

Two Centuries of Price-Return Momentum Around the World

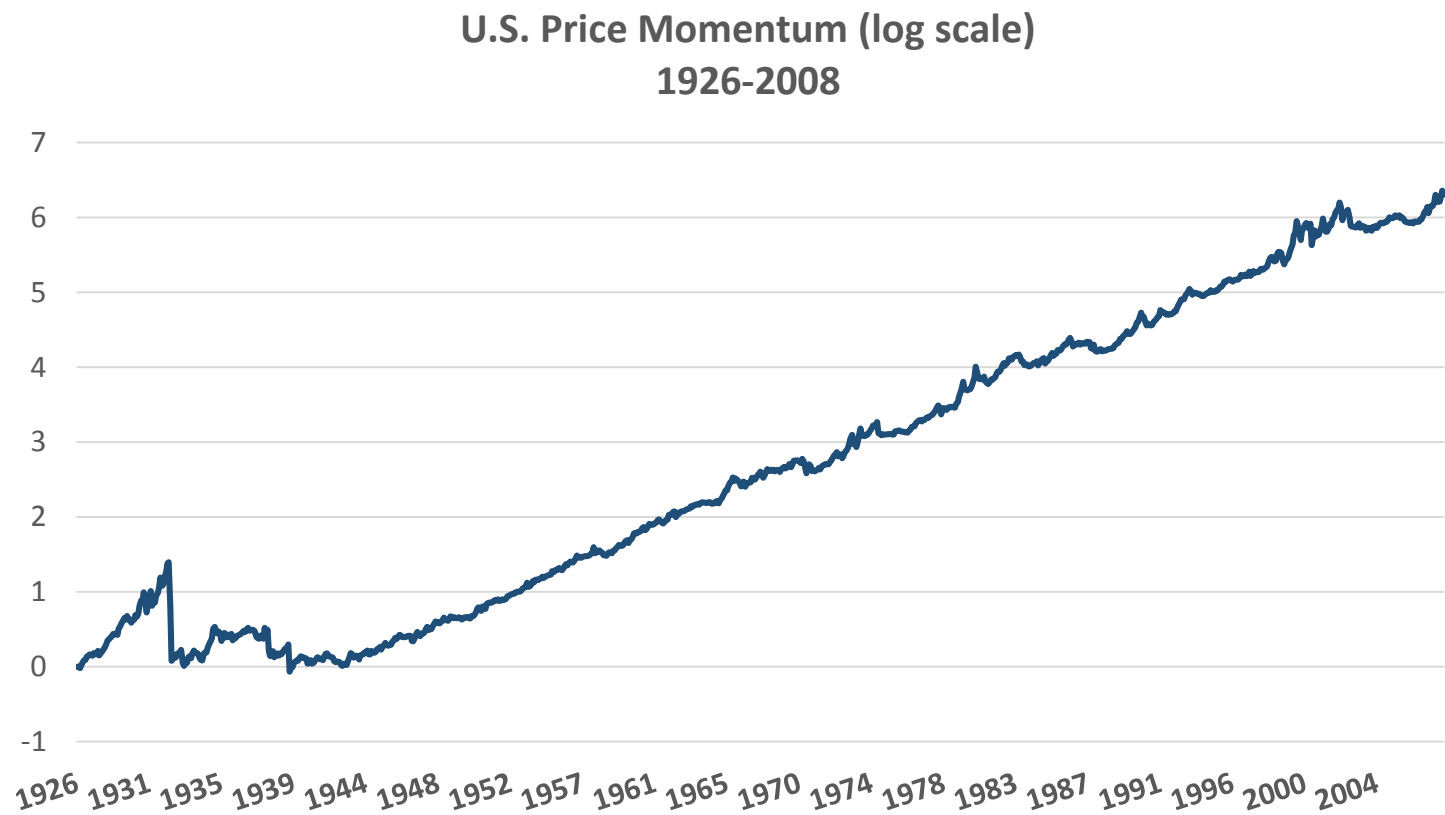
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QWAFEFW (Philadelphia)

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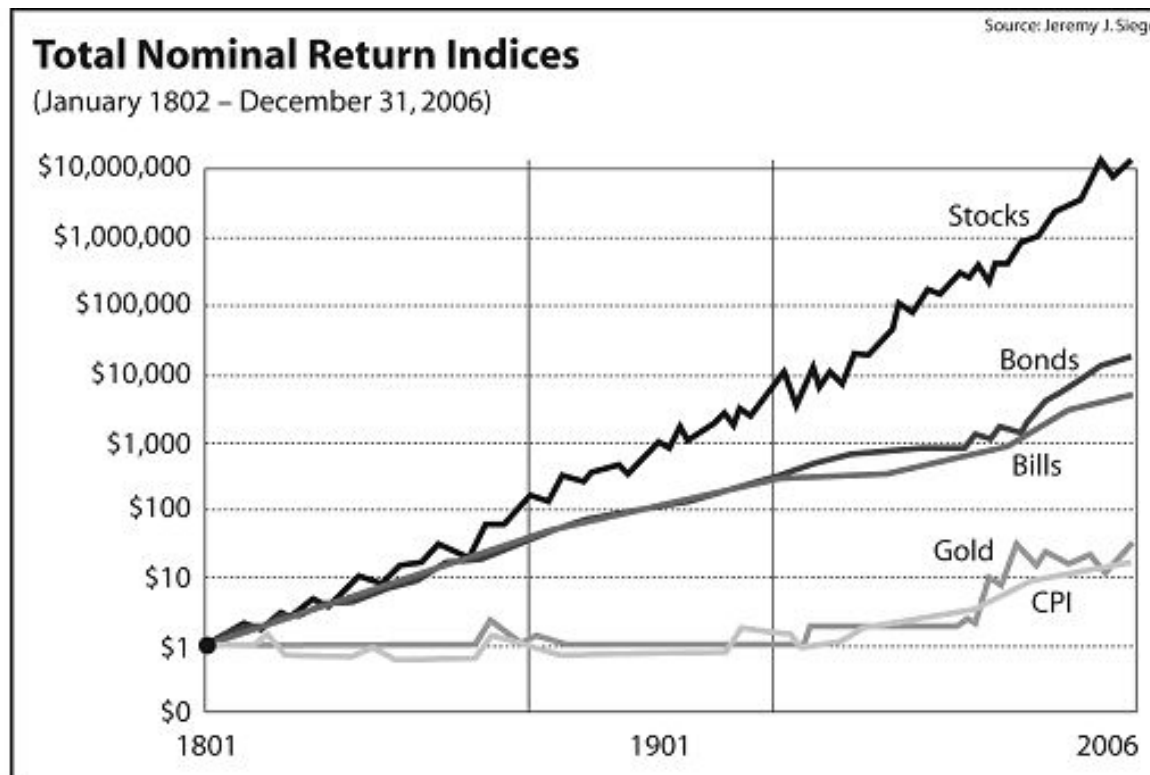
Results are based on “Two Centuries of Price-Return Momentum” FAJ 2016, “Two Centuries of Multi-Asset Momentum” SSRN 2016, and “Commodity Futures Premia Over the Long-Run” 2017 in-progress - all co-authored with Chris Geczy. Samonov is a senior portfolio manager at Forefront Analytics and a teaching associate at The Wharton School (msamonov@wharton.upenn.edu). Geczy is from the Wharton School of the University of Pennsylvania (Geczy@wharton.upenn.edu) and is the Founder of Forefront Analytics.

Back in 2008, Momentum Looks Awesome...
except for the early crash and continued academic skepticism.



