	Contraction	Recovery	Mid	Mid	Late
US SC Value	-14	20+Yr STRIPS	EME 55.8	US REITs 31.6	PE Buyout 36.8	US REITs 35.1
US REITs	13.9	Barclays Agg	US SC Growth 48.5	PE Buyout 26.8	EME 34	EME 32.1
Barclays Agg	8.4	Private Real Estate	US Small 47.2	EME 25.5	PE Venture 31.1	EAFE 26.3
Private Real Estate	7.3	US REITs	US SC Value 46	US SC Value 22.3	PE Growth Equity 25.8	Private Real Estate 31.1
Hedge Funds	5.7	Hedge Funds	US SMID 45.5	EAFE 20.3	Private Real Estate 20.1	20+Yr STRIPS 23.5
Short UST	4.9	Short UST	EAFE 38.6	US SMID 18.3	Timber 19.4	PE Venture 20.8
High Yield	4.5	Timber	US REITS 37.1	US Small 18.3	20+Yr STRIPS 17.8	EAFE 19.4
US Small	2.5	High Yield	US LC Value 31.8	20+Yr STRIPS 16.3	EAFE 13.5	US Small 18.4
US SMID	1.2	EME -6.2	US Large 28.7	US LC Value 15.7	US REITs 12.2	Private Real Estate 16.5
US LC Value	-0.7	PE Buyout	High Yield 28.2	PE Growth Equity 15.1	US SMID 8.1	Hedge Funds 9.3
EME	-2.6	US SC Value -11.4	US LC Growth 25.7	Private Real Estate 14.5	US SMID 6.8	US LC Growth 16.2
Timber	-5.2	EAFE -15.9	PE Buyout 25.1	US SC Growth 14.3	US LC Value 5.8	US SC Growth 15.8
PE Buyout	-8.8	US SMID -17.8	PE Growth Equity 17.3	Timber 11.2	US Large 4.9	PE Venture 15.2
US SC Growth	-9.2	US Small -20.5	Hedge Funds 11.8	High Yield 10.9	US SC Value 4.7	Barclays Agg 13.7
US LC Value	-11.7	US LC Value -20.8	Private Real Estate 9	US Large 10.9	US Small 4.6	US Large 5.5
US Large	-11.9	US Large -22.1	Timber 7.7	Hedge Funds 6.9	US SC Growth 4.2	Short UST 13.4
US LC Growth	-12.7	PE Growth Equity -23.2	PE Venture 6.1	US LC Growth 6.1	US LC Growth 4	Short UST 11.8
EAFE	-21.4	US LC Growth -23.6	Barclays Agg 4.1	Barclays Agg 4.3	Short UST 2.9	US LC Growth 11
PE Growth Equity	-23.8	PE Venture -28.5	Short UST 1.2	PE Venture 2.1	High Yield 2.7	Hedge Funds 4.7
PE Venture	-31.6	US SC Growth -30.3	20+Yr STRIPS -0.9	Short UST 1.2	Barclays Agg 2.4	Barclays Agg 4.3
Annual Dispersion	37.8	51.8	56.7	30.4	34.4	20+Yr STRIPS -1.1
3m rates (YoY Chg)	-4.0%	-0.5%	-0.5%	30.4	36.2	US REITs -15.7
Core CPI (YoY)	2.7%	2.3%	1.5%	1.3%	1.0%	55.1
Unemployment	4.7%	5.8%	5.5%	1.8%	2.5%	-1.9%
Real GDP Growth (YoY)	1.0%	1.8%	6.0%	2.1%	1.0%	2.3%
LEI (YoY % Chg)	-7%	1%	2.8%	5.1%	4.6%	4.6%
BBB OAS (YoY Chg)	(3)	26	(130)	3%	5%	2.7%
Inventories (YoY % Chg)	-11%	-1%	-11%	(1)	6	1%
Net Margin (YoY Chg)	-2.1%	0.5%	-3%	3%	7%	114
Industrial Production (YoY Chg)	-3%	0.4%	0.6%	0.4%	0.5%	7%
	2%	1%	1%	2%	3%	2%

8/1/1990 – 4/1/2001 (Eleven Years)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Contraction	Recovery	Recovery	Recovery	Recovery/Mid	Mid	Mid	Mid/Late	Late	Late	Late/Contraction	Contraction
PE Venture	51.2	37.3	20+Yr STRIPS	35.6	Timber	15.4	20+Yr STRIPS	35.3	US REITs	42.2	20+Yr STRIPS	US SC Value
Hedge Funds	14.7	29.1	US SC Value	EAFF	PE Venture	64.1	PE Buyout	41.3	PE Buyout	193.2	34.1	14
Timber	11.1	46	US Small	Hedge Funds	12.4	39.7	US LC Growth	41.2	PE Venture	66.5	EME	US REITs
Short UST	8.7	18.4	US SC Value	EAFF	US LC Growth	7.8	PE Buyout	23.3	US IC Growth	23.5	US SC Growth	13.9
