2024 CRESTMONT RESEARCH STOCK MARKET MATRIX

TAX-EXEMPT INVESTOR
NOMINAL RETURNS

Nominal Returns (not inflation adjusted), including dividends (reinvested), transaction costs, and taxes deferred

COMPONENTS	
Index	Included
Dividends	Included (Reinvested)
Transaction Costs	Included
Taxes	Not Included (Deferred)
Inflation	Nominal (Not Inflation Adjusted)

P/E	FROM 1899=1	Yr: 19
18.6	1	1900
22.7	1	1901
22.0	1	1902
17.6	1	1903
16.3	1	1904
19.3	2	1905
18.7	2	1906
13.4	2	1907
13.1	2	1908
14.9	2	1909
13.5	2	1910
14.2	2	1911
13.7	2	1912
11.9	2	1913
11.1	2	1914
11.5	2	1915
12.0	2	1916
8.8	2	1917
6.4	2	1918
6.5	3	1919
5.3	2	1920
5.4	2	1921
7.5	3	1922
7.9	3	1923
8.4	3	1924
10.1	4	1925
11.7	5	1926
15.9	6	1927
21.8	8	1928
27.6	11	1929
21.5	9	1930
14.7	6	1931
8.1	3	1932
11.1	4	1933
12.2	5	1934
13.1	5	1935
19.3	8	1936
18.5	8	1937
13.9	6	1938
15.6	7	1939
14.7	6	1940
12.2	6	1941
9.2	5	1942
11.0	7	1943
11.3	8	1944
13.3	10	1945
14.0	12	1946
11.2	11	1947
10.7	12	1948
9.9	12	1949
11.2	15	1950
12.0	19	1951
12.5	22	1952
12.0	23	1953
13.7	29	1954
17.5	40	1955
18.3	47	1956
15.6	45	1957
15.1	48	1958
18.4	60	1959
17.4	60	1960
20.5	71	1961
18.8	68	1962
20.3	77	1963
22.6	91	1964
23.3	99	1965
21.3	97	1966
21.6	106	1967
21.5	115	1968
19.4	115	1969
15.2	100	1970
16.9	119	1971
17.8	133	1972
16.1	133	1973
10.9	105	1974
10.2	111	1975
11.5	135	1976
10.4	134	1977
9.4	136	1978
8.9	151	1979
8.8	181	1980
8.5	202	1981
7.3	197	1982
9.6	271	1983
9.4	280	1984
10.7	335	1985
13.4	432	1986
16.0	532	1987
14.4	503	1988
16.6	623	1989
16.5	658	1990
17.9	753	1991
19.6	844	1992
20.7	928	1993
20.5	958	1994
22.7	1139	1995
25.9	1419	1996
31.0	1854	1997
36.0	2303	1998
42.1	2809	1999
41.7	3024	2000
32.1	2538	2001
25.9	2125	2002
24.1	2080	2003
26.4	2453	2004
26.0	2641	2005
26.0	2892	2006
26.8	3288	2007
20.8	2751	2008
16.9	2166	2009
20.7	2630	2010
21.8	2956	2011
21.4	3257	2012
23.2	3924	2013
25.5	4658	2014
26.2	5024	2015
26.1	5165	2016
29.9	6098	2017
31.5	6902	2018
29.4	7432	2019
29.8	8315	2020
36.8	11143	2021
31.0	10807	2022
29.5	11423	2023

Yr: 19	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
S&P 500 Index Value	6	8	8	7	7	9	10	8	8	10	9	9	10	9	8	8	9	8	8	9	8	7	8	9	9	11	13	15	20	26	21	14	7	9
S&P 500 Div Yield (%)	4	4	4	5	5	4	4	5	5	4	5	5	5	6	6	5	5	7	8	6	7	7	6	6	6	5	5	5	4	4	5	7	9	5
CPI (Inflation %)	7	-2	6	1	0	1	3	6	-4	8	4	-8	7	3	1	1	8	17	18	15	16	-11	-6	2	0	2	1	-2	-2	0	-2	-9	-10	-5
GDP (Nominal %)	4	13	3	6	5	9	8	3	-7	12	5	3	8	5	-6	6	27	20	26	11	13	-16	0	17	3	4	7	-1	1	7	-12	-16	-23	-4
GDP (Annualized %)	+5.3%										+10.0%										+3.0%										-1.1%			
GDP (Real %)	2	12	2	3	4	9	4	-2	-5	12	0	3	6	4	-8	4	16	0	8	-3	-2	-4	7	14	3	2	6	1	2	7	-9	-6	-13	-1
GDP (Annualized %)	+3.9%										+2.9%										+3.4%										+1.0%			