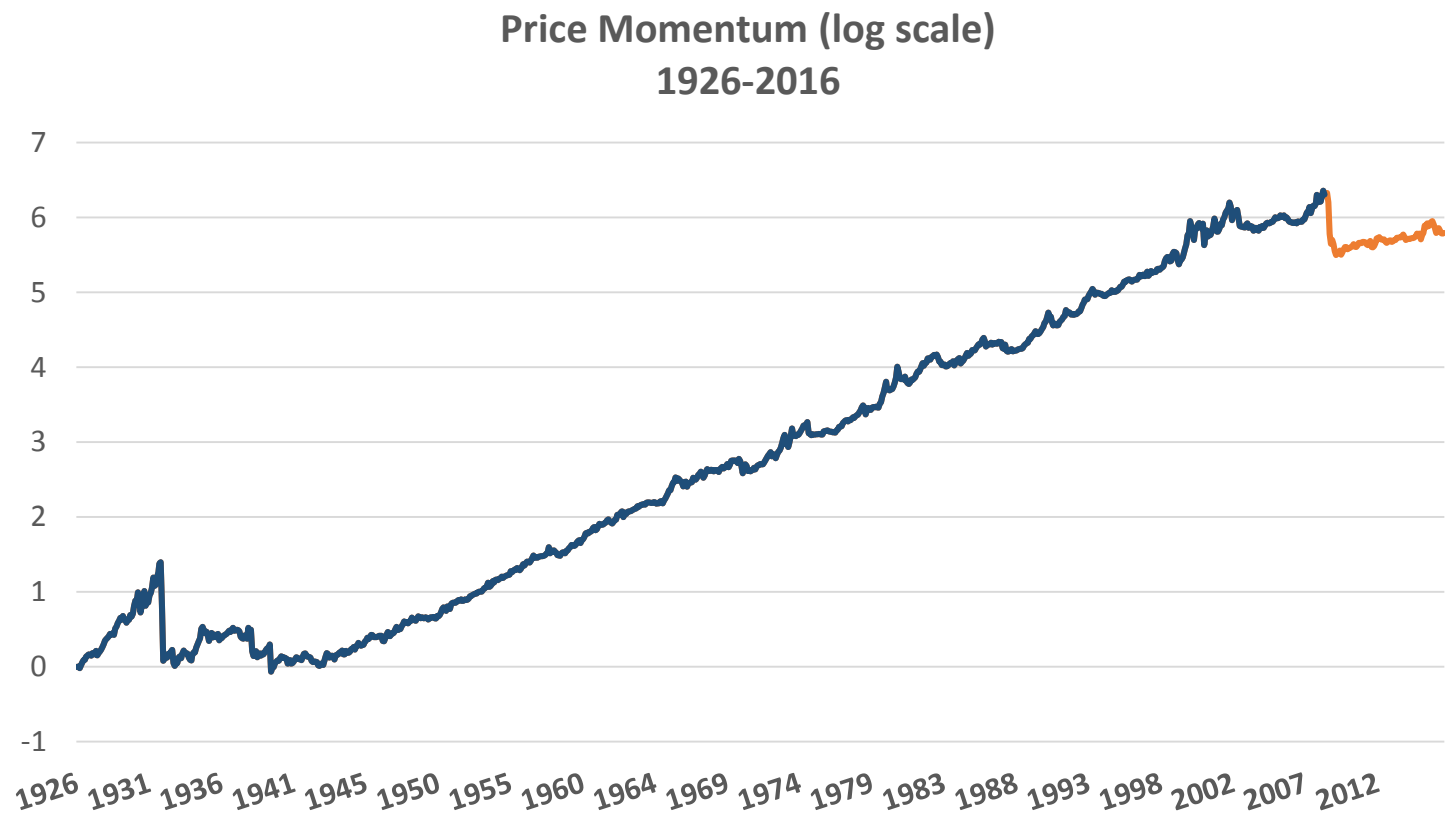
Source: K. French

In Stocks for the Long Run, Indices are extended to 1800...
but where are the underlying stock data?



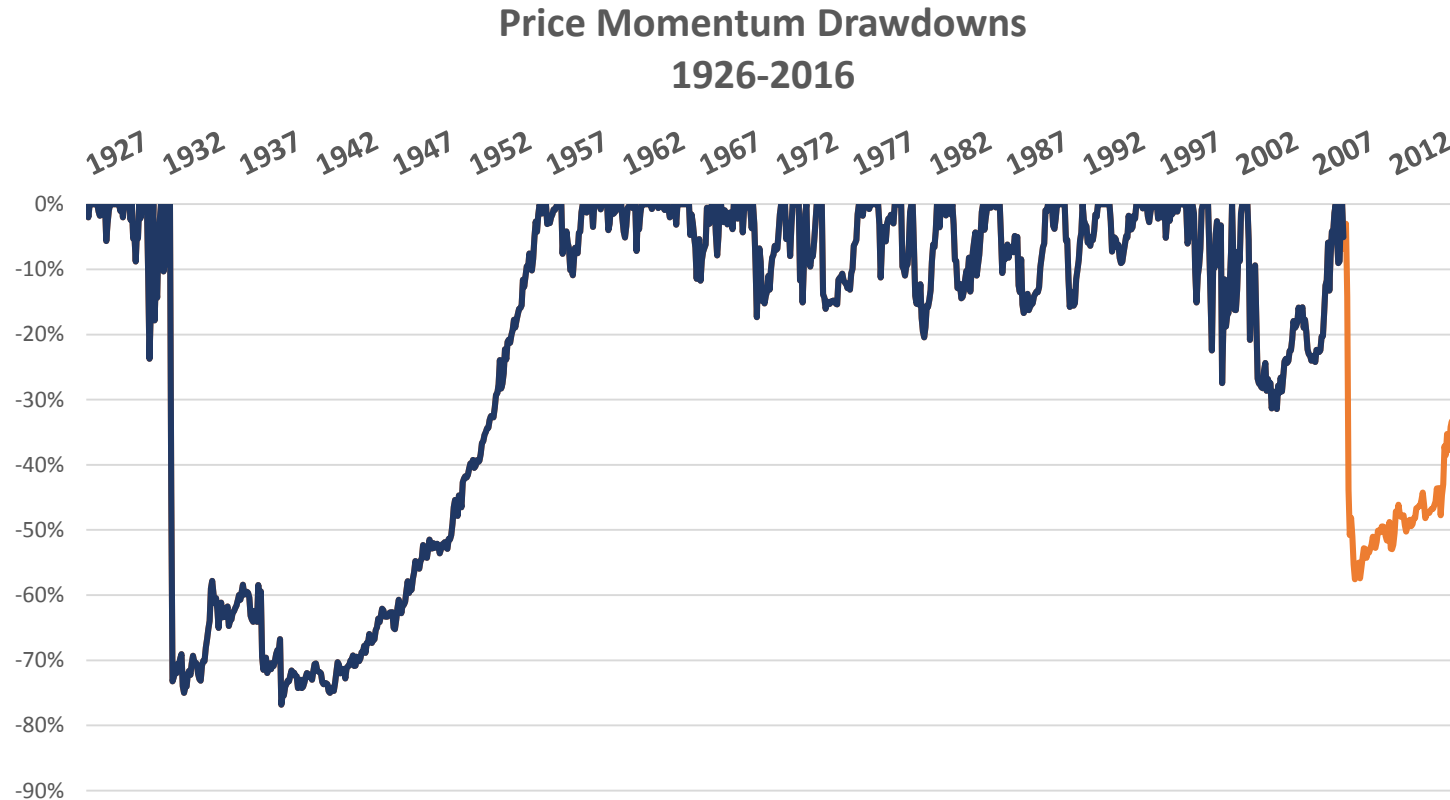
Source: J. Siegel

The Second Crash in March of 2009, escalates the importance of our search for more complete momentum's return history.



Source: K. French

The drawdown of 1930's no longer looks anomalous, a 60% loss is very damaging to quant portfolios, and Momentum is still in drawdown.



Source: K. French

The inception of the U.S. stock exchanges (1792)...
is a very long time ago.



Buttonwood Tree



A 1797 oil on linen painting by Francis Guy (1760-1820).

Tontine Coffee House

Merchant's Coffee House

Long-Run Studies are a growing area of academic interest.

- ▶ ABN-Amro (2008) Momentum in the Top 100 UK stocks (1900-2007)
- ▶ Chabot, Ghysels and Jagannathan (2008) - Victorian England (1866-1907)
- ▶ Hurts, Ooi, Pedersen (2012) - Trend Following (1880-2013)
- ▶ Geczy, Samonov (2013) - U.S. Stocks (1801-2012)
- ▶ Szakmary, Zhou (2013) - Industry Momentum (1871-2021)
- ▶ Lempérière, Deremble, Seager, Potters, and Bouchaud (2014) - Trend since 1800
- ▶ Greyserman, Kaminski (2014) - Trend (1223 - 2013)
- ▶ Geczy, Samonov (2015) - Two Centuries of Multi-Asset Momentum (1800-2014)
- ▶ Goetzmann and Huang (2015) - Imperial Russia (1865-1914)
- ▶ Distis (2016) - Option Pricing Methods in the Late 19th Century
- ▶ Levine, Ooi, Richardson (2016) - Commodity Futures Returns (1877-2015)
- ▶ Wahal (2016) - The Profitability and Investment Premium: Pre-1963 Evidence (1940-1963)
- ▶ Linnainmaa and Roberts (2016) - A vast set of U.S. firm-level accounting anomalies back to 1918
- ▶ Manela, Moreira (2017) - News Implied Volatility (1890 - 2009)
- ▶ Paul Schmelzing (2017) - Eight Centuries of the Risk-Free Rate (1311-2017)
- ▶ Geczy, Samonov (2017) - “...”

1. U.S. Stock Momentum

After Momentum was discovered, it was tested out-of-sample in almost every asset class, but the histories of these tests are short relative to the histories of these asset classes.