Barclays Agg	41.7	17.4	US SC Value	PE Buyout	US Large	6.4	US Large	33.4	US Large	43.1	US SC Growth	Barclays Agg
Private Real Estate	39.2	16.1	US SMID	Timber	Private Real Estate	6.4	US LC Value	21.9	US SC Value	33.5	PE Buyout	Private Real Estate
20+Yr STRIPS	2.3	38.4	US REITs	US REITs	Short UST	3.9	US SMID	31.7	US SC Value	16.2	Private Real Estate	US LC Growth
US LC Growth	0.7	35.7	US REITs	Hedge Funds	US Small	19.7	US REITs	31	US LC Value	28.2	Barclays Agg	Barclays Agg
US Large	0.2	30.5	US LC Value	US LC Value	US LC Growth	18.9	US LC Growth	19	US SMID	11.6	Hedge Funds	Hedge Funds
US Large	-3.1	29.5	20+Yr STRIPS	PE Venture	PE Buyout	10.5	10.5	31	US Small	10.5	PE Buyout	Short UST
High Yield	4.4	22.6	US LC Value	US SC Growth	High Yield	8.1	18.6	3.2	Hedge Funds	10.5	PE Buyout	Short UST
US LC Value	-6.9	20.3	Timber	US Large	US SMID	17.1	17.1	3.1	US Small	10.5	PE Buyout	High Yield
US SMID	-14.9	16	Barclays Agg	Barclays Agg	US SC Growth	16.6	16.6	-0.6	US REITs	13.4	PE Buyout	US Small
US REITs	-15.35	13.2	Hedge Funds	20+Yr STRIPS	PE Venture	7.4	7.4	-1	US REITs	15.3	PE Buyout	US Small
US SC Growth	-17.4	5.1	EAFF	US LC Growth	US Large	13.4	13.4	-1	PE Venture	10.7	PE Buyout	US Small
US Small	-19.5	10.5	PE Venture	Short UST	Bardlays Agg	13.2	13.2	-1.1	Private Real Estate	14.8	PE Buyout	US Small
US SC Value	-21.8	7.5	Private Real Estate	Short UST	US Small	9.7	9.7	-1.8	Hedge Funds	13.8	PE Buyout	US Small
EAFF	-23.4	-5.6	Private Real Estate	EAFF	US LC Growth	4.2	4.2	-2.4	Timber	13.8	PE Buyout	US Small
					Barclays Agg	3.5	3.5	-2.4	EAFF	11.2	PE Buyout	US Small
					Short UST	1.7	1.7	-2.9	Private Real Estate	7.5	PE Buyout	US Small
					EAFF	-12.2	-12.2	-2.9	Short UST	2.1	PE Buyout	US Small
					Private Real Estate	1.4	1.4	-18.8	20+Yr STRIPS	6.6	PE Buyout	US Small
									20+Yr STRIPS	-10.7	PE Buyout	US Small
										1.8	PE Buyout	US Small
										-17.5	PE Buyout	US Small
										-4.6	PE Buyout	US Small
										-22.4	PE Buyout	US Small
										-21.5	PE Buyout	US Small
										-20.8	PE Buyout	US Small
										-23.8	PE Buyout	US Small
										-31.6	PE Venture	PE Venture
										45.6	59.7	234.7
										45.6	59.7	64.9
										-4.0%	0.8%	0.6%
										2.7%	2.1%	2.4%
										4.7%	4.2%	4.0%
										1.0%	4.1%	4.7%
										-7%	2%	2%
										116	81	(33)
										4%	3%	-11%
										0.8%	0.6%	-2.1%
										4%	4%	-3%
										9	9	9

Annual Dispersion
3m Rates YoY Chg
Core CPI YoY
Unemployment
Real GDP Growth YoY
LEI (YoY % Chg)
BBB OAS YoY Chg
Inventories (YoY % Chg)
Net Margin (YoY Chg)
Industrial Production (YoY % Chg)

8/1/1981 – 8/1/1990 (Nine Years)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Contraction	Contraction/Reco	Recovery	Mid	Mid	Mid/Late	Mid	Mid	Mid	Mid	Late
Private Real Estate	20+Yr STRIPS	US SC Value	US REITS	20.9	20+Yr STRIPS	EAFE	Hedge Funds	Private Equity	Timber	Hedge Funds
16.6	97.4	38.6	20.9	71.6	69.4	30.6	45.3	37.4	14.7	
