Business Cycles, Intermarket Analysis and Sector Investing

Delivering Alpha and Absolute Returns with quantitative techniques

Background

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Outline

1. Business Cycle
2. Intermarket analysis
3. Sector Investing

Business Cycles

- The term Business Cycle refers to economy-wide fluctuations in production or economic activity over several years.

- In US the National Bureau of Economic Research (NBER) defines a recession as *"a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales".*

The Business Cycle: Expansions

Cycle N.	Started	Finished	Total Months	Date S&P Turned Down	Months Before Expansion
1	Dec-1900	Sep-1902	21	Sep-1900	3
2	Sep-1904	May-1907	32	Oct-1903	11
3	Jun-1908	Jan-1910	19	Nov-1907	7
4	Jan-1912	Jan-1913	12	Sep-1911	4
5	Dec-1914	Aug-1918	44	Dec-1914	0
6	Mar-1919	Jan-1920	10	Dec-1917	15
7	Jul-1921	May-1923	22	Aug-1921	-1
8	Jul-1924	Oct-1926	27	Oct-1923	9
9	Nov-1927	Aug-1929	21	Apr-1926	19
10	Mar-1933	May-1937	50	Jun-1932	9
11	Jun-1938	Feb-1945	80	Mar-1938	3
12	Oct-1945	Nov-1948	37	Mar-1945	7
13	Oct-1949	Jul-1953	45	Jun-1949	4
14	May-1954	Aug-1957	39	Sep-1953	8
15	Apr-1958	Apr-1960	24	Dec-1957	4
16	Feb-1961	Dec-1969	106	Oct-1960	4
17	Nov-1970	Nov-1973	36	Jun-1970	5
18	Mar-1975	Jan-1980	58	Sep-1974	6
19	Jul-1980	Jul-1981	12	Mar-1980	4
20	Nov-1982	Jul-1990	92	Jul-1982	4
21	Mar-1991	Mar-2001	120	Oct-1990	5
22	Nov-2001	Dec-2007	73	Sep-2002	-10
23	Mar-2009	?	?	?	?
		Average	44.5	Average	5.5
		Min	10	Min	-10
		Max	120	Max	19

Source: NBER, the-intermarket.com

The Business Cycle: Contractions

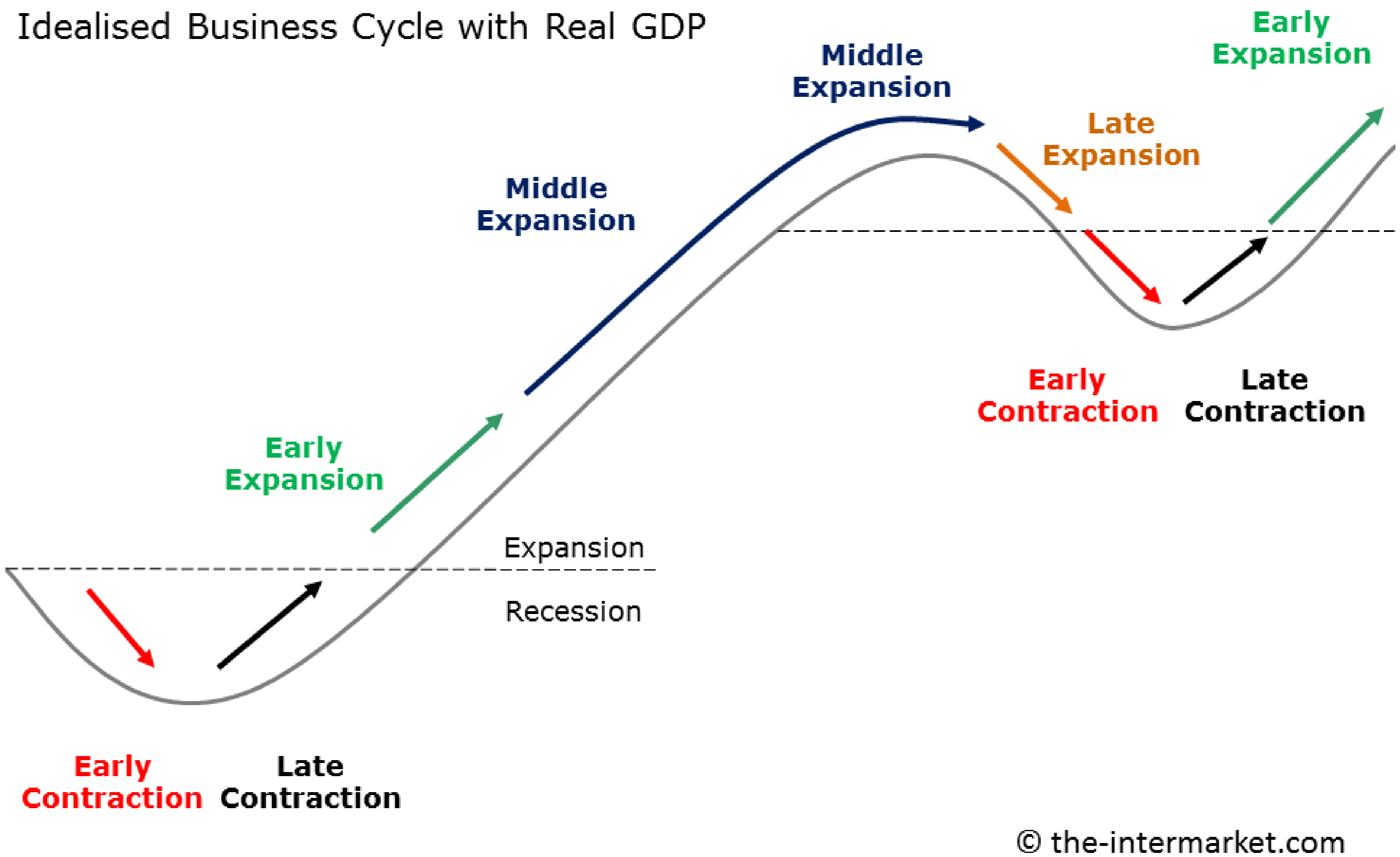
Cycle N.	Started	Finished	Total Months	Date S&P Turned Down	Months Before Contraction
1	Sep-1902	Sep-1904	24	Sep-1902	0
2	May-1907	Jun-1908	13	Sep-1906	8
3	Jan-1910	Jan-1912	24	Dec-1909	1
4	Jan-1913	Dec-1914	23	Sep-1912	4
5	Aug-1918	Mar-1919	7	Nov-1916	21
6	Jan-1920	Jul-1921	18	Jul-1919	6
7	May-1923	Jul-1924	14	Mar-1923	2
8	Oct-1926	Nov-1927	13	Feb-1926	8
9	Aug-1929	Mar-1933	43	Aug-1929	0
10	May-1937	Jun-1938	13	Feb-1937	3
11	Feb-1945	Oct-1945	8	Feb-1945	0
12	Nov-1948	Oct-1949	11	May-1946	30
13	Jul-1953	May-1954	10	Dec-1952	7
14	Aug-1957	Apr-1958	8	Jul-1956	13
15	Apr-1960	Feb-1961	10	Jul-1959	9
16	Dec-1969	Nov-1970	11	Nov-1968	13
17	Nov-1973	Mar-1975	16	Dec-1972	11
18	Jan-1980	Jul-1980	6	Jan-1980	0
19	Jul-1981	Nov-1982	16	Nov-1980	8
20	Jul-1990	Mar-1991	8	May-1990	2
21	Mar-2001	Nov-2001	8	Aug-2000	7
22	Dec-2007	Mar-2009	15	Dec-2007	0
23	?	?	?	?	?
		Average	14.5	Average	7.0
		Min	6	Min	0
		Max	43	Max	30