► Price Momentum in Academic Literature - Some Key Studies

- Levy (1967) - Relative Strength
- De Long, Shleifer, Summers, Waldmann (1990) - Positive Feedback Investments
- Jagadeesh and Titman (1993) - Buying Winners Selling Losers since 1927
- Asness (1995, 1996, 2012) - Momentum Factor, Countries and Everywhere
- Carhart (1997) - Momentum in Mutual Funds
- Rouwenhorst (1998) - International Evidence
- Mosowitz and Grinblatt (1999) - Industries
- Okuner and White (2003) - Currencies
- Erb and Harvey (2006) - Commodities

Deep historical studies of individual U.S. stocks prices has been an on-going academic effort for more than a century.

- ▶ Smith and Cole (1928, 1935) - from 1802
 - ▶ Selected a handful of representative stocks, with hindsight
 - ▶ Macaulay (1938) - Railroad stock prices back to 1856
 - ▶ Cowles (1939) - data collected from 1871
 - ▶ Individual data was lost / indices remain
 - ▶ Fisher and Lorie (1960's) - CRSP data collected from 1925
 - ▶ Started semi-arbitrarily, A few years before the 1929 crash
 - ▶ Goetzmann, Ibbotson and Peng (2001) - Hand collected from 1815 to 1925
 - ▶ IFC: 671 Stocks with monthly prices and partial availability of annual dividends
 - ▶ Sylla, Wilson, Wright (2006) - Hand collected from 1790 to 1860
 - ▶ ICPSR: 1,167 Securities with monthly prices between 1800 and 1860
 - ▶ Global Financial Database (2008) - Stock data from 1825 to 1926
 - ▶ GFD: 3,992 Securities with monthly prices
- Explored in detail by Schwert (1990, 2001), Wilson and Jones (1987,2002)
- Data used in this "Merged Dataset" of this study

Other early studies: Mitchell 1910, Persons 1916, Frickey 1919, Smith 1924, Cole and Frickey 1928, Bowley, Schwartz and Smith 1931.

We have assembled a robust Merged dataset of U.S. stock prices from 1800 to 1926

Data Source	Period	Avg. Monthly Return	Avg. Monthly Std. Dev.	Total # of Unique Securities	Avg. # of Securities with One-Month Return	Avg. # of Securities with One-Month Return & Momentum	Total # of Observations with One-Month Return	Total # of Observations with One-Month Return & Momentum
ICPSR ^a	1800–1862	0.09%	2.19%	1,167	139	114	103,684	84,148
GFD ^b	1825–1925	0.29	3.38	3,992	250	205	305,574	248,736
IFC ^c	1815–1925	0.38	4.85	671	46	32	57,871	41,925
Merged ^d	1800–1926	0.28	3.11	4,709	272	224	413,922	338,989
CRSP	1926–2012	0.98	7.35	29,542	3,667	3,356	3,828,692	3,462,990

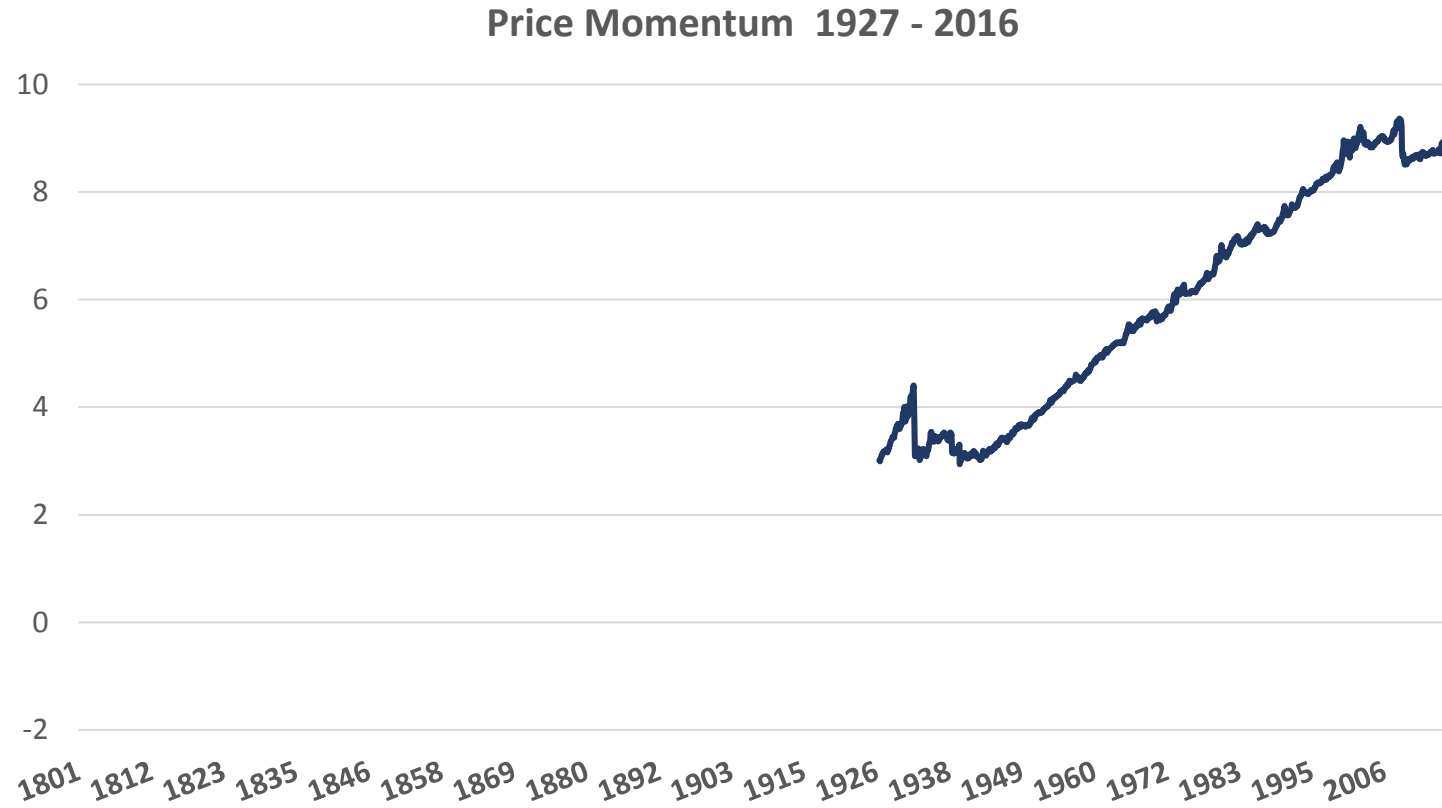
^aInter-University Consortium for Political and Social Research (www.icpsr.umich.edu/icpsrweb/ICPSR/studies/4053). A corresponding paper describing the data collection process and results is Sylla et al. (2006).

^bGlobal Financial Data (www.globalfinancialdata.com/Databases/HistoricalStockData.html).

^cInternational Center of Finance at Yale University (<http://icf.som.yale.edu/old-new-york-stock-exchange-1815-1925>). A corresponding paper describing the data collection process and results is Goetzmann et al. (2001).