US SC Value	Barclays Agg	US REITS	20+Yr STRIPS	20.4	EAFE	20+Yr STRIPS	Timber	US LC Growth	Private Equity	
14.9	32.6	30.6	20.4	56.2	55.6	26.5	30.1	36.4	12.3	
Barclays Agg	US SC Value	US Small	Barclays Agg	15.2	Hedge Funds	Hedge Funds	EAFE	US SC Value	20+Yr STRIPS	Timber
6.3	28.5	29.1	13.8	38.2	24	24.6	29.5	35.5	11.1	
US REITS	Hedge Funds	US LC Value	Private Real Estate	33.3	US LC Value	Private Equity	EAFE	US Large	Barclays Agg	
6	26.9	28.9	13.8	38.2	21.7	8.4	28.3	31.7	9	
US Large (+11.2%)	US LC Growth (+10.8%)	US LC Value (+11.3%)	US SMD (+13.2%)	US SMD	US LC Value	US REITS	Private Real Estate	US LCV Value	Private Real Estate	
US Small (+10.3%)	US SMD	US SMD	US SMD	10.5	31.9	19.2	8	26.1	2.3	
US SC Growth (+7.8%)	US Small	US Small	EAFE	10.5	31.9	19.2	8	26.1	2.3	
US SC Value (+12.4%)	2	24.9	EAFE	7.4	31.7	18.7	6.5	20.2	US LCGrowth	
EAFE (+8.9%)	US LC Value	US LC Growth	US Large	6.3	US Small	Barclays Agg	US Large	US SMID	US LCGrowth	US LCGrowth
0	22	22.6	22.6	31.1	15.3	5.3	21.7	19.4	US Large	US Large
EAFE	US Large	US SC Growth	US SC Value	2.3	31	14.5	4.5	20.4	Hedge Funds	High Yield
-2.3	21.6	20.1	2.3	31	12	3.7	18.8	18.8		
20+Yr STRIPS (+11.2%)	US Large (-4.9)	US REITS	Hedge Funds	2.5	US SC Value	US SC Growth	US SC Growth	US SC Growth	Hedge Funds	High Yield
Barclays Agg (+8.4%)	21.6	18.8	18.8	31	12	14.5	4.5	20.4		
High Yield (+8.7%)	US SC Growth	US SC Growth	US LC Growth	2.3	US LC Value	US SMID	US LC Value	19.4	US Small	US LC Value
Timber (+12.6%)	-9.2	21	16.2	2.3	29.7	Private Real Estate	Barclays Agg	US Large	16.3	-6.9
Private Real Estate (+9.2%)	US LC Growth	US LC Value	Private Real Estate	-4.1	22.1	8.3	2.8	16.6	Barclays Agg	20+Yr STRIPS
US REITS (+12.2%)	-9.8	21	13.1	US REITS	7.4	US SC Value	US REITS	13.5	14.5	0.7
Hedge Funds (+11.8%)	Private Real Estate	Barclays Agg	US Small	19.1	5.7	US SMID	US REITS	13.5	US SMID	-14.9
PE Venture (+10.3%)	Hedge Funds	9.4	8.4	-7.3	19.1	5.7	4.7	13.4	Private Equity	US REITS
PE Buyout (+14%)	-10.6	9.4	20+Yr STRIPS	US SC Growth	-15.8	US SC Growth	US SC Value	12	11.6	-15.3
PE Growth Equity (+6.9%)	20+Yr STRIPS	EAFE	-27	11.2	3.6	-7.1	US SC Growth	10.5	EAFE	US SC Growth
	-31.4	-1.9					US Small	9.6	US REITS	US SC Growth
							-8.8	8.8	8.8	-19.5
							US SC Growth	7.7	Private Real Estate	US SC Growth
							-10.5	7.8	Barclays Agg	US SC Growth
							20+Yr STRIPS	7.9	High Yield	EAFE
							-30.5	2.3	2.3	-23.5
										38.2
Annual Dispersion	48.0	99.3	65.6	36.7	60.4	65.8	61.1	37.6	35.1	-1.1%
3m Rates (YoY Chg)	-3.2%	-3.2%	1.1%	-1.1%	-0.8%	-1.1%	0.0%	2.4%	-0.6%	-1.1%
Core CPI (YoY)	10.5%	7.4%	3.9%	5.1%	4.4%	4.0%	3.9%	4.4%	4.5%	5.0%
Unemployment	7.6%	9.7%	9.6%	7.5%	7.2%	7.0%	6.2%	5.5%	5.3%	5.6%
Real GDP Growth (YoY)	2.6%	-1.9%	4.6%	7.3%	4.2%	3.5%	3.5%	4.2%	3.7%	1.9%
LEI (YoY % Chg)	-3%	-4%	9%	10%	5%	4%	4%	1%	-3%	-3%
BBB OAS (YoY Chg)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	147	103	10
Industrial Production (YoY % Chg)	1%	-5%	3%	1%	5%	5%	5%	1%	1%	1%