Source: NBER, the-intermarket.com

Our approach to the Business Cycle

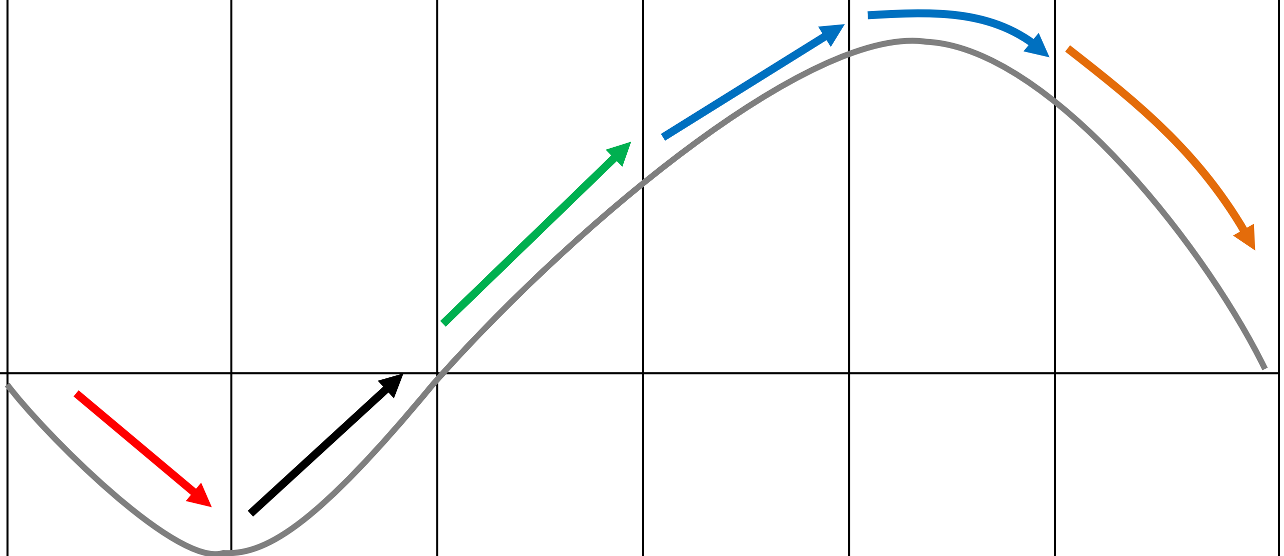
- Some economists divide the Business Cycle into phases.
- Some of them break the economic activity down into four phases: start up, growth, maturity and recession.
- Given that the average recession length is 14 months and the average expansion length is 44 months we believe it is more appropriate to break the recessions down into two parts and the expansions into four parts.
- As expansions are almost always longer than contractions, for a better analysis, we have chosen to have at least a minimum of two phases of contraction, and to represent expansions by a least four phases.

The Business Cycle

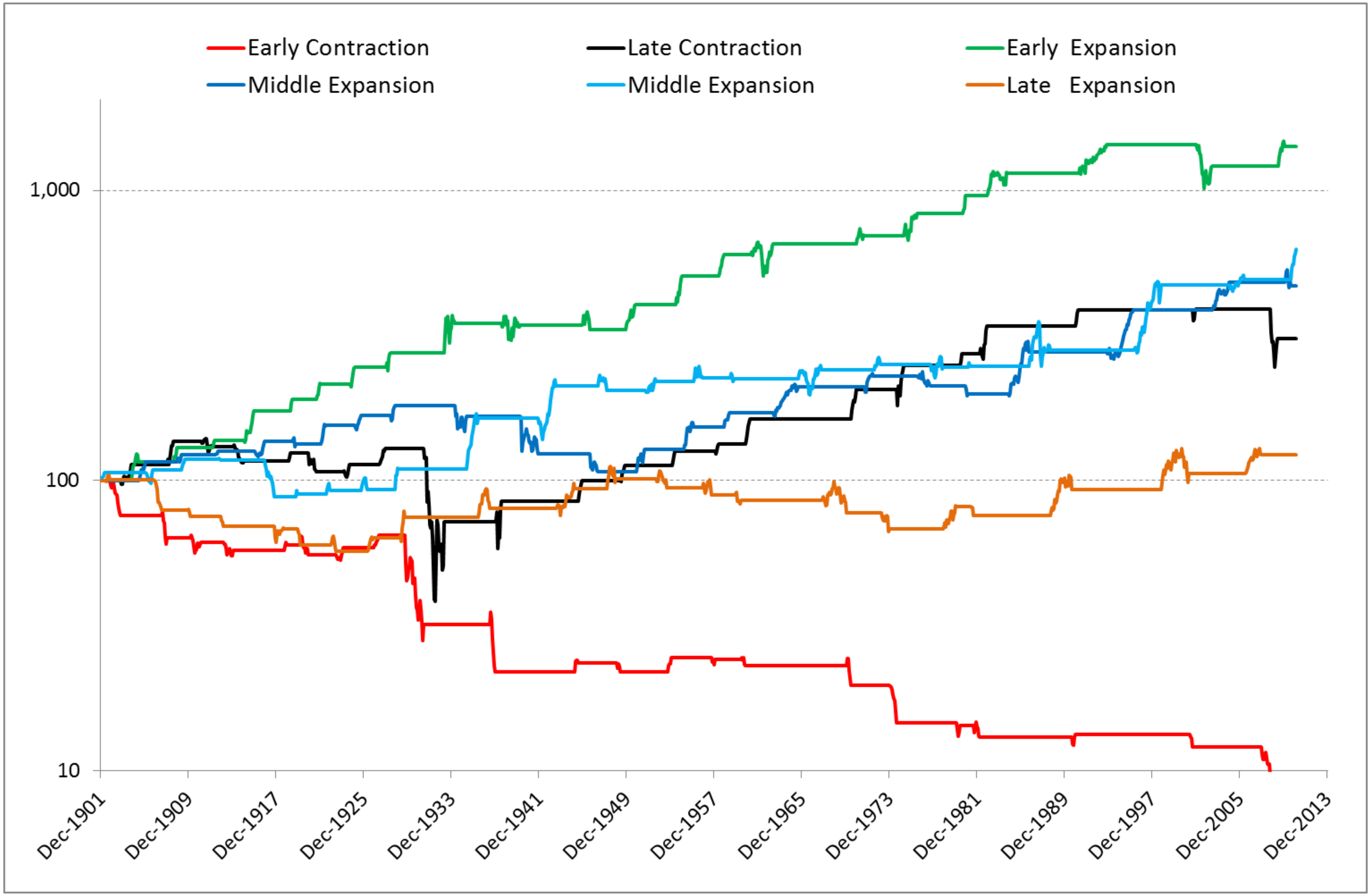


Annualized performance in Business Cycle and its six phases 1900-2013

	Early Contraction	Late Contraction	Early Expansion	Middle Expansion	Middle Expansion	Late Expansion
Expansion						
Recesssion						
Bonds	1.4%	4.2%	1.9%	3.1%	-4.8%	-3.1%
Stocks	-16.6%	8.5%	14.1%	7.7%	9.3%	1.4%
Commodities	-7.9%	-12.6%	8.7%	5.4%	8.1%	2.8%