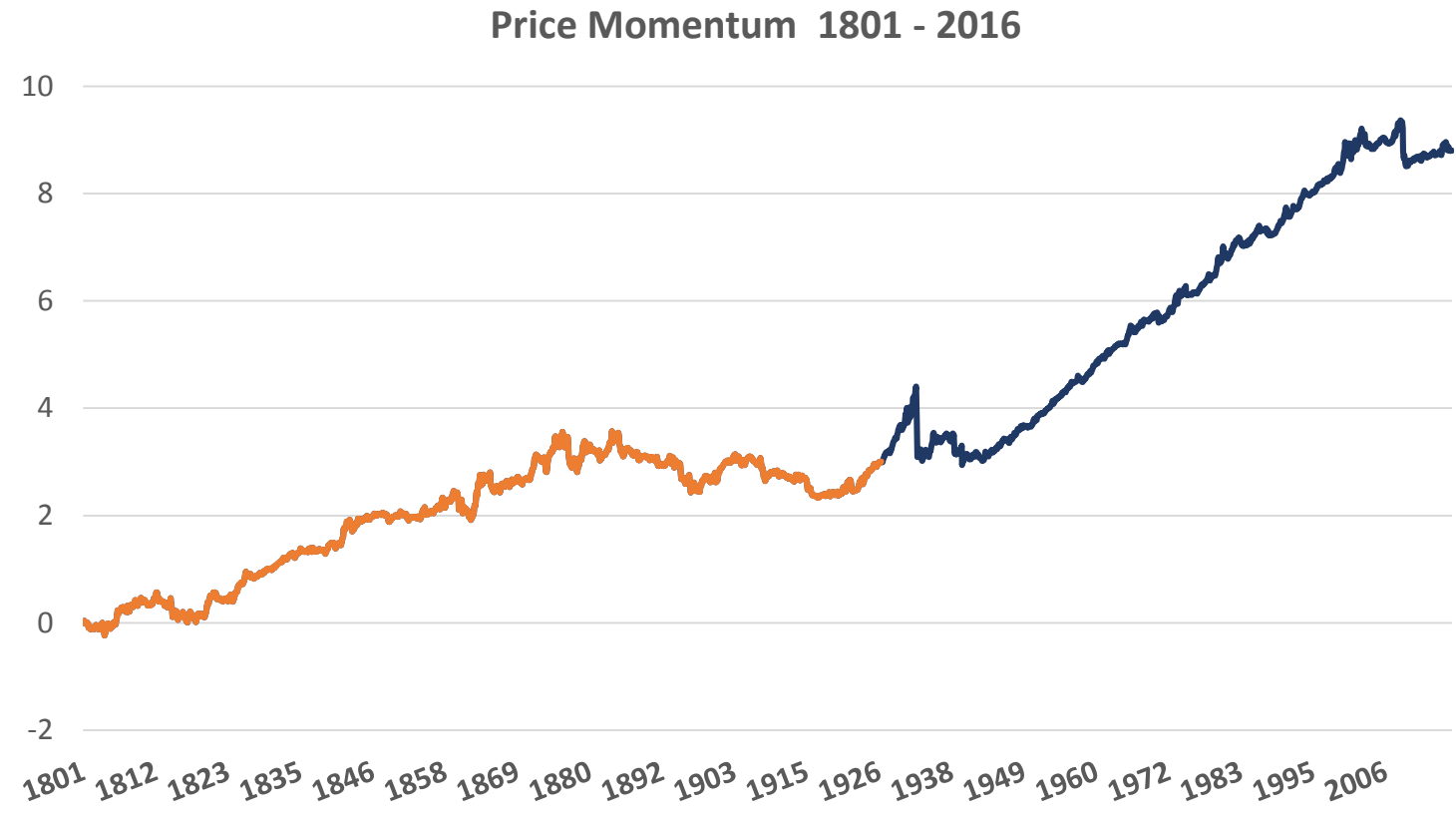
^dMerged dataset of ICPSR, GFD, and IFC for 1800–1926.

We can now uncover the 'missing' 127 years of history!



Geczy and Samonov (FAJ, 2016)

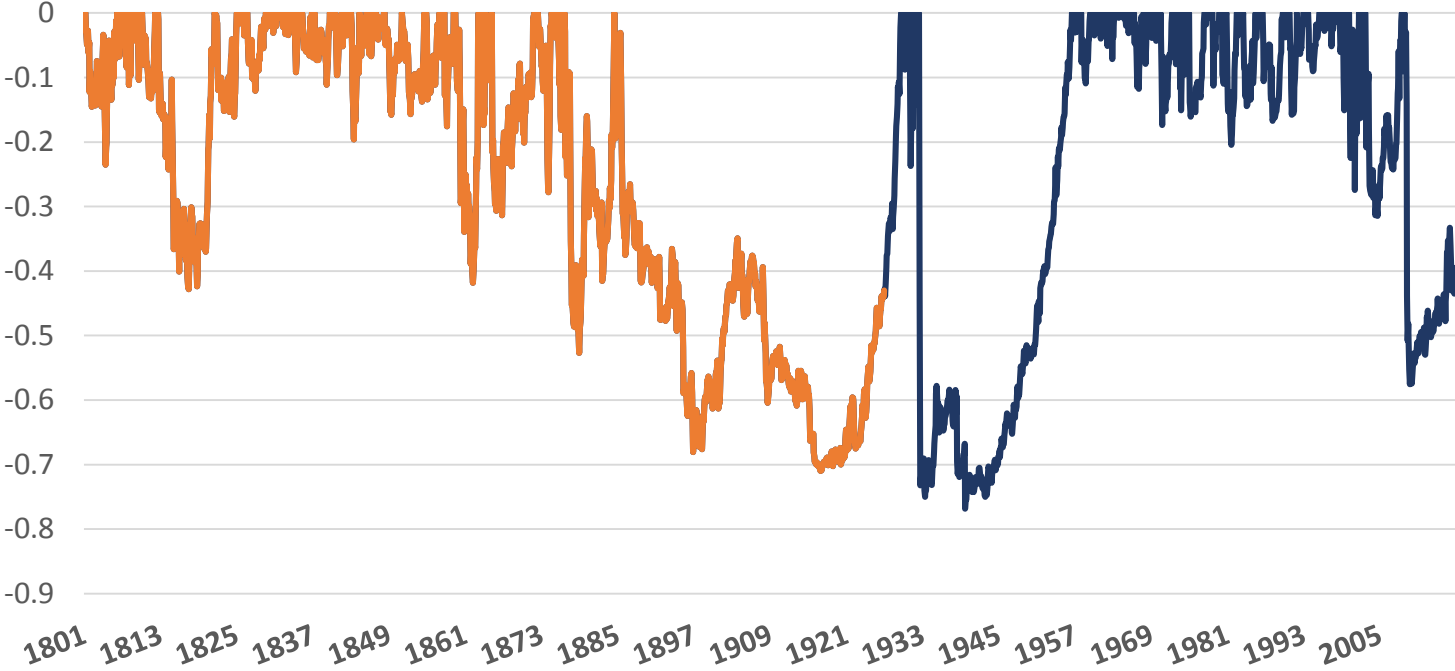
It exists out of sample... But what about that 50 year dry spell



Geczy and Samonov (FAJ, 2016)

Middle of 20th century performance used to look like the Norm, now it's more of an exception

U.S. Stock Price Momentum Drawdown
1801 - 2016



Geczy and Samonov (FAJ, 2016)

Momentum's beta is extremely time-varying with the market

Parameter	W – L Momentum Strategy			Winners			Losers		
	Estimate	S.E.	<i>t</i> -Statistic	Estimate	S.E.	<i>t</i> -Statistic	Estimate	S.E.	<i>t</i> -Statistic
<i>1801–1926</i>									
Intercept (Eq. 2)	0.36%	0.10%	3.5*	0.12%	0.05%	2.2*	–0.24%	0.06%	–4.0*
Beta	–0.26	0.03	–8.0*	1.01	0.02	58.9*	1.27	0.02	66.1*
Intercept (Eq. 3)	0.17%	0.09%	1.9	0.03%	0.05%	0.7*	–0.14%	0.06%	–2.5*
Beta down	–0.91	0.04	–21.8*	0.70	0.02	30.9*	1.61	0.03	62.6*
Beta up	0.31	0.04	7.9*	1.29	0.02	61.3*	0.98	0.02	40.9*
<i>1927–2012</i>									
Intercept (Eq. 2)	0.92%	0.14%	6.5*	0.50%	0.07%	7.2*	–0.42%	0.07%	5.6*
Beta	–0.34	0.02	–17.7*	0.87	0.01	92.9*	1.21	0.01	120.2*
Intercept (Eq. 3)	0.79%	0.12%	6.8*	0.44%	0.06%	7.9*	–0.36%	0.06%	–5.5*
Beta down	–0.69	0.02	–30.9*	0.68	0.01	64.4*	1.37	0.01	110.6*
Beta up	0.00	0.02	–0.1	1.05	0.01	102.1*	1.05	0.01	87.2*
<i>1801–2012</i>									
Intercept (Eq. 2)	0.59%	0.08%	7.0*	0.28%	0.04%	6.6*	–0.31%	0.05%	–6.5*
Beta	–0.32	0.02	–20.2*	0.90	0.01	111.3*	1.22	0.01	137.9*
Intercept (Eq. 3)	0.46%	0.07%	6.3*	0.22%	0.04%	5.8*	–0.24%	0.04%	–5.7*
Beta down	–0.73	0.02	–37.5*	0.69	0.01	68.5*	1.42	0.01	123.6*
Beta up	0.07	0.02	3.6*	1.10	0.01	114.0*	1.04	0.01	93.6*

Momentum Crashes during Up Markets. following the Down ones.

