History of bull and bear markets

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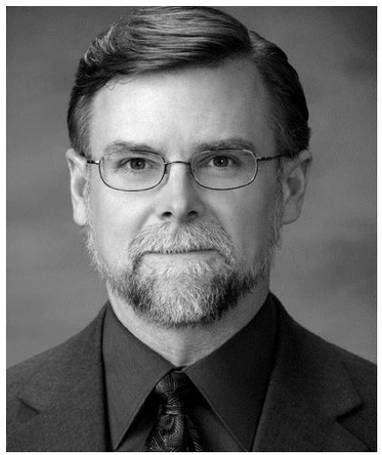

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Why . . .

Clients react very poorly to surprise

Why this topic

- Clients react quite poorly to surprise
- My experience has been . . . clients can deal with anything . . . if they are adequately prepared . . . sufficiently in advance
- Bulls and bears are a big deal . . . incorrect handling can be permanently life-changing
- Their existence is one of the reasons that TAA works
- Sometimes we KNOW they are more likely . . . sometimes we KNOW they are seriously unlikely
- They are radically different, from one asset category to the next

What's a bull market

- Bull
  - Easy
  - When the market's going up . . . i.e., not in a bear

What's a bear market

- Bear
  - Market declines by a sufficient amount over a sufficient period
  - Blows the fuses . . . or trips the circuit breakers
  - In other words . . . they
    - Fundamentally shift the risk tolerance level of investors
    - Clean out the speculators
    - Eliminate the crazy talk
    - Purge the get-rich-quick schemes
    - Cause everyone to move to Missouri . . . the "show me state"
    - Above all . . . they reestablish genuine investment opportunity

Think of successful forest management

A solid analogy

Forest management

- A healthy thriving forest requires

- Forest fires
- Windstorms

- Without them the forest eventually becomes sickly, stops growing, and declines

- These perils serve to
  - Reallocate forest resources from less productive to more productive
  - Eliminate the slow growing and stagnant

Management of the macro economy . . . the real economy

- A healthy thriving macro economy requires

- Recessions
- Unemployment
- Bankruptcies

- Without them the economy eventually becomes sickly, stops growing, and declines

- These perils serve to
  - Reallocate labor and capital from less productive to more productive
  - Eliminate the slow growing and stagnant

Management of investment markets

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- Healthy thriving investment markets require

- Bear markets
- Individual investors “losing their shirts”
- The failure of individual investment firms

- Without them, investment markets become sickly, stop growing, and decline

- These perils serve to
  - Reallocate investment capital from less productive to more productive
  - Starve the slow growing and stagnant
  - Purge the disruptive speculators from the marketplace
  - Correct the all-important tradeoff between risk and return

We want and need bear markets and economic recessions

Bulls for stocks

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Bull markets for inflation-adjusted U.S. stocks since 1846

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BULL market
	51	6.67	Dec 1846	Aug 1853	7.6	61	6.4
	49	2.08	Nov 1854	Dec 1856	17.4	72	21.0
	287	6.75	Oct 1857	Jul 1864	19.4	62	22.2
	177	11.00	Mar 1865	Mar 1876	10.6	67	9.7
	1057	29.25	Jun 1877	Sep 1906	10.9	59	8.7
	79	4.92	Nov 1907	Oct 1912	12.1	63	12.6
	50	2.08	Oct 1914	Nov 1916	9.6	76	21.7
	709	8.67	Dec 1920	Aug 1929	13.7	72	27.3
	382	4.75	May 1932	Feb 1937	38.5	68	39.2
	65	1.50	Mar 1938	Sep 1939	32.8	61	39.8
	168	4.08	Apr 1942	May 1946	12.1	78	27.3
	1145	20.75	Feb 1948	Nov 1968	12.3	66	12.9
	60	2.50	Jun 1970	Dec 1972	11.0	70	20.8
	312	12.92	Sep 1974	Aug 1987	15.7	55	11.6
	512	12.75	Nov 1987	Aug 2000	13.5	66	15.3
	81	5.08	Sep 2002	Oct 2007	10.0	70	12.3
	521	12.67	Feb 2009	Oct 2021	14.0	68	15.4
Median BULL market	177	6.67			12.3	67	15.4
Mean BULL market	336	8.73			15.4	67	19.1