S&P Composite performance at each stage of the Business Cycle 1900-2013



Outline

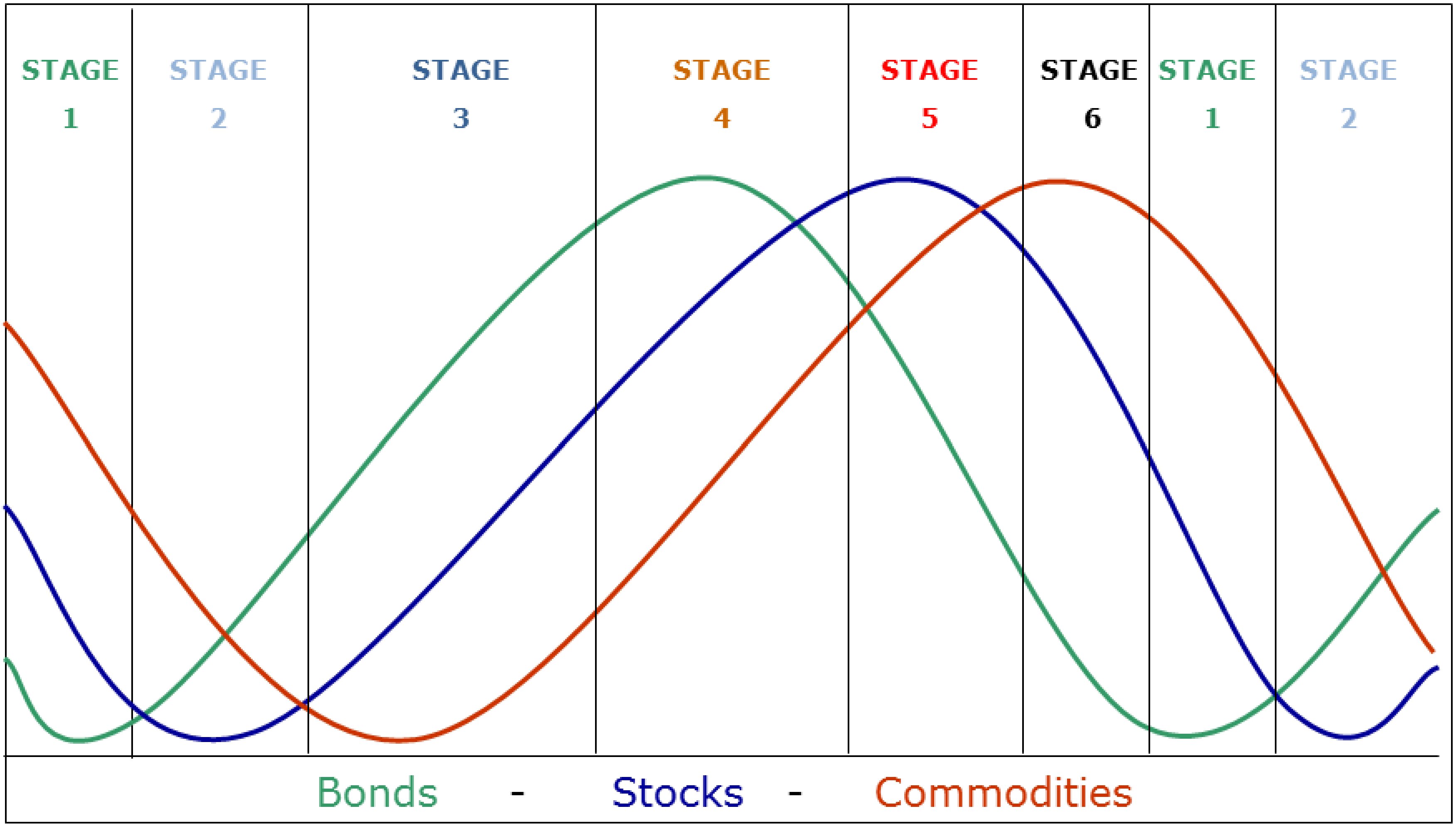
1. Business Cycle
2. Intermarket analysis
3. Sector Investing

Intermarket analysis

- The basic assumption of Intermarket analysis is that all markets are related and what happens in one market is very likely to have an effect on another market.

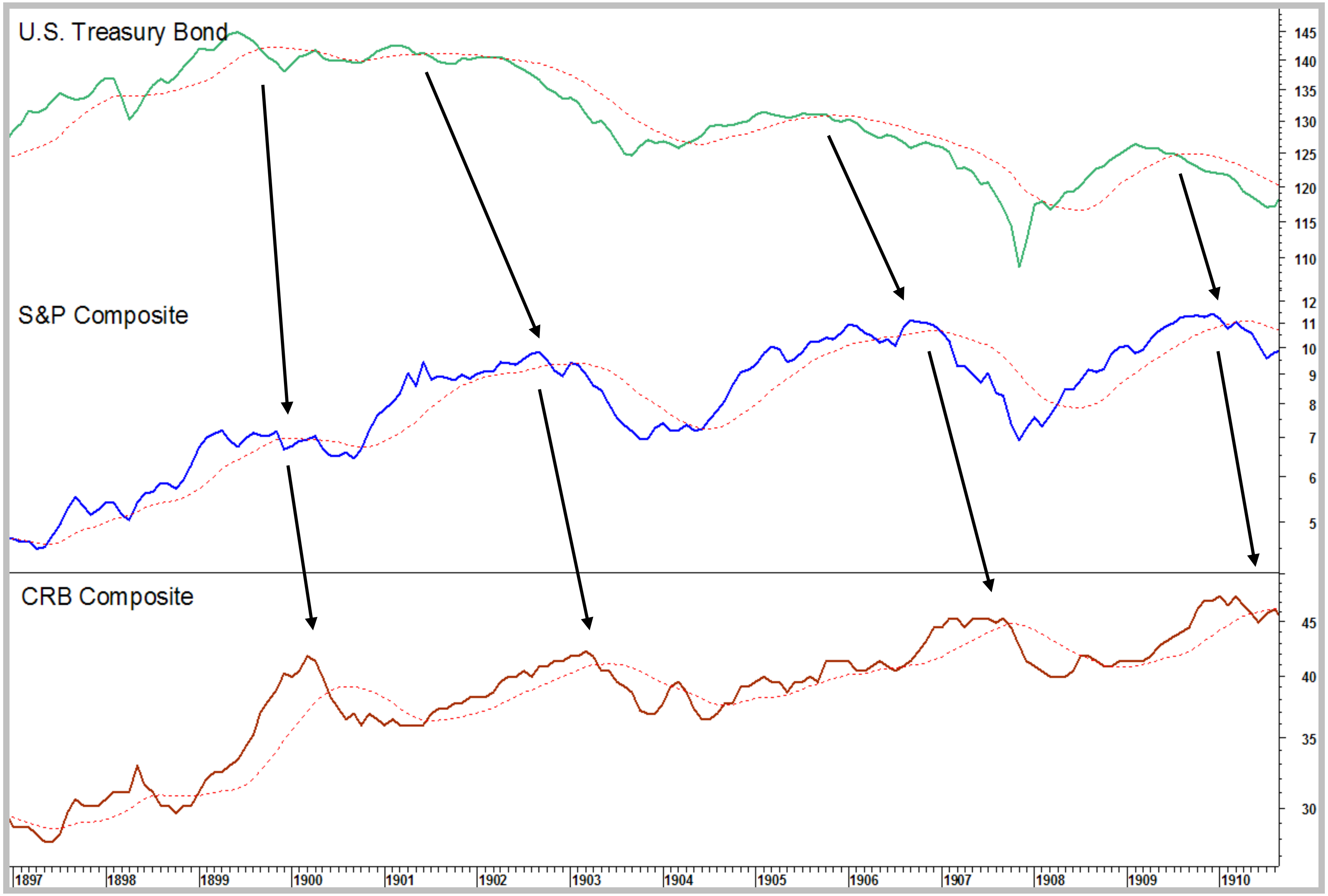
- At a macroeconomic level, the four interrelated markets are the Bond, Stock, Commodity and Currency markets, although in our models we do not take into account the currency markets as this market is not part of our investment strategy.