Yr: 19	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
S&P 500 Index Value	10	11	15	15	11	12	11	10	9	12	12	15	17	15	16	15	18	22	24	25	30	40	47	44	46	57	56	66	62	70	81	88	85
S&P 500 Div Yield (%)	5	4	4	5	6	5	6	7	7	5	5	4	4	5	6	7	7	7	6	6	5	4	4	4	4	3	3	3	3	3	3	3	3
CPI (Inflation %)	3	2	1	4	-2	-1	1	5	11	6	2	2	8	14	8	-1	1	8	2	1	1	0	1	3	3	1	2	1	1	1	1	2	3
GDP (Nominal %)	17	11	14	10	-6	7	10	26	28	22	10	2	0	10	10	-1	10	16	6	6	0	9	6	5	2	8	4	4	7	6	7	8	10
GDP (Annualized %)							+11.3%										+6.7%										+6.9%						
GDP (Real %)	11	9	13	5	-3	8	9	18	19	17	8	-1	-12	-1	4	-1	9	8	4	5	-1	7	2	2	-1	7	3	3	6	4	6	6	7
GDP (Annualized %)							+5.6%										+4.2%										+4.5%						

2024 MATRIX: AVERAGE ANNUAL DATA

NOTES:
1) Numbers reflect the percentage annual rate of return from the starting period to the ending period
2) Returns include index returns, dividends, and transaction costs/fees (bid/ask spread, commissions, fees, etc.) & exclude taxes; nominal returns include inflation (see assumptions)
3) Red: <0%; Pink: 0% - 3%; Blue: 3% - 7%; Light Green: 7% - 10%; Dark Green: >10%
4) Black type reflects P/E ratio increasing over the period; White type reflects P/E ratio decreasing over the period
5) The black diagonal line reflects the boundary of 20-year periods
6) S&P 500 & P/E reflect the methodology popularized by Robert Shiller with average daily index annually and other related data (P/E10)
7) Other data and information developed from various sources and believed to be reliable

LEGEND				
Red		<	0.0%	
Pink	0.0%	-	3.0%	
Blue	3.0%	-	7.0%	
Light Green	7.0%	-	10.0%	
Dark Green		>	10.0%	