	W - L	Market _t	Market _{t-2 to t-12}			
<i>1801-1926</i>						
Top 20 most negative months	-14.3%	5.0%	-6.3%			
Average	0.29	0.28	3.40			
<i>1927-2012</i>						
Top 20 most negative months	-22.4	23.1	-26.1			
Average	0.58	0.99	10.9			
Market-Timing Regressions						
Parameter	a_0	a_b	b_0	b_b	$b_{b,u}$	R_{adj}^2
<i>1801-1926</i>						
Estimate	0.23%	0.95%	0.31	-0.77	-0.92	29.22%
S.E.	0.12	0.23	0.04	0.08	0.12	
<i>t</i> -Statistic	2.0*	4.2*	7.9*	-9.6*	-7.8*	
<i>1927-2012</i>						
Estimate	0.88%	1.73%	0.00	-0.26	-0.68	53.90%
S.E.	0.13	0.29	0.02	0.05	0.06	
<i>t</i> -Statistic	6.6*	5.9*	-0.2	-5.5*	-11.2*	
<i>1801-2012</i>						
Estimate	0.56%	0.70%	0.06	-0.47	-0.53	38.76%
S.E.	0.09	0.17	0.02	0.04	0.05	
<i>t</i> -Statistic	6.2*	4.1*	3.5*	-11.7*	-10.6*	

2. Multi-Asset Momentum

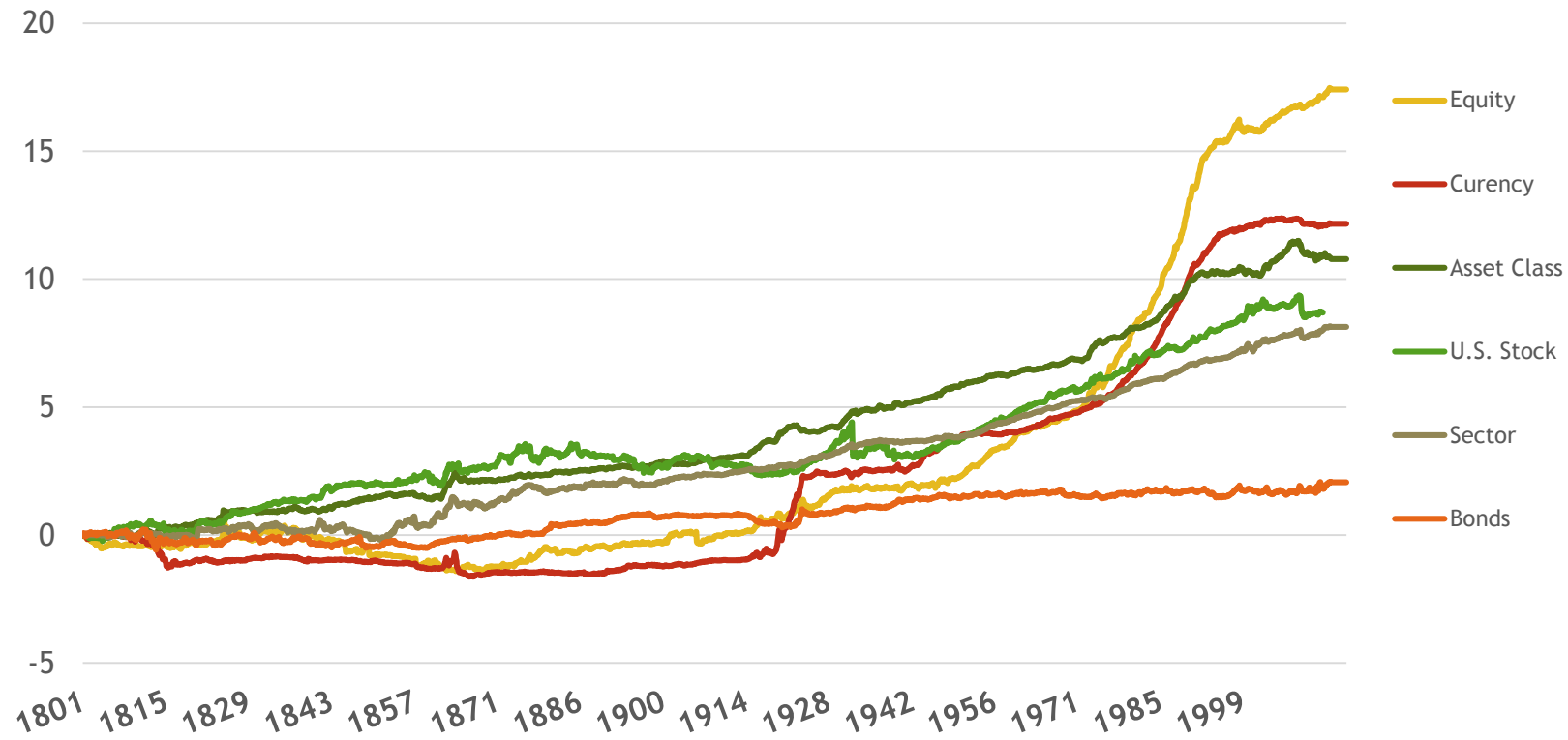
Many assets and so much history

	Local Price Return					Local Total Return		
	# of Assets	Dates	Average	(t-stat)	Outliers %	Dates	Average	(t-stat)
Equities	47	1798 - 2014	0.50%	13.9	0.04%	1798 - 2014	0.86%	15.8
Currencies	48	1798 - 2014	0.23%	7.4	0.01%	1798 - 2014	0.02%	0.7
Bonds	43	1798 - 2014	0.14%	3.8	0.02%	1798 - 2014	0.57%	18.4
Commodities	76	1798 - 2014	0.43%	9.9	0.08%	1959 - 2014	0.36%	2.4
Global Sectors	301	1803 - 2014	0.40%	8.6	0.16%	1927 - 2014	1.01%	5.2
U.S. Stocks	34795	1800 - 2014	0.49%	5.2	0.53%	1927 - 2014	1.14%	5.7

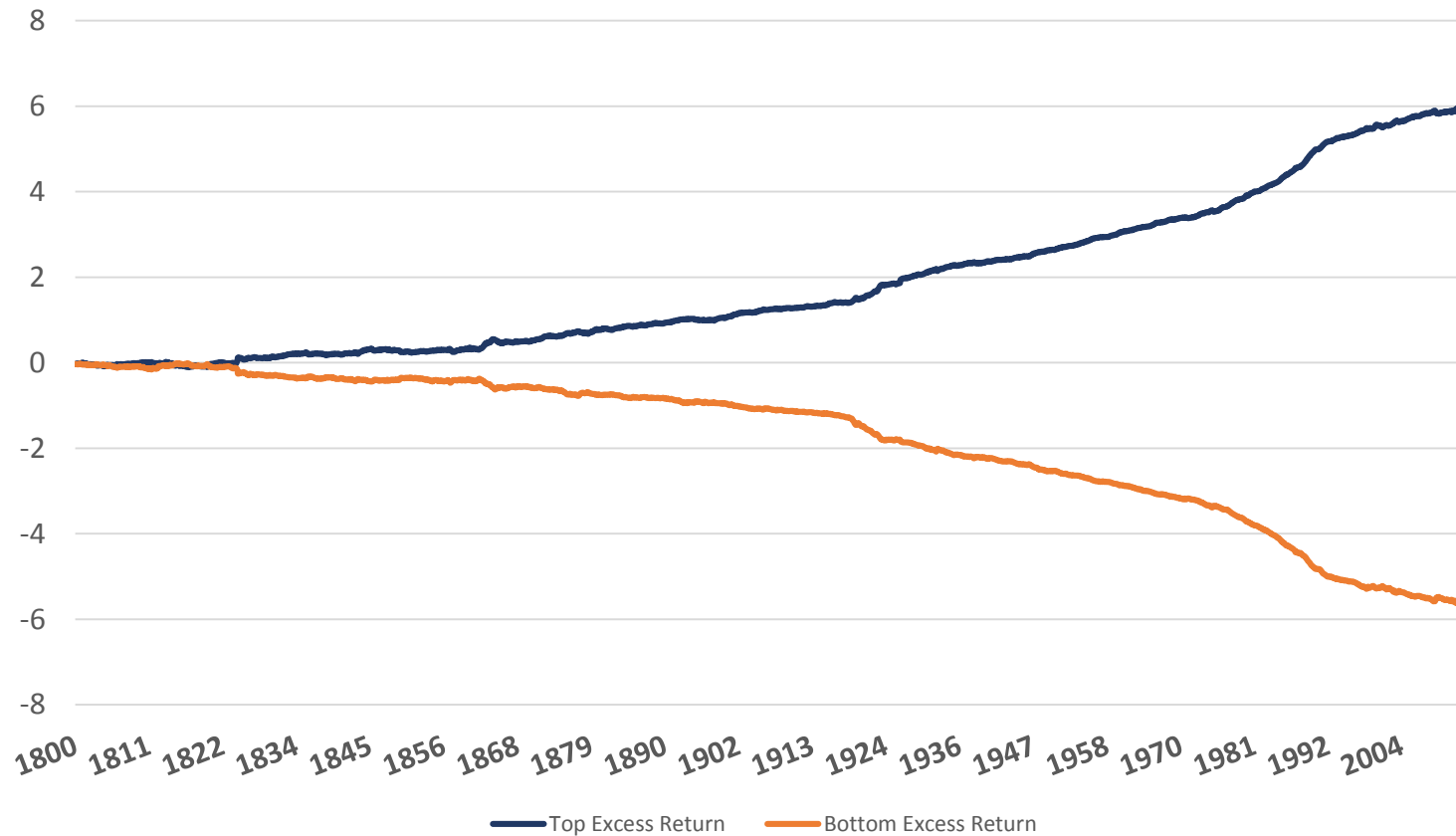
Momentum Performance is robust in every asset class