Intermarket analysis

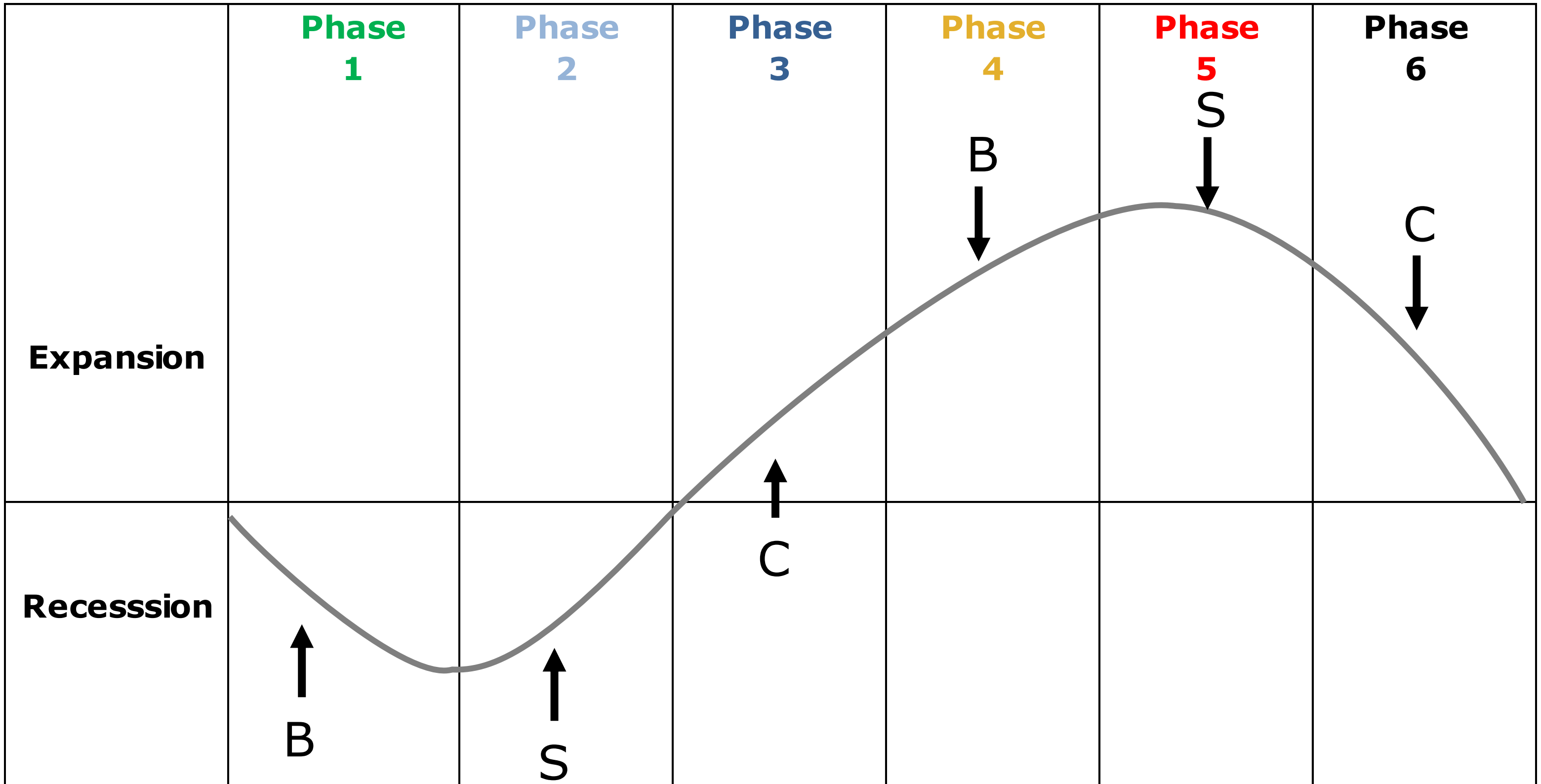


Stage space is proportional to the average of 100 years of history

Sample of Intermarket correlations

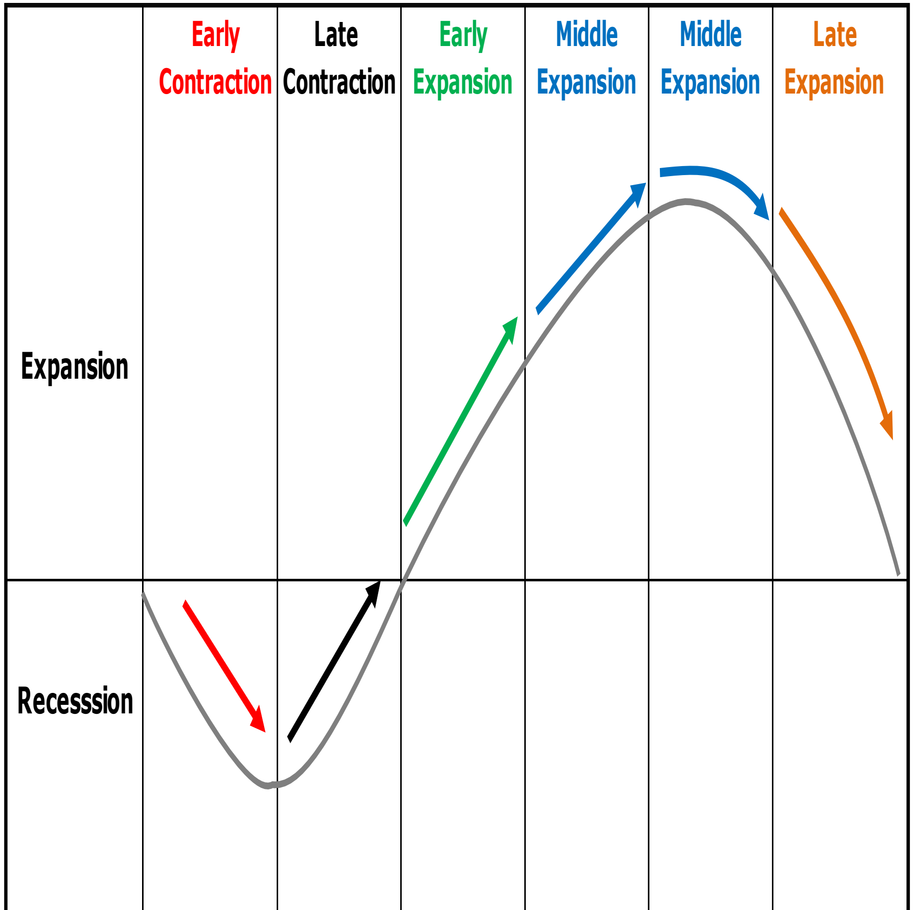


Annualized performance in Intermarket cycle and its six phases 1900-2013

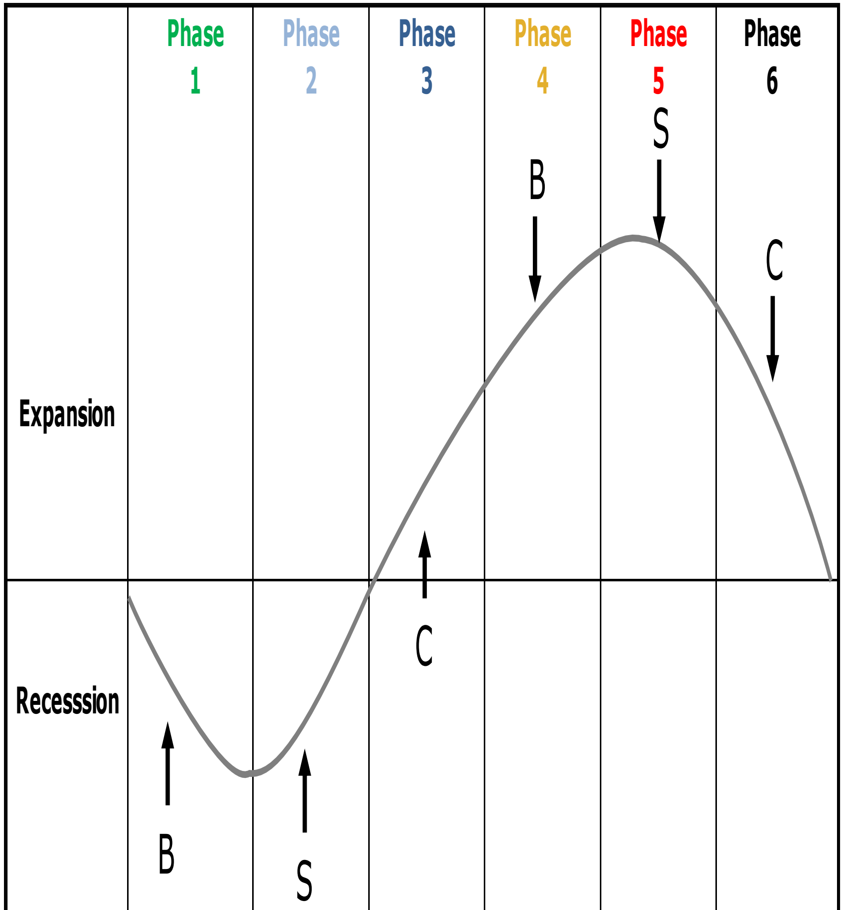


	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Bonds	14.9%	11.7%	7.4%	-9.4%	-5.0%	-6.8%
Stocks	12.3%	15.4%	11.2%	6.0%	-9.5%	-9.8%
Commodities	-19.1%	-8.2%	19.2%	5.6%	12.9%	-14.0%

Business cycle vs Intermarket model 1942-2013



