

## THE 1929 & 1987 GREAT PANICS: MOON SUN PARALLELS

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### **Introduction**

The 1929 & 1987 stock market panics were the most dramatic events in US financial history. In 1929, the Dow Jones Industrial Average (DJIA) declined by -12.83% on Black Monday (Oct 28) and -11.83% on Black Tuesday (Oct 29). In 1987, the DJIA plunged 508 points on Black Monday (Oct 19) or -22.61%, which represented the largest single-day percentage drop ever recorded by the index. There has been much academic research undertaken on these two spectacular panics. However, the remarkable Moon - Sun parallels between the two events have been overlooked in traditional economics. Carolan (1998) noted the cyclic similarities between the 1929, 1987 and 1997 October panics, concepts which will be discussed and expanded upon in the following text.

For Moon Sun data, the time assessed was 12 Noon US Eastern Standard Time on the relevant day, with no adjustment being made for daylight saving time. The daily closing value of the DJIA was used throughout the assessment. The angle between the Moon and Sun (lunar phase) was abbreviated to A° – where 000 A° represented the new Moon; 90 A° the 1<sup>st</sup> quarter Moon; 180 A° the full Moon and 270 A° the 3<sup>rd</sup> quarter Moon. The abbreviation E° was adopted to denote the degree on the ecliptic circle, which was equivalent to the angle made to the spring equinox point (000 E°). The annual one day (AOD) rise or fall were defined as the biggest percentage one day DJIA movement in the year commencing March 1. They represented the most extreme one day shifts in investor sentiment during a given year. The post-crash low is taken as the major low after the panic.

### **Moon - Sun Parallels**

Intervals of precisely 717 synodic months appeared between the pre-crash spring lows, the record highs, the October highs, the black days and the AOD rises (Carolan, 1992, 1998, McMinn, 2006). Post-crash, the interval of 718 synodic months appeared for the 1929/1987 bear market lows, the 1930/1988 spring lows and the 1931/1989 AOD falls.

Table 1 THE 1929/1987 PANICS & LUNISOLAR PARALLELS			
Key Dates		Interval	DJIA Event
1929	1987	Syn Mths	
May 27, 1929	May 20, 1987	717.12	Spring Low
Sept 03, 1929	Aug 25, 1987	717.05	Record High
Oct 10, 1929	Oct 02, 1987	717.09	Autumn High
<b>Oct 28, 1929</b>	<b>Oct 19, 1987</b>	<b>717.02</b>	<b>AOD Fall</b>
Oct 30, 1929	Oct 21, 1987	717.02	AOD Rise
Nov 6, 1929	Oct 26, 1987	716.99	Major OD Fall
Nov 13, 1929	Dec 04, 1987	718.07	Post Crash Low
May 03, 1930	May 23, 1988	718.07	Spring Low
Sept 24, 1931	Oct 13, 1989	718.04	AOD Fall
Aug 12, 1932	Aug 6, 1990	717.15	AOD Fall

(a) Major one day falls were recorded after the black days: -9.92% on November 6, 1929 and -8.04% on October 26, 1987. These were among the 10 biggest one day falls ever recorded by the DJIA.  
(b) In 1987, the DJIA low occurred on the day of the panic. However, the post-crash low happened on December 4, 1987.  
Synodic Month (or Lunar Month) is the interval between successive new Moons and is equal to 29.5306 days.  
Abbreviation: AOD – Annual one day. OD - One day.  
Sources: Carolan (1992; 1998), McMinn (2006).

The Hong Kong stock market declined -11.1% on October 19, 1987 and was closed the following day in view of the Black Monday in the USA. The Hong Kong authorities, in their infinite wisdom, reopened the market on October 26 and the Hang Seng dropped -33.1%. From cycles, it was the worst possible day to reopen the market, given the trends in the 1929 crash and the major fall on November 6 (see Table 1).

One day (OD) percentage falls also aligned during the 1929 and 1987 panics. This was illustrated in Table 2, which was based on all OD falls => -3.00% between late September and December. The interval of separation was again 717.0 synodic months. Something similar could not be repeated for OD percentage rises over +3.00%, even though the AOD rises in 1929 (Oct 30) and 1987 (Oct 21) were separated by 717.0 synodic months.