	Assets	Dates	Price Return			Total Return		
			Portfolio	Average	(t-stat)	Dates	Average	(t-stat)
1	Equities (Local)	1800 - 2014	W-L	0.88%	10.6	1800 - 2014	0.66%	7.5
			W	0.52%	11.7		0.35%	7.4
			L	-0.34%	-7.9		-0.31%	-6.7
2	Currencies	1800 - 2014	W-L	0.51%	9.6	1800 - 2014	0.43%	8.2
			W	0.18%	7.1		0.20%	-7.4
			L	-0.33%	-9.9		-0.23%	8.3
3	Bonds (Local)	1800 - 2014	W-L	0.13%	2.3	1800 - 2014	0.23%	3.8
			W	0.09%	2.9		0.12%	3.7
			L	-0.04%	-1.4		-0.11%	-3.0
4	Commodities	1800 - 2014	W-L	0.45%	5.5	1960 - 2014	0.97%	4.1
			W	0.25%	5.5		0.48%	3.8
			L	-0.20%	-4.3		-0.48%	-3.6
5	Global Sectors	1804 - 2014	W-L	0.36%	6.6	1927 - 2014	0.59%	5.7
			W	0.16%	5.4		0.30%	5.5
			L	-0.20%	-6.7		-0.29%	-5.1
6	U.S. Stocks	1801 - 2014	W-L	0.51%	6.0	1927 - 2014	0.81%	6.7
			W	0.29%	6.4		0.40%	6.7
			L	-0.23%	-4.9		-0.41%	-6.4
7	Cross-Asset	1801 - 2014	W-L	0.45%	10.2	1801 - 2014	0.66%	12.1
			W	0.22%	10.1		0.33%	10.6
			L	-0.23%	-10.3		-0.34%	-11.5
8	Combined	1800 - 2014	W-L	0.45%	15.4	1800 - 2014	0.40%	14.0
			W	0.24%	15.5		0.20%	13.6
			L	-0.22%	-13.8		-0.20%	-13.0

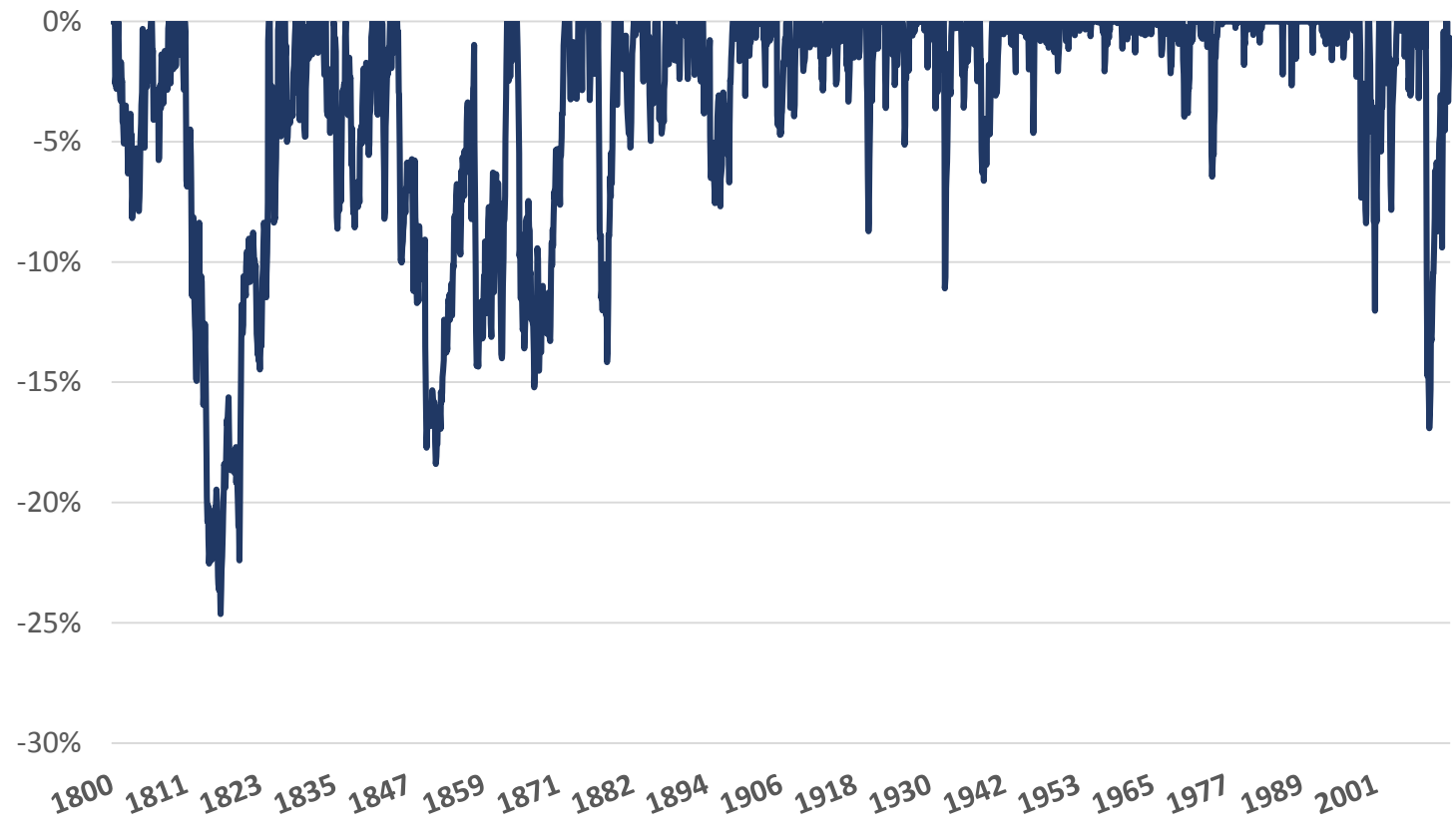
Price momentum W-L Cumulative returns around the world: 1800-2014



Combined momentum W-L portfolio 1800-2014



Combined momentum portfolios have much lower drawdowns: 1800-2016



Multi-Country-Sector
momentum positive in
30 out of 34 countries

Country	Start Date	# Sectors	Average Price Return			(t-stat)		
			W-L	W	L	W-L	W	L
Australia	02/29/1876	11	0.37%	0.14%	-0.21%	2.2	1.5	-2.4
Austria	02/28/1923	9	0.65%	0.29%	-0.25%	2.8	2.5	-2.1
Belgium	02/28/1935	10	0.70%	0.34%	-0.36%	4.9	4.3	-4.7
Canada	08/31/1915	11	0.64%	0.33%	-0.31%	4.7	4.5	-4.1
Chile	02/29/1928	8	1.04%	0.42%	-0.42%	3.9	2.8	-2.4
China	05/31/1994	6	-0.21%	-0.06%	0.15%	-0.5	-0.3	0.6
Columbia	02/29/1928	8	0.16%	0.02%	-0.13%	0.7	0.1	-0.9
Denmark	01/31/1916	11	0.44%	0.25%	-0.20%	2.8	3.1	-2.4
Finland	11/30/1931	11	0.47%	0.26%	-0.20%	2.8	3.1	-2.3
France	01/31/1858	11	0.77%	0.38%	-0.37%	6.0	5.5	-5.4
Germany	01/31/1905	11	0.47%	0.21%	-0.20%	4.0	3.1	-2.7
Iceland	01/31/1994	9	1.70%	0.81%	-0.82%	3.1	2.7	-2.9
Greece	02/28/1953	8	0.88%	0.43%	-0.45%	2.7	2.6	-2.6
Indonesia	02/28/1990	6	1.13%	0.47%	-0.66%	2.5	1.9	-2.8
Italy	02/28/1986	9	0.66%	0.19%	-0.46%	3.0	1.6	-4.2
Japan	02/28/1934	10	0.24%	0.10%	-0.14%	1.2	0.9	-1.3
Korea	02/29/1976	8	0.85%	0.50%	-0.36%	2.5	2.7	-1.9
Netherlands	02/28/1929	10	0.28%	0.15%	-0.14%	1.5	1.7	-1.5
New Zealand	12/31/1992	7	-0.33%	-0.45%	-0.12%	-0.7	-1.7	-0.4
Norway	01/31/1984	11	0.21%	0.11%	-0.08%	1.1	1.1	-0.9
Pakistan	08/31/1961	7	0.21%	0.10%	-0.11%	0.9	0.8	-0.8
Peru	01/31/1928	7	1.47%	0.63%	-0.61%	3.6	3.0	-2.9
Philippines	02/28/1953	7	1.07%	0.46%	-0.61%	3.1	2.4	-3.2
Portugal	02/28/1939	9	0.39%	0.18%	-0.22%	1.4	1.3	-1.5
Russia	10/31/1994	6	-0.48%	-0.21%	0.22%	-0.7	-0.6	0.6
Singapore	11/30/1963	7	0.70%	0.34%	-0.35%	2.7	2.5	-2.7
South Africa	02/28/1911	10	0.75%	0.32%	-0.42%	4.8	3.8	-5.0
Spain	04/30/1941	10	0.67%	0.25%	-0.42%	3.7	2.4	-4.1
Sweden	02/28/1907	11	0.16%	0.10%	-0.06%	1.2	1.4	-0.9
Switzerland	02/28/1931	10	0.41%	0.20%	-0.20%	2.9	2.9	-2.7
Thailand	05/31/1976	10	0.81%	0.41%	-0.38%	2.1	2.0	-1.7
United Kingdom	08/31/1868	11	0.21%	0.09%	-0.12%	2.7	2.3	-2.9
USA	02/29/1804	11	0.42%	0.24%	-0.18%	4.4	4.6	-3.4
Overall	02/29/1804	301	0.36%	0.16%	-0.20%	6.6	5.4	-6.7

