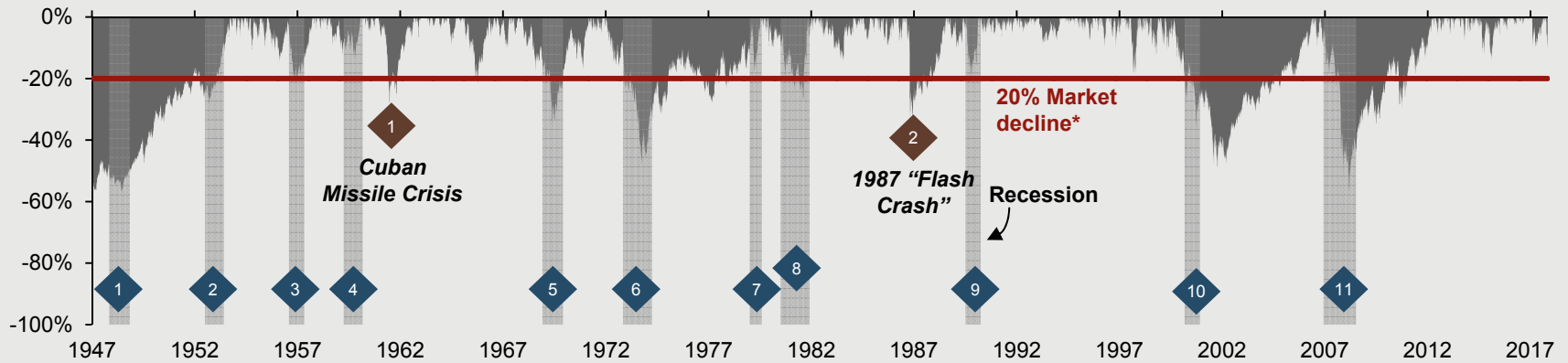


U.S. recessions and S&P 500 composite declines from all-time highs



Characteristics of recessions and related stock market declines

Recession	Recession			Related market sell-off			Macro Environment		
	Peak Quarter	Trough Quarter	% Decline	Peak date	Trough date	% Decline	Commodity Spike	Aggressive Fed	Extreme valuations
1 Recession of 1949	4Q48	4Q49	-1.5%	6/15/1948	6/13/1949	-21%			◆
2 Recession of 1953	2Q53	2Q54	-2.4%	1/5/1953	9/14/1953	-15%			
3 Recession of 1958	3Q57	2Q58	-3.0%	8/2/1956	10/22/1957	-22%			◆
4 Recession of 1960-61	2Q60	1Q61	-0.1%	8/3/1959	10/25/1960	-14%			◆
5 Recession of 1969-70	4Q69	4Q70	-0.2%	11/29/1968	5/26/1970	-36%		◆	
6 Recession of 1973-75	4Q73	1Q75	-3.1%	1/11/1973	10/3/1974	-48%	◆		
7 Recession of 1980	1Q80	3Q80	-2.2%	2/13/1980	3/27/1980	-17%	◆	◆	
8 Recession of 1981-82	3Q81	4Q82	-2.5%	11/28/1980	8/12/1982	-27%	◆	◆	
9 Early 1990s recession	3Q90	1Q91	-1.4%	7/16/1990	10/11/1990	-20%	◆	◆	
10 Early 2000s recession	1Q01	4Q01	-0.4%	3/24/2000	10/9/2002	-49%	◆		◆
11 Great Recession	4Q07	2Q09	-4.0%	10/9/2007	3/9/2009	-57%	◆	◆	
Non-recession Bear Markets									
1 1962 flash crash, Cuban Missile Crisis	-	-	-	12/12/1961	6/26/1962	-28%			◆
2 1987 flash crash, program trading, overheating markets	-	-	-	8/25/1987	12/4/1987	-34%			◆
Average	-	-	-1.9%	-	-	-30%			

Source: FactSet, NBER, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management.

*A bear market is defined as a 20% or more decline from the previous market high. The related market return is the peak to trough return over the cycle. Periods of "Recession" are defined using NBER business cycle dates. "Commodity spikes" are defined as movement in oil prices of over 100% over an 18-month period. Periods of "Extreme valuations" are those where S&P 500 last 12 months' P/E levels were approximately two standard deviations above long-run averages, or time periods where equity market valuations appeared expensive given the broader macroeconomic environment. "Aggressive Fed Tightening" is defined as Federal Reserve monetary tightening that was unexpected and/or significant in magnitude. Bear and Bull returns are price returns.

Guide to the Markets – U.S. Data are as of October 31, 2018.