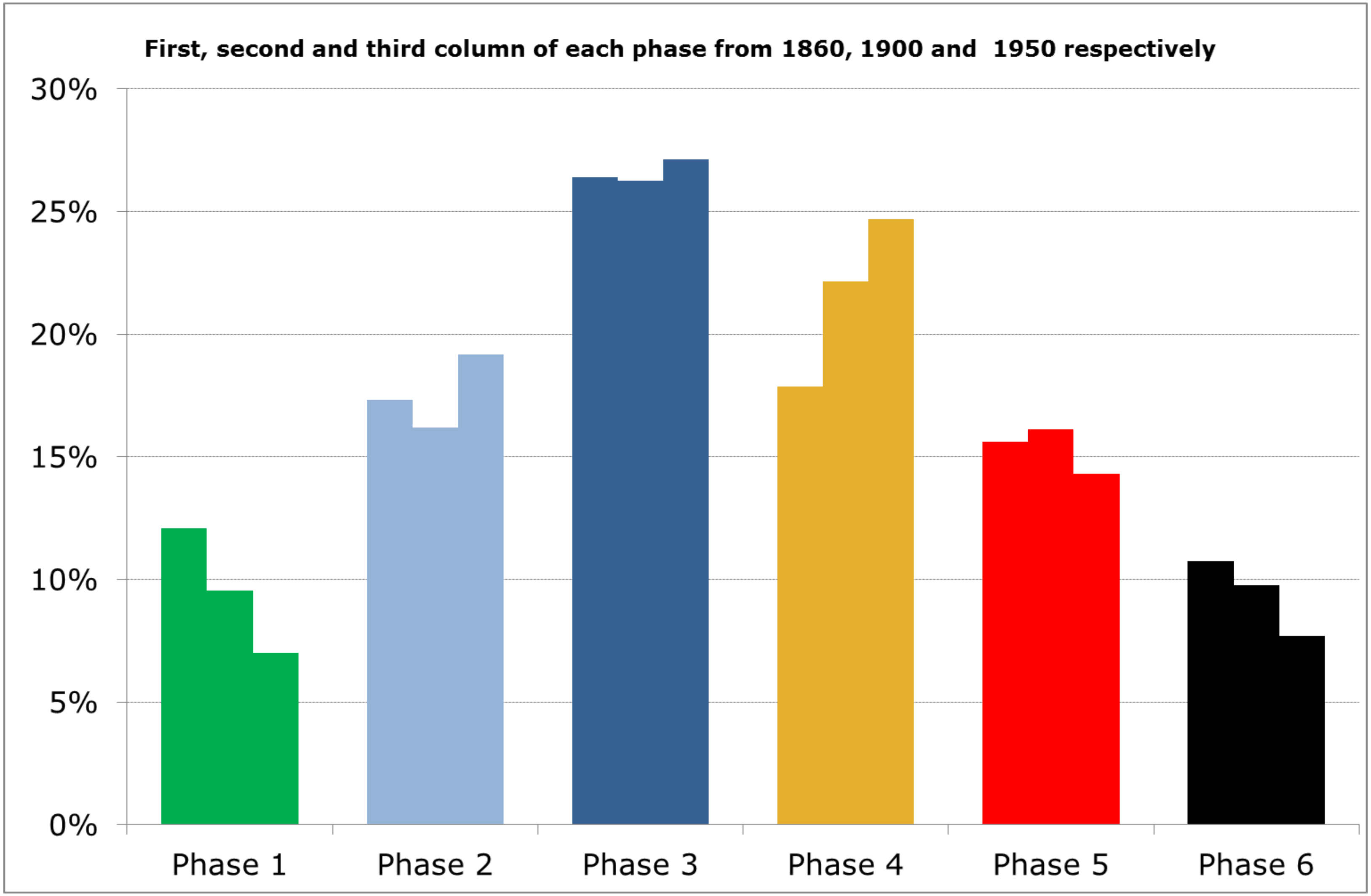
	Early Contraction	Late Contraction	Early Expansion	Middle Expansion	Middle Expansion	Late Expansion
Bonds	1.4%	4.2%	1.9%	3.1%	-4.8%	-3.1%
Stocks	-16.6%	8.5%	14.1%	7.7%	9.3%	1.4%
Commodities	-7.9%	-12.6%	8.7%	5.4%	8.1%	2.8%



	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Bonds	14.9%	11.7%	7.4%	-9.4%	-5.0%	-6.8%
Stocks	12.3%	15.4%	11.2%	6.0%	-9.5%	-9.8%
Commodities	-19.1%	-8.2%	19.2%	5.6%	12.9%	-14.0%

Intermarket model phase comparison

Phase comparison between 1860, 1900 and 1950 to date.