Average momentum correlations have recently increased

Full History	Equities	Currencies	Bonds	Commodities	Global Sectors	U.S. Stocks	Cross-Asset
Equities							
Currencies	15%						
Bonds	7%	0%					
Commodities	0%	4%	2%				
Global Sectors	12%	8%	6%	5%			
U.S. Stocks	15%	3%	6%	7%	21%		
Cross-Asset	27%	22%	18%	17%	14%	13%	

Average = 11%

2009-2014	Equities	Currencies	Bonds	Commodities	Global Sectors	U.S. Stocks	Cross-Asset
Equities							
Currencies	37%						
Bonds	34%	60%					
Commodities	20%	22%	8%				
Global Sectors	63%	51%	42%	31%			
U.S. Stocks	50%	57%	40%	34%	69%		
Cross-Asset	27%	64%	47%	27%	51%	60%	

Average = 43%

Multi-Asset Momentum By Decade

<i>Decade</i>	Equities	Currencies	Bonds	Commodities	Global Sectors	U.S. Stocks	Cross-Asset	Combined
1810	-4%	-1%	2%	4%	1%	3%	1%	1%
1820	1%	-8%	-3%	-8%	1%	0%	4%	-1%
1830	3%	1%	1%	1%	0%	6%	4%	3%
1840	-1%	-1%	-2%	4%	1%	4%	1%	1%
1850	-6%	0%	-1%	-3%	-4%	6%	5%	0%
1860	-2%	-3%	1%	-1%	6%	1%	0%	1%
1870	-2%	-2%	3%	-3%	8%	7%	7%	3%
1880	6%	0%	3%	0%	4%	6%	2%	4%
1890	1%	1%	2%	8%	3%	-3%	3%	2%
1900	3%	2%	2%	11%	2%	-4%	2%	3%
1910	2%	2%	0%	12%	3%	1%	2%	3%
1920	6%	14%	-4%	10%	3%	-2%	12%	6%
1930	12%	24%	7%	9%	7%	15%	3%	12%
1940	0%	1%	3%	15%	3%	0%	6%	5%
1950	5%	14%	1%	5%	2%	6%	8%	6%
1960	18%	2%	2%	4%	8%	11%	6%	7%
1970	9%	8%	0%	8%	7%	10%	5%	7%
1980	40%	18%	0%	-7%	7%	15%	13%	12%
1990	70%	51%	2%	7%	8%	11%	20%	23%
2000	26%	16%	0%	4%	5%	13%	2%	10%
2010	11%	1%	1%	11%	6%	4%	8%	6%
Average	10%	7%	1%	4%	4%	5%	5%	5%

Multi-Asset momentum also has strongly time-varying beta

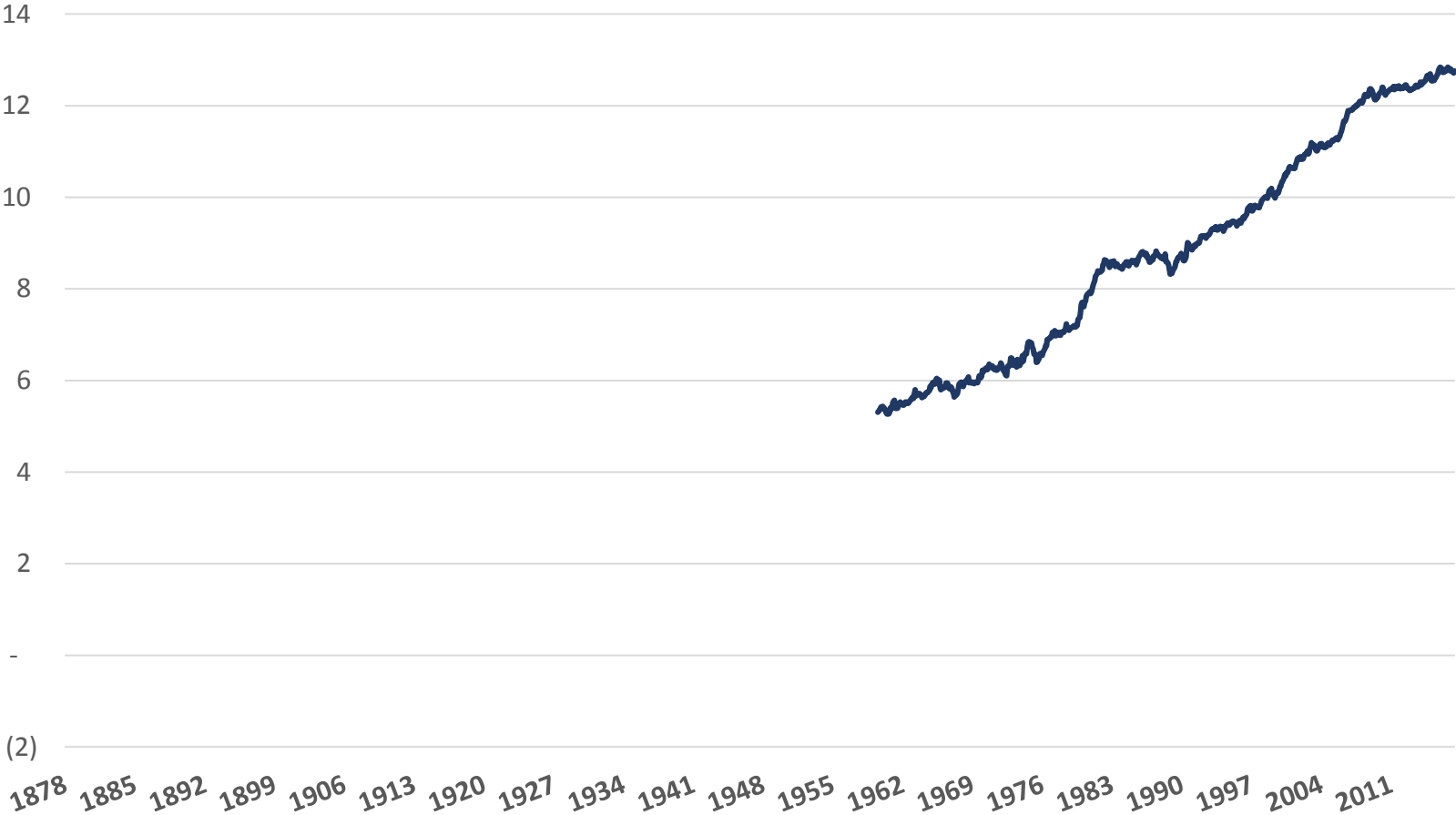
	Assets	Dates	Portfolio	Raw			Intercept		Beta		Intercept		Beta Up		Beta Down	
				Up	Down	Ave	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
1	Equities	1800 - 2014	W-L	1.05%	0.17%	0.88%	0.64%	8.2	0.24	8	0.44%	6.0	0.63	19	(0.56)	-12
			W	1.42%	0.15%	1.05%	0.40%	9.3	1.19	72	0.29%	7.1	1.41	76	0.73	27
			L	0.26%	-0.03%	0.18%	-0.30%	-7.1	0.93	57	-0.20%	-5.0	0.73	40	1.33	50
2	Currencies	1800 - 2014	W-L	0.74%	0.08%	0.51%	0.46%	8.7	0.21	6	0.27%	6.0	0.93	25	(0.80)	-18
			W	-0.11%	0.03%	0.71%	0.17%	7.0	(0.92)	-61	0.09%	4.3	(0.63)	-36	(1.31)	-63
			L	-0.85%	-0.04%	0.02%	-0.29%	-9.0	(1.13)	-55	-0.18%	-6.3	(1.57)	-68	(0.52)	-19
3	Bonds	1800 - 2014	W-L	0.23%	-0.02%	0.13%	0.10%	1.8	0.15	5	0.04%	0.7	0.53	14	(0.48)	-10
			W	0.41%	-0.02%	0.23%	0.07%	2.1	1.14	66	0.03%	1.1	1.34	63	0.81	30
			L	0.17%	-0.01%	0.10%	-0.04%	-1.2	0.99	59	0.00%	-0.2	0.81	40	1.30	50
4	Commodities	1800 - 2014	W-L	0.36%	0.55%	0.45%	0.50%	6.2	(0.18)	-5	0.57%	7.1	(0.41)	-10	0.30	5
			W	0.76%	0.46%	0.68%	0.23%	5.2	0.99	49	0.28%	6.2	0.85	36	1.28	37
			L	0.39%	-0.09%	0.24%	-0.28%	-6.0	1.17	57	-0.31%	-6.8	1.29	52	0.94	27
5	Global Sectors	1804 - 2014	W-L	0.44%	0.18%	0.36%	0.39%	7.0	(0.07)	-3	0.33%	6.0	0.14	5	(0.36)	-11
			W	0.72%	0.23%	0.57%	0.15%	4.9	1.02	80	0.12%	4.1	1.11	68	0.89	47
			L	0.28%	0.04%	0.21%	-0.24%	-7.9	1.09	87	-0.20%	-6.9	0.97	60	1.25	68
6	U.S. Stocks	1801 - 2014	W-L	0.72%	0.18%	0.51%	0.60%	7.1	(0.18)	-10	0.44%	5.7	0.21	9	(0.56)	-25
			W	1.12%	0.24%	0.78%	0.30%	6.6	0.98	105	0.21%	5.2	1.19	99	0.78	66
			L	0.40%	0.06%	0.27%	-0.30%	-7.0	1.16	129	-0.23%	-5.7	0.97	83	1.33	116
7	Cross-Asset	1801 - 2014	W-L	0.54%	0.16%	0.45%	0.31%	7.0	0.40	10	0.24%	5.5	0.69	16	(0.61)	-7
			W	0.68%	0.14%	0.55%	0.16%	7.0	1.19	59	0.12%	5.5	1.33	61	0.69	17
			L	0.14%	-0.02%	0.10%	-0.16%	-6.9	0.79	39	-0.12%	-5.3	0.64	29	1.31	31
8	Combined	1800 - 2014	W-L	0.56%	0.15%	0.45%	0.45%	15	(0.02)	-1	0.38%	13	0.23	10	(0.51)	-16
			W	0.69%	0.11%	0.65%	0.15%	9	1.04	88	0.12%	7	1.14	82	0.83	43
			L	0.11%	-0.05%	0.16%	-0.31%	-16	1.05	81	-0.27%	-14	0.90	60	1.35	64