Bull markets for inflation-adjusted U.S. stocks since 1846

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BULL market
Median BULL market	177	6.67			12.3	67	15.4
Mean BULL market	336	8.73			15.4	67	19.1

Bears for stocks

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Bear markets for inflation-adjusted U.S. stocks since 1846

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BEAR market
	-30	1.25	Aug 1853	Nov 1854	27.6	27	-25.1
	-31	0.83	Dec 1856	Oct 1857	19.2	10	-36.4
	-35	0.67	Jul 1864	Mar 1865	32.4	38	-47.1
	-32	1.25	Mar 1876	Jun 1877	7.8	7	-26.2
	-37	1.17	Sep 1906	Nov 1907	13.8	14	-32.7
	-27	2.00	Oct 1912	Oct 1914	11.0	38	-14.8
	-48	4.08	Nov 1916	Dec 1920	15.9	41	-14.8
	-79	2.75	Aug 1929	May 1932	37.3	36	-43.7
	-50	1.08	Feb 1937	Mar 1938	31.6	23	-47.1
	-39	2.58	Sep 1939	Apr 1942	19.3	42	-17.3
	-37	1.75	May 1946	Feb 1948	14.5	29	-23.4
	-35	1.58	Nov 1968	Jun 1970	14.8	26	-24.1
	-52	1.75	Dec 1972	Sep 1974	15.2	14	-34.2
	-30	0.25	Aug 1987	Nov 1987	33.9	0	-76.3
	-47	2.08	Aug 2000	Sep 2002	17.8	36	-26.4
	-52	1.33	Oct 2007	Feb 2009	19.2	25	-42.1
Median BEAR market	-37	1.46			18.5	26	-29.6
Mean BEAR market	-41	1.65			20.7	25	-33.2