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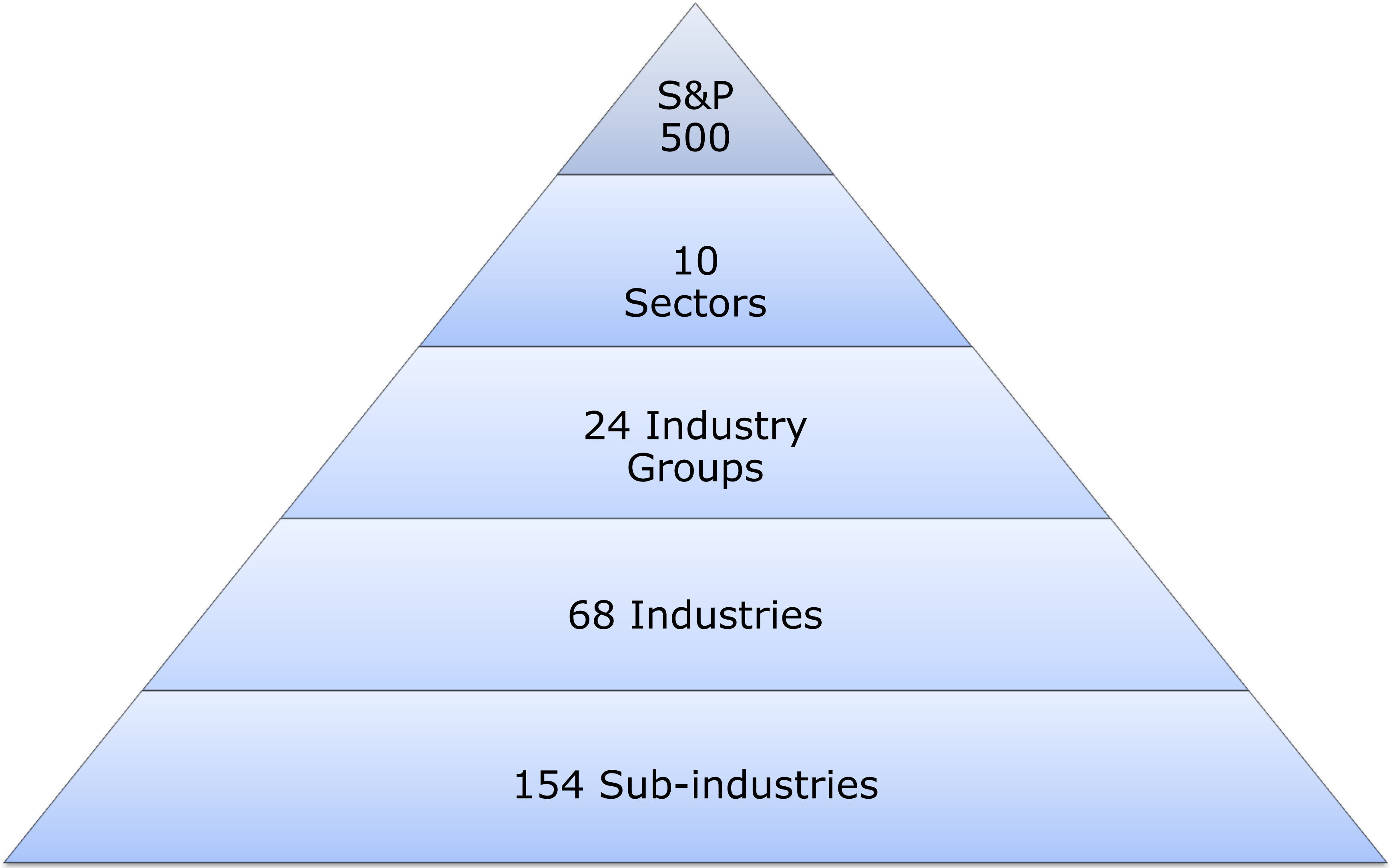
Sector investing

- The Business Cycle and Intermarket analysis demonstrate the presence of different phases in the economy.

- If the Business Cycle impacts the financial markets then different sectors/industries of the economy should perform differently at different phases of the cycle.

- e.g. the present value of any project calculated when interest rates are lower will be more valuable than when rates are higher.