Multi-Asset momentum lower in down market states

Panel A	Assets	Parameter	a_0	a_b	b_0	b_b	$b_{b,u}$	R^2_{adj}
1	Equities	<i>Estimate</i>	0.55%	-0.01%	0.63	-0.97	-0.50	17%
		t-stat	6.02	-0.04	18.28	-11.98	-4.09	
2	Currencies	<i>Estimate</i>	0.43%	-0.28%	0.86	-1.43	-0.29	24%
		t-stat	7.34	-2.61	21.82	-18.47	-2.79	
3	Bonds	<i>Estimate</i>	0.08%	-0.06%	0.57	-1.09	-0.01	12%
		t-stat	1.06	-0.49	15.36	-11.87	-0.10	
4	Commodities	<i>Estimate</i>	0.60%	0.20%	-0.41	0.98	-0.43	5%
		t-stat	6.14	0.95	-9.46	7.26	-2.37	
5	Global Sectors	<i>Estimate</i>	0.29%	0.28%	0.23	-0.59	-0.28	10%
		t-stat	4.36	2.03	8.01	-9.28	-3.12	
6	U.S. Stocks	<i>Estimate</i>	0.50%	0.39%	0.28	-0.69	-0.31	28%
		t-stat	5.30	2.20	12.41	-15.74	-5.56	
7	Cross-Asset	<i>Estimate</i>	0.25%	-0.14%	0.70	-1.53	0.24	12%
		t-stat	4.96	-1.05	15.84	-9.87	1.01	

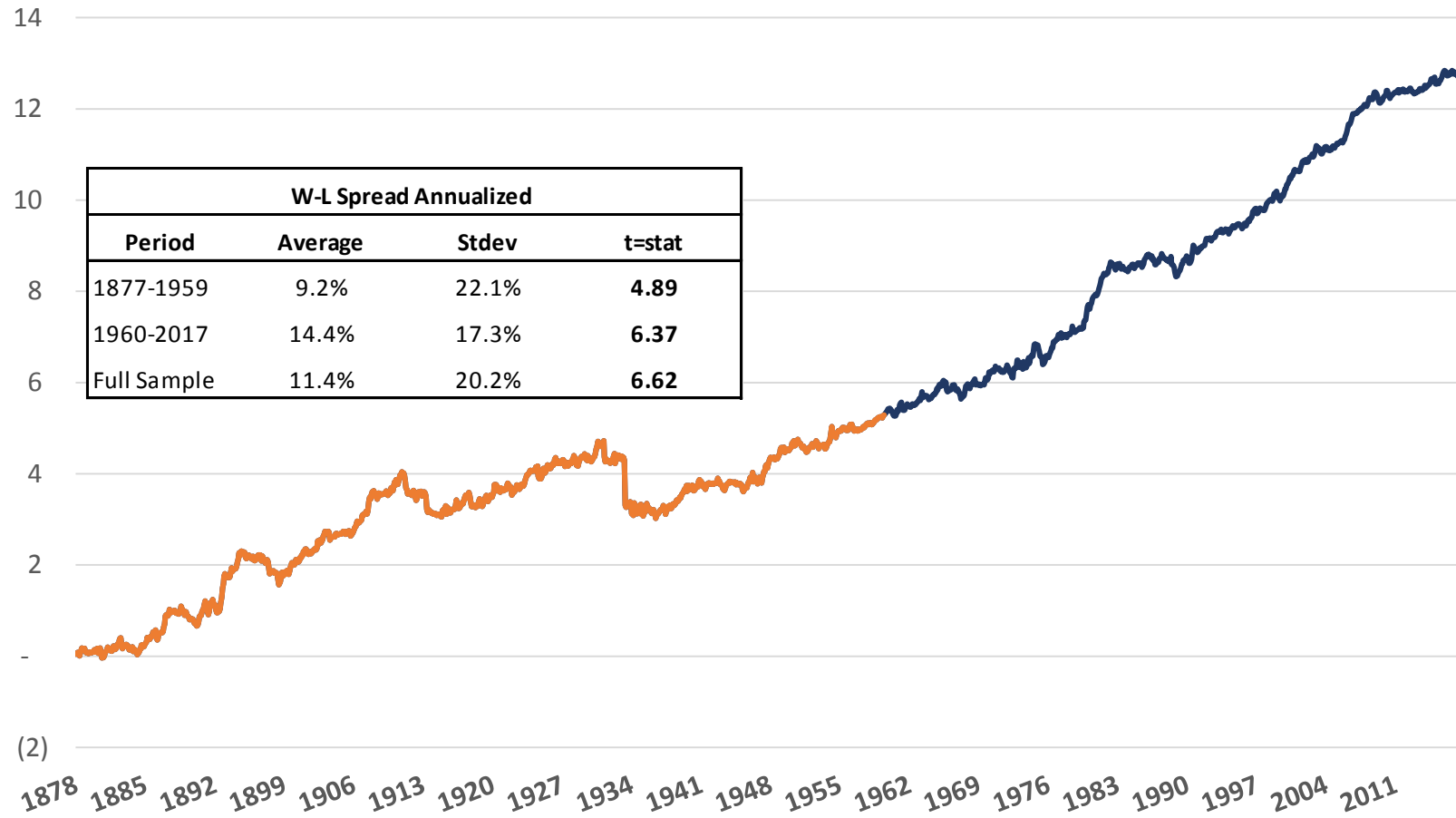
Bonus preview of our latest long-run research

Commodity Futures Momentum 1959 - 2017



Geczy and Samonov (2017)

Commodity Futures Momentum 1877 - 2017



Geczy and Samonov (2017)

In Short, Price Momentum

- ▶ It Exists (pre-sample and around the world)
- ▶ In isolation, it's too risky (It crashes and has a very dynamic beta)
- ▶ Diversify, hedge and innovate

Thank you / Questions?