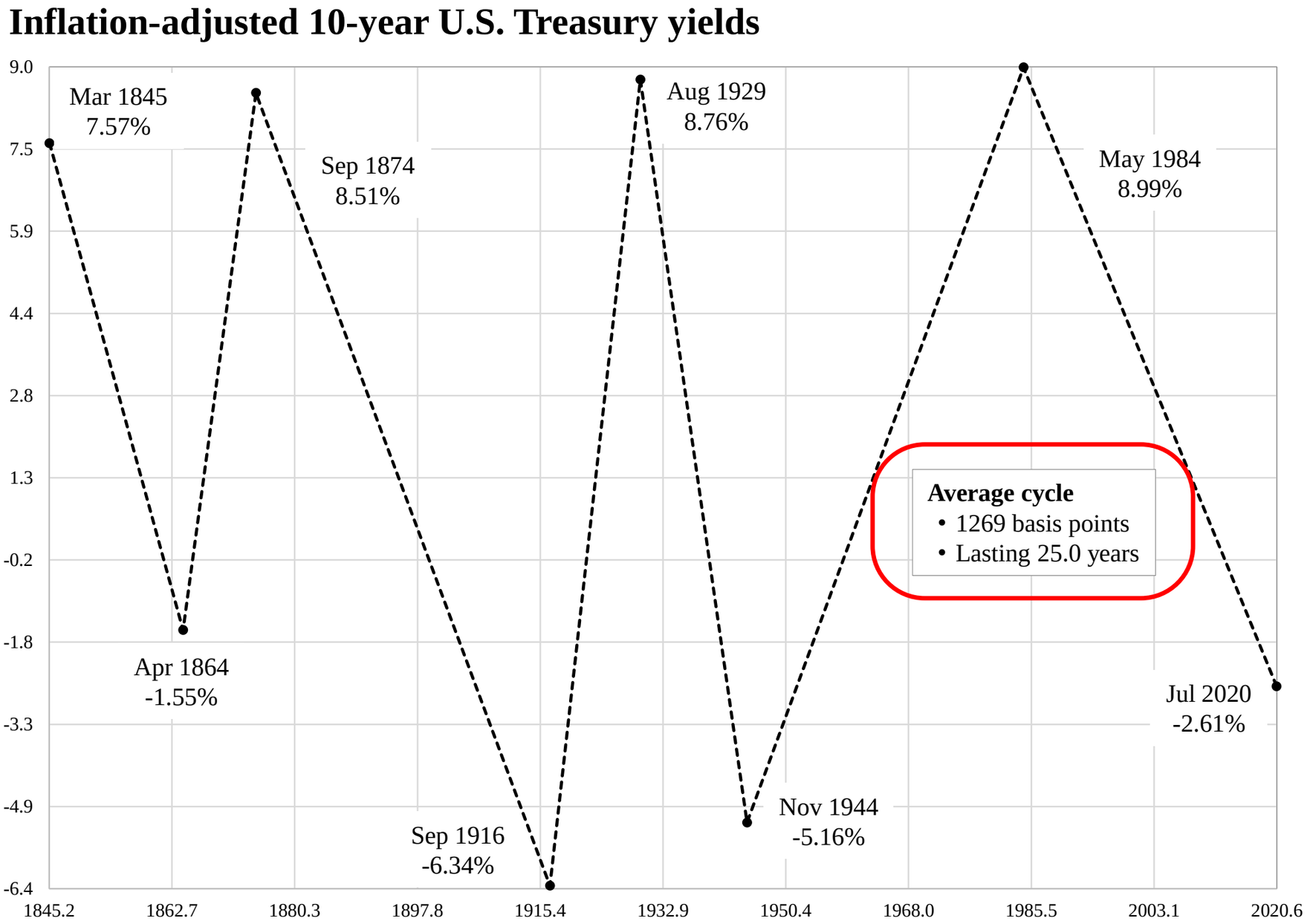
Bears for stocks

Bear markets for inflation-adjusted U.S. stocks since 1846

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BEAR market
Median BEAR market	-37	1.46			18.5	26	-29.6
Mean BEAR market	-41	1.65			20.7	25	-33.2

Bonds

History of interest rates



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Bull markets for inflation-adjusted U.S. bonds since 1845

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BULL market
	184	17.58	Aug 1845	Mar 1863	5.3	70	6.1
	1075	43.08	Nov 1865	Dec 1908	3.5	75	5.9
	379	20.67	May 1920	Jan 1941	5.2	73	7.9
	26	7.75	Aug 1957	May 1965	2.6	70	3.0
	1008	38.83	Sep 1981	Jul 2020	6.8	61	6.4
Median BULL market	379	20.67			5.2	70	6.1
Mean BULL market	534	25.58			4.7	70	5.9

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Bear markets for inflation-adjusted U.S. bonds since 1845

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BEAR market
	-22	2.67	Mar 1863	Nov 1865	6.1	31	-9.1
	-50	11.42	Dec 1908	May 1920	4.8	41	-5.9
	-31	16.58	Jan 1941	Aug 1957	3.3	45	-2.2
	-40	16.33	May 1965	Sep 1981	6.4	45	-3.0
	?	?	Jul 2020	?	?	?	?
Median BEAR market	-35	13.87			5.4	43	-4.5
Mean BEAR market	-36	11.75			5.1	40	-5.0

Commodities

Bulls for commodities

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Bull markets for inflation-adjusted commodities since 1852

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BULL market
	87	12.67	Dec 1851	Aug 1864	9.7	58	5.1
	78	1.67	Sep 1915	May 1917	9.3	85	41.1
	104	4.33	Mar 1921	Jul 1925	14.0	65	17.9
	184	4.75	Jun 1932	Mar 1937	23.1	58	24.6
	139	8.83	May 1938	Mar 1947	17.0	53	10.4
	62	1.67	Jun 1949	Feb 1951	10.4	85	33.6
	266	27.08	Oct 1953	Nov 1980	11.0	54	4.9
	138	11.33	Jun 1986	Oct 1997	8.6	60	8.0
	300	9.33	Feb 1999	Jun 2008	15.7	61	16.0
	66	2.17	Feb 2009	Apr 2011	16.1	77	26.3
	?	?	Apr 2020	?	?	?	?
Median BULL market	121	6.79			12.5	60	17.0
Mean BULL market	142	8.38			13.5	66	18.8

Bull markets for inflation-adjusted commodities since 1852

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BULL market
Median BULL market	121	6.79			12.5	60	17.0
Mean BULL market	142	8.38			13.5	66	18.8

Bears for commodities

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Bear markets for inflation-adjusted commodities since 1852