White Numbers: Decreasing P/E Ratio

CRESTMONT RESEARCH

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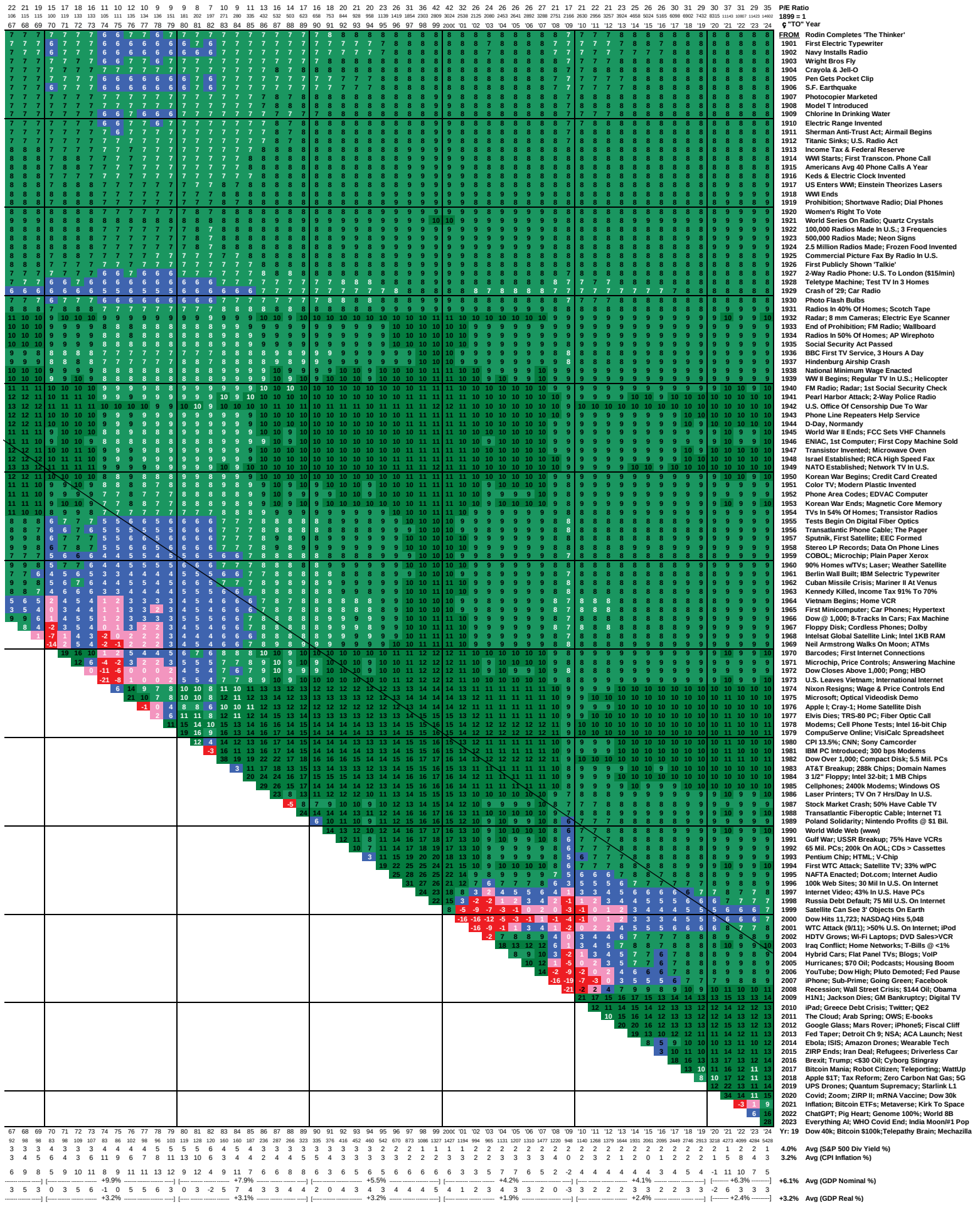
P/E Ratio
1899 = 1
♀"TO" Year
FROM Rodin Completes 'The Thinker'
1901 First Electric Typewriter
1902 Navy Installs Radio
1903 Wright Bros Fly
1904 Crayola & Jell-O
1905 Pen Gets Pocket Clip
1906 S.F. Earthquake
1907 Photocopier Marketed
1908 Model T Introduced
1909 Chlorine In Drinking Water
1910 Electric Range Invented
1911 Sherman Anti-Trust Act; Airmail Begins
1912 Titanic Sinks; U.S. Radio Act
1913 Income Tax & Federal Reserve
1914 WWI Starts; First Transcon. Phone Call
1915 Americans Avg 40 Phone Calls A Year
1916 Keds & Electric Clock Invented
1917 US Enters WWI; Einstein Theorizes Lasers
1918 WWI Ends
1919 Prohibition; Shortwave Radio; Dial Phones
1920 Women's Right To Vote
1921 World Series On Radio; Quartz Crystals
1922 100,000 Radios Made In U.S.; 3 Frequencies
1923 500,000 Radios Made; Neon Signs
1924 2.5 Million Radios Made; Frozen Food Invented
1925 Commercial Picture Fax By Radio In U.S.
1926 First Publicly Shown 'Talkie'
1927 2-Way Radio Phone: U.S. To London ($15/min)
1928 Teletype Machine; Test TV In 3 Homes
1929 Crash of '29; Car Radio
1930 Photo Flash Bulbs
1931 Radios In 40% Of Homes; Scotch Tape
1932 Radar; 8 mm Cameras; Electric Eye Scanner
1933 End of Prohibition; FM Radio; Wallboard
1934 Radios In 50% Of Homes; AP Wirephoto
1935 Social Security Act Passed
1936 BBC First TV Service, 3 Hours A Day
1937 Hindenburg Airship Crash
1938 National Minimum Wage Enacted
1939 WW II Begins; Regular TV In U.S.; Helicopter
1940 FM Radio; Radar; 1st Social Security Check
1941 Pearl Harbor Attack; 2-Way Police Radio
1942 U.S. Office Of Censorship Due To War
1943 Phone Line Repeaters Help Service
1944 D-Day, Normandy
1945 World War II Ends; FCC Sets VHF Channels
1946 ENIAC, 1st Computer; First Copy Machine Sold
1947 Transistor Invented; Microwave Oven
1948 Israel Established; RCA High Speed Fax
1949 NATO Established; Network TV In U.S.
1950 Korean War Begins; Credit Card Created
1951 Color TV; Modern Plastic Invented
1952 Phone Area Codes; EDVAC Computer
1953 Korean War Ends; Magnetic Core Memory
1954 TVs In 54% Of Homes; Transistor Radios
1955 Tests Begin On Digital Fiber Optics
1956 Transatlantic Phone Cable; The Pager
1957 Sputnik, First Satellite; EEC Formed
1958 Stereo LP Records; Data On Phone Lines
1959 COBOL; Microchip; Plain Paper Xerox
1960 90% Homes w/TVs; Laser; Weather Satellite
1961 Berlin Wall Built; IBM Selectric Typewriter
1962 Cuban Missile Crisis; Mariner II At Venus
1963 Kennedy Killed, Income Tax 91% To 70%
1964 Vietnam Begins; Home VCR
1965 First Minicomputer; Car Phones; Hypertext
1966 Dow @ 1,000; 8-Tracks In Cars; Fax Machine
1967 Floppy Disk; Cordless Phones; Dolby