Sector investing: Standard and Poor's indexes



Source: Standard &Poor's, the-intermarket.com

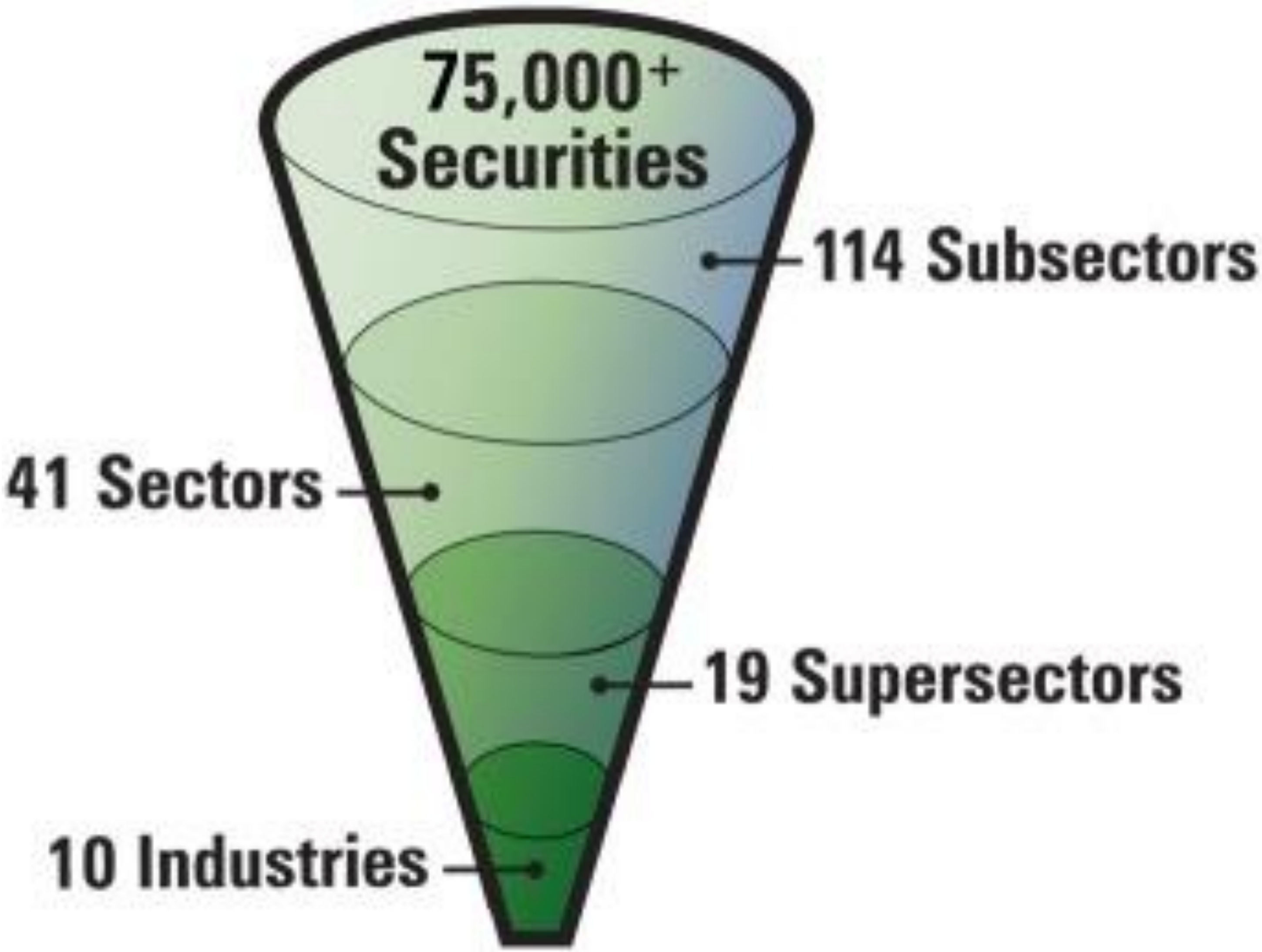
Sector investing: Dow Jones indexes

114 **subsectors** allow detailed analysis

41 **sectors** provide a broad benchmark for investment managers

19 **supersectors** can be used for trading

10 **industries** help investors monitor broad industry trends



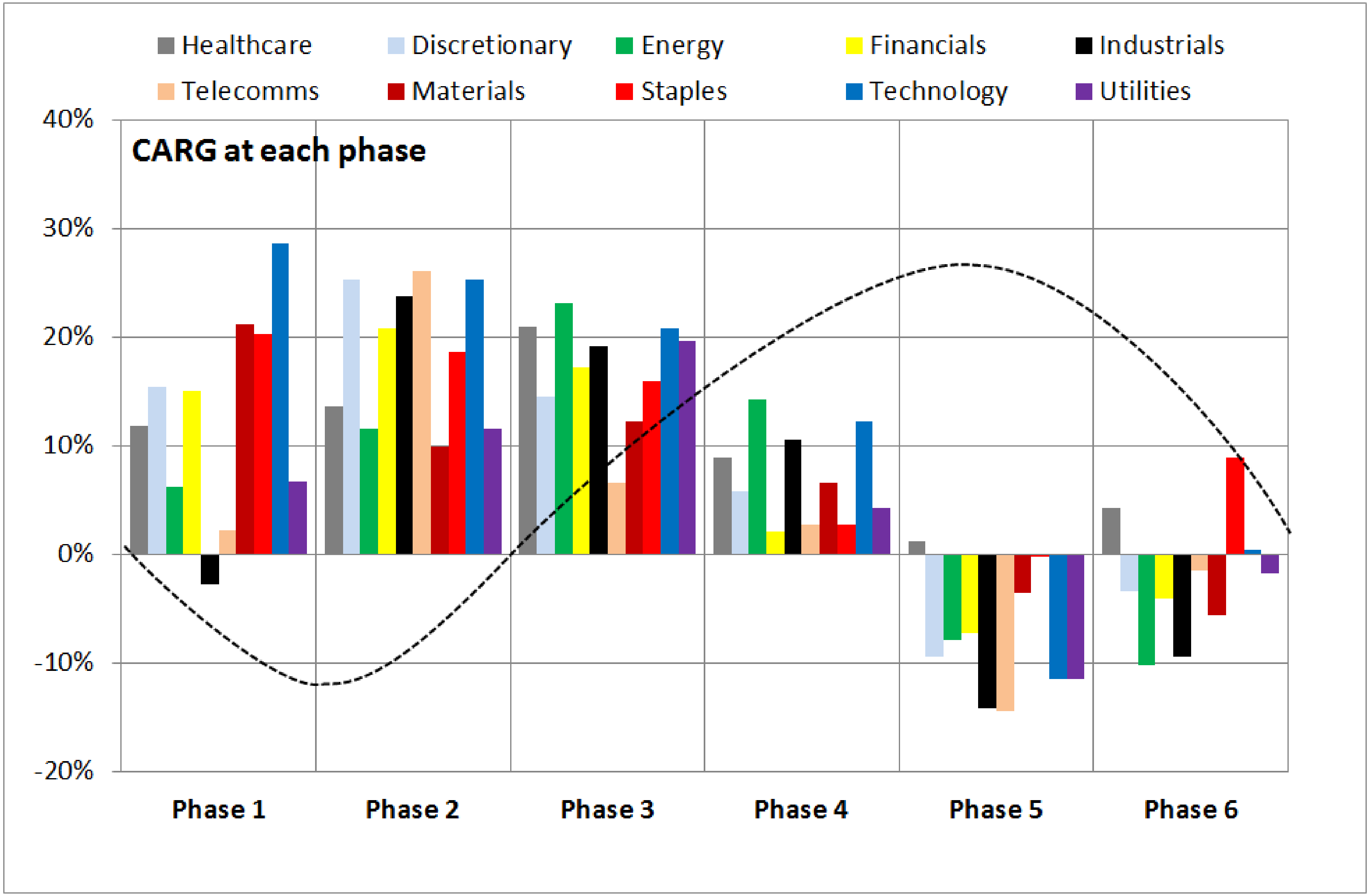
Source: ICB

Compounded annual growth rate (CAGR) from 1942 to 2013

No dividends included

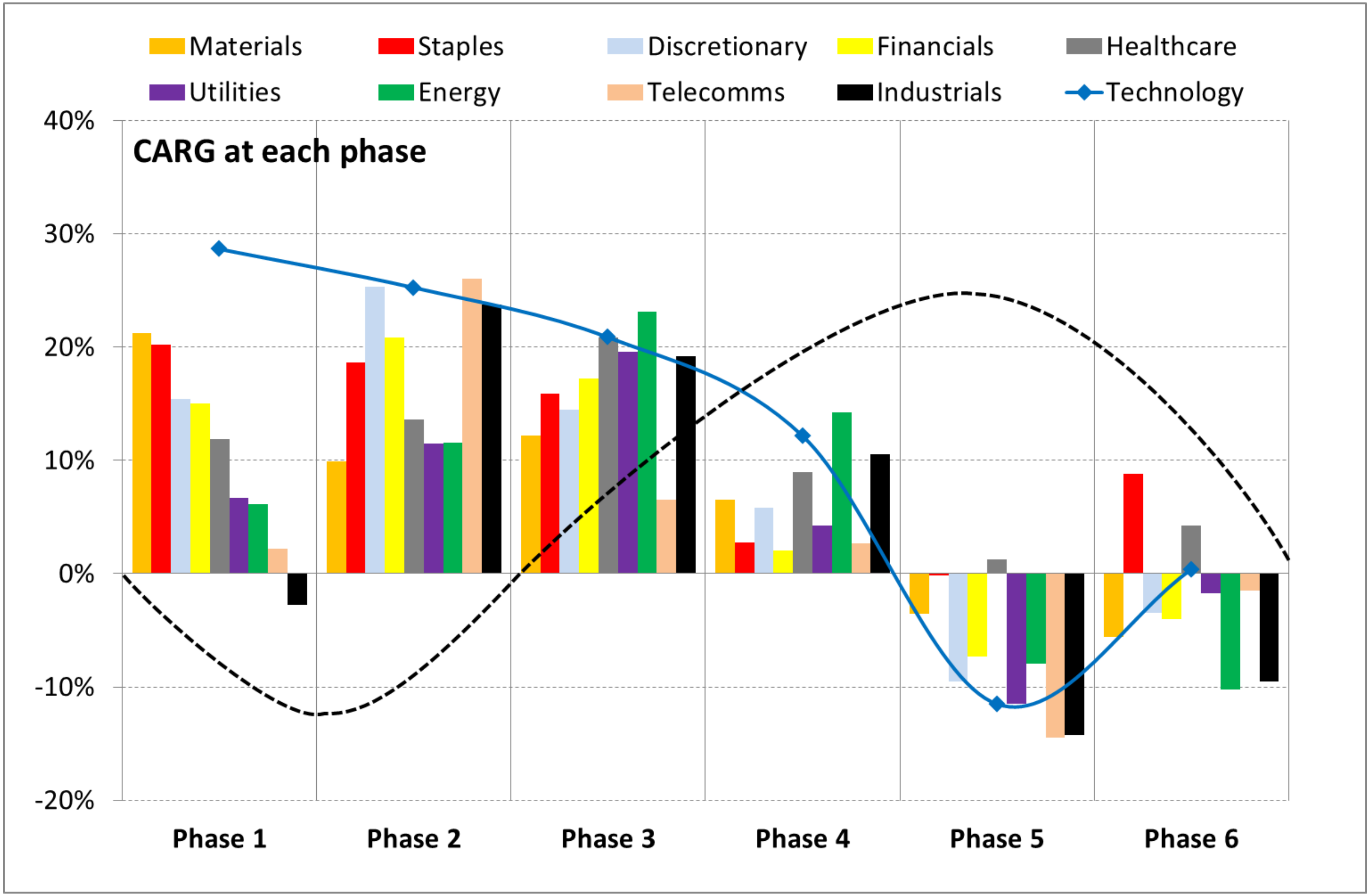
	Asset	CAGR
1)	*Technology*	11.95%
2)	*Healthcare*	10.34%
3)	*Consumer Staples*	8.69%
4)	*Energy*	9.96%
5)	*Consumer Discretionary*	7.90%
6)	*Industrials*	7.31%
	S&P 500	7.39%
7)	*Materials*	6.33%
8)	*Financials*	6.53%
9)	*Utilities*	4.99%
10)	*Telecommunications (from 1945)*	4.48%

Sector investing with the Intermarket model: all sectors

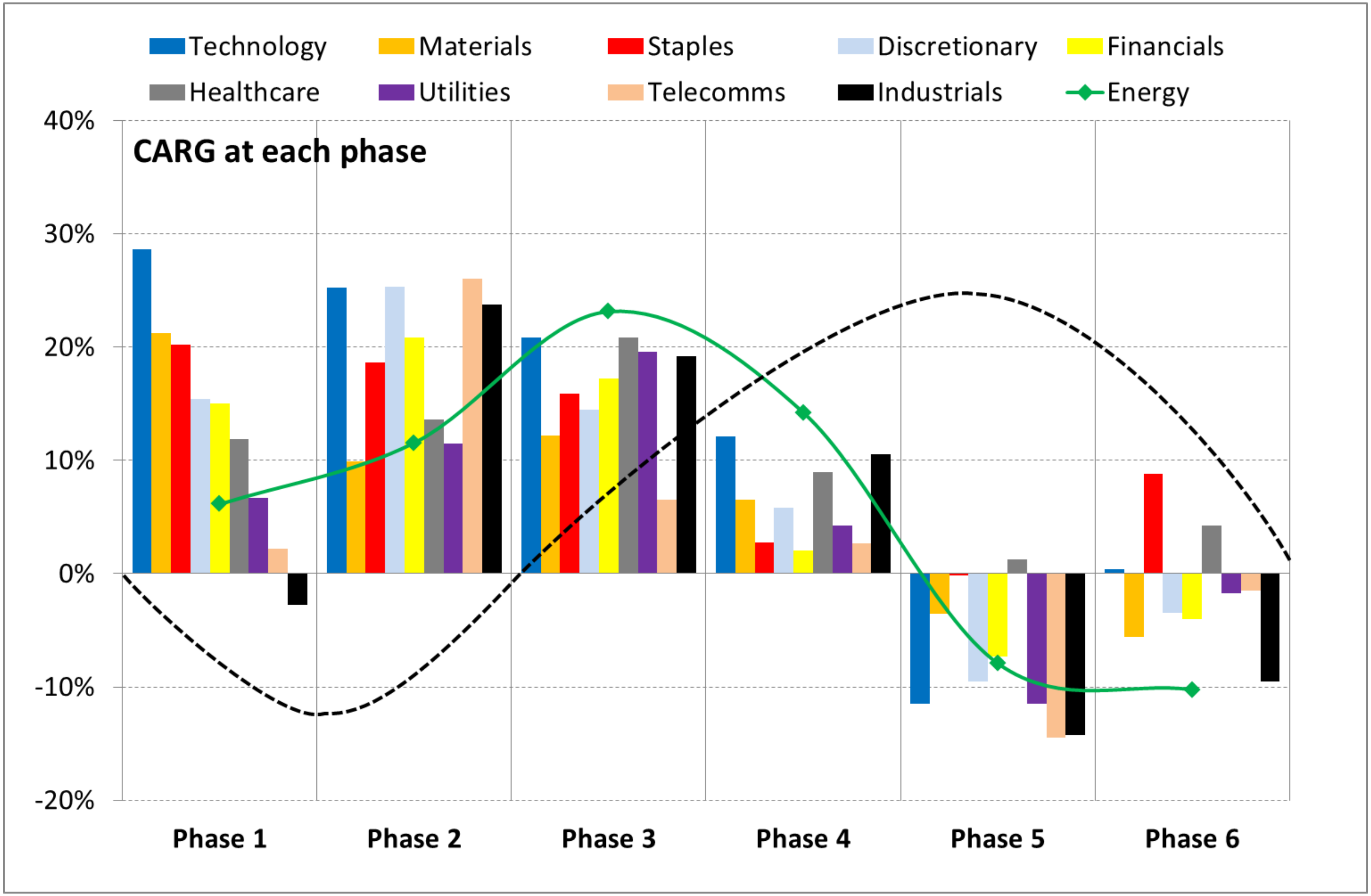


Sector investing

Sector investing with the Intermarket model: Technology



Sector investing with the Intermarket model: Energy



Conclusions

- Sector rotation works as an investment strategy because it is more likely that the same sector or industry performs similarly in the same economic conditions.

- There is a business correlation between most of the sectors/industries of the economy.

- Our quantitative and probability based approach helps to map the relationships between asset classes and to allocate money to the right sector/industry at the right time in the right quantity at any phase of the Business Cycle.

- We believe that the results obtained with our models are able to enhance the manager’s fund performance, return them extra performance fee and attract more capital into their funds.

Additional material and contact details

Additional material is available at http://www.the-intermarket.com/documents

1. Sector Investing (document)
2. Methodology explained (slide pack)
3. Modelling explained (slide pack)
4. Our Models.xlsx (spreadsheet)

If you have any questions and/or would like to know more

about our work

please feel free to contact us by email at any time

info@the-intermarket.com