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BEAR market
	-69	51.08	Aug 1864	Sep 1915	6.8	36	-2.2
	-50	3.83	May 1917	Mar 1921	12.8	41	-16.4
	-64	6.92	Jul 1925	Jun 1932	10.2	37	-13.8
	-38	1.17	Mar 1937	May 1938	10.3	14	-33.6
	-38	2.25	Mar 1947	Jun 1949	15.1	33	-18.9
	-32	2.67	Feb 1951	Oct 1953	6.4	25	-13.4
	-34	5.58	Nov 1980	Jun 1986	10.7	48	-7.1
	-38	1.33	Oct 1997	Feb 1999	12.6	13	-30.3
	-53	0.67	Jun 2008	Feb 2009	20.1	0	-67.4
	-71	9.00	Apr 2011	Apr 2020	15.5	44	-12.7
Median BEAR market	-44	3.25			11.6	34	-15.1
Mean BEAR market	-49	8.45			12.0	29	-21.6

Bears for commodities

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Bear markets for inflation-adjusted commodities since 1852

	Cumulative percentage return, unannualized	Duration in years	Start date	End date	Volatility, annualized standard deviation of monthly returns	Percentage of monthly returns that were POSITIVE	Annualized return during BEAR market
Median BEAR market	-44	3.25			11.6	34	-15.1
Mean BEAR market	-49	8.45			12.0	29	-21.6

Value risk premium

Value less growth

Bulls for the value risk premium

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BULL markets for the value risk premium (the return to value less growth)

Start of bull	End of bull	Length of bull in years	Cumulative return in %	Annualized return in %
5/31/1932	8/31/1932	0.2	78.2	909.3
12/31/1932	8/31/1933	0.7	94.2	170.7
3/31/1935	3/31/1937	2.0	85.5	36.2
8/31/1939	3/31/1989	49.6	1363.0	5.6
6/30/2000	5/31/2007	6.9	119.8	12.1
11/30/2021	?			
Median bull		**2.0**	**94.2**	**36.2**

Bears for the value risk premium

BEAR markets for the value risk premium (the return to value less growth)

Start of bear	End of bear	Length of bear in years	Cumulative return in %	Annualized return in %
2/28/1927	5/31/1932	5.2	-52.9	-13.4
8/31/1932	12/31/1932	0.3	-38.2	-76.4
8/31/1933	3/31/1935	1.6	-50.0	-35.4
3/31/1937	8/31/1939	2.4	-45.8	-22.4
3/31/1989	6/30/2000	11.2	-49.0	-5.8
5/31/2007	11/30/2021	14.5	-56.8	-5.6
Median bear		**3.8**	**-49.5**	**-17.9**

Small cap risk premium

Small cap less large cap

Bears and Bulls for small cap risk premium

Bear markets for the small cap risk premium

	Cumulative return	Duration
Typical (median)	-47.5%	5.5 years
Longest bear	-41.1%	11.6 years
Most severe bear	-65.3%	3.6 years

Bull markets for the small cap risk premium

	Cumulative return	Duration
Typical (median)	215.9%	6.7 years
Longest bull	94.1%	12.0 years
Most bountiful bull	259.2%	6.8 years

Causality

Why do they occur

What causes bull and bear markets

- **Bear markets**
  - Valuations become too stretched
  - An inherent imbalance of sufficient instability/fragility has developed
  - Desire to de-risk

- **Bull markets**
  - Range of macroeconomic developments supportive of a bull for that asset category
  - Desire to take on more risk
  - Supportive monetary policy . . . forcing the underlying discount rate significantly lower

Why talk about bulls and bears

- Prepare your clients for what will come
  - They react poorly to surprise
  - Allows for a consistent stable approach . . . one more likely to succeed

- Allows you to construct more useful and intelligent portfolios
  - Does it need to mitigate the next bear
  - How closely must it ride the next bull
  - What are the tradeoffs required . . . . taxes, tracking, surety
  - Is there a prospective opportunity to capture . . . . maybe the value risk premium today

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History of interest rates and inflation

Friday

May 20th

11:00 a.m. EASTERN

Important Disclosures

All data and statistics were provided by Global Financial Data, Inc. and the Kenneth R. French Data Library from Dartmouth University(unless otherwise indicated in the exhibit)

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