1968 Intelsat Global Satellite Link; Intel 1KB RAM
1969 Neil Armstrong Walks On Moon; ATMs
1970 Barcodes; First Internet Connections
1971 Microchip, Price Controls; Answering Machine
1972 Dow Closes Above 1,000; Pong; HBO
1973 U.S. Leaves Vietnam; International Internet
1974 Nixon Resigns; Wage & Price Controls End
1975 Microsoft; Optical Videodisk Demo
1976 Apple I; Cray-1; Home Satellite Dish
1977 Elvis Dies; TRS-80 PC; Fiber Optic Call
1978 Modems; Cell Phone Tests; Intel 16-bit Chip
1979 CompuServe Online; VisiCalc Spreadsheet
1980 CPI 13.5%; CNN; Sony Camcorder
1981 IBM PC Introduced; 300 bps Modems
1982 Dow Over 1,000; Compact Disk; 5.5 Mil. PCs
1983 AT&T Breakup; 288k Chips; Domain Names
1984 3 1/2" Floppy; Intel 32-bit; 1 MB Chips
1985 Cellphones; 2400k Modems; Windows OS
1986 Laser Printers; TV On 7 Hrs/Day In U.S.
1987 Stock Market Crash; 50% Have Cable TV
1988 Transatlantic Fiberoptic Cable; Internet T1
1989 Poland Solidarity; Nintendo Profits @ $1 Bil.
1990 World Wide Web (www)
1991 Gulf War; USSR Breakup; 75% Have VCRs
1992 65 Mil. PCs; 200k On AOL; CDs > Cassettes
1993 Pentium Chip; HTML; V-Chip
1994 First WTC Attack; Satellite TV; 33% w/PC
1995 NAFTA Enacted; Dot.com; Internet Audio
1996 100k Web Sites; 30 Mil In U.S. On Internet
1997 Internet Video; 43% In U.S. Have PCs
1998 Russia Debt Default; 75 Mil U.S. On Internet
1999 Satellite Can See 3' Objects On Earth
2000 Dow Hits 11,723; NASDAQ Hits 5,048
2001 WTC Attack (9/11); >50% U.S. On Internet; iPod
2002 HDTV Grows; Wi-Fi Laptops; DVD Sales>VCR
2003 Iraq Conflict; Home Networks; T-Bills @ <1%
2004 Hybrid Cars; Flat Panel TVs; Blogs; VoIP
2005 Hurricanes; $70 Oil; Podcasts; Housing Boom
2006 YouTube; Dow High; Pluto Demoted; Fed Pause
2007 iPhone; Sub-Prime; Going Green; Facebook
2008 Recession; Wall Street Crisis; $144 Oil; Obama
2009 H1N1; Jackson Dies; GM Bankruptcy; Digital TV
2010 iPad; Greece Debt Crisis; Twitter; QE2
2011 The Cloud; Arab Spring; OWS; E-books
2012 Google Glass; Mars Rover; iPhone5; Fiscal Cliff
2013 Fed Taper; Detroit Ch 9; NSA; ACA Launch; Nest
2014 Ebola; ISIS; Amazon Drones; Wearable Tech
2015 ZIRP Ends; Iran Deal; Refugees; Driverless Car
2016 Brexit; Trump; <$30 Oil; Cyborg Stingray
2017 Bitcoin Mania; Robot Citizen; Teleporting; WattUp
2018 Apple $1T; Tax Reform; Zero Carbon Nat Gas; 5G
2019 UPS Drones; Quantum Supremacy; Starlink L1
2020 Covid; Zoom; ZIRP II; mRNA Vaccine; Dow 30k
2021 Inflation; Bitcoin ETFs; Metaverse; Kirk To Space
2022 ChatGPT; Pig Heart; Genome 100%; World 8B
2023 Everything AI; WHO Covid End; India Moon/#1 Pop
Yr: 19 Dow 40k; Bitcoin $100k;Telepathy Brain; Mechazilla
4.0% Avg (S&P 500 Div Yield %)
3.2% Avg (CPI Inflation %)
+4.9%
+7.9%
+5.5%
+4.2%
+4.1%
+6.3%
+6.1% Avg (GDP Nominal %)
+3.2%
+3.1%
+3.2%
+1.9%
+2.4%
+2.4%
+3.2% Avg (GDP Real %)