Table 2 1929 & 1987 PARALLELS & ONE DAY % FALLS All OD falls $\geq$ -3.00%				
1929	% OD Fall	1987	% OD Fall	Interval Syn Mths
Oct 03, 1929	-4.22	Sep 22, 1987	-3.02	716.99
Oct 16, 1929	-3.20	Oct 06, 1987	-3.47	717.02
Oct 23, 1929	-6.33	Oct 14, 1987	-3.81	717.05
Saturday (a)		Oct 16, 1987	-4.60	
Sunday		Saturday		
Oct 28, 1929	-12.83	Sunday		
Oct 29, 1929	-11.73	Oct 19, 1987	-22.61	717.02
Nov 04, 1929	-5.79	Oct 22, 1987	-3.82	716.92
Nov 06, 1929	-9.92	Oct 26, 1987	-8.04	716.99
Nov 11, 1929	-6.82			
Nov 12, 1929	-4.83			
Nov 13, 1929	-5.27 PCL			
		Nov 09, 1987	-3.00	
Nov 26, 1929	-3.37			
		Nov 30, 1987	-4.03	
Dec 12, 1929	-5.92	Dec 03, 1987	-3.92	717.05
		Dec 04, 1987	PCL	
		Dec 08, 1987	-3.10	

(a) Half day trading.  
Synodic Month (or Lunar Month) is the interval between successive new Moons and is equal to 29.5306 days.  
Abbreviations: OD – One Day. PCL Post Crash Low.  
Source: McMinn (2006).

For 1929 and 1987, there was lag of 55 days between the record high and panic, with another two days for the AOD rise (see Table 3).

Table 3 DJIA TRENDS IN 1929 & 1987						
Record Peak	Interval Days	AOD Fall	Interval Days	AOD Rise	Interval Days	OD Fall (a)
Sept 03, 1929	55	Oct 28, 1929	2	Oct 30, 1929	7	Nov 6, 1929
Aug 25, 1987	55	Oct 19, 1987	2	Oct 21, 1987	5	Oct 26, 1987

(a) Major one day falls were recorded after the panics on Nov 6, 1929 (-9.92%) and Oct 26, 1987 (-8.04%). These were among the 10 biggest percentage DJIA one day falls ever recorded.

The interval between the 1929 & 1987 panics yielded lunisolar cycle intervals in integral numbers for the synodic month, the tropical month and tropical year (see Table 4). The nodical month and nodical year were a little out in terms of integral numbers (to within plus .09 and .11), while the apogee month was close to a half integral number. Such an alignment between major financial panics was a rare event.

Table 4 INTERVALS BETWEEN OCTOBER 28, 1929 & OCTOBER 19, 1987					
Synodic Month	Tropical Month	Tropical Year	Nodical Month	Nodical Year	Apogee Month
717.02	774.99	57.97	778.11	61.09	768.44
<b>Synodic Month</b> (or Lunar Month) is the interval between successive new Moons and is equal to 29.5306 days.					
<b>Tropical Year</b> (or Solar Year) is the time taken for the Sun to complete one cycle of the ecliptic from spring equinox to spring equinox and is equal to 365.2422 days.					
<b>Tropical Month</b> is the time taken for the Moon to complete one cycle of the ecliptic from spring equinox to spring equinox and is equal to 27.3216 days.					
<b>Nodical Month</b> (or Draconic Month) is the time taken for the Moon to complete one cycle from ascending node to ascending node and is equal to 27.2122 days.					
<b>Nodical Year</b> (or Eclipse Year) is the time taken for the Sun to complete one cycle from ascending node to ascending node and is equal to 346.6201 days.					
<b>Apogee Month</b> (or Anomalistic Month) is the time taken for the Moon to complete one cycle from apogee to apogee and is equal to 27.5546 days.					

#### Blue Monday 1997

October 27, 1997 saw a dramatic drop in the DJIA with the market being closed twice on the day. Overall, the decline was -7.13%, which would have been far worse without such market intervention. For the 1929, 1987 and 1997 panics, the synodic month intervals occurred in close integral numbers. This applied to the peaks, AOD falls and AOD rises (see Table 5).

Table 5 INTERVALS BETWEEN THE 1929, 1987 & 1997 OCTOBER PANICS			
Key Dates	Interval Syn Mths	Key Dates	DJIA Event
Sept 03, 1929	840.11	Aug 06, 1997	Record High
Oct 29, 1929	840.99	Oct 27, 1997	AOD Fall
Oct 30, 1929	840.99	Oct 28, 1997	AOD Rise
Key Dates	Interval SynMths	Key Dates	DJIA Event
Aug 25, 1987	123.06	Aug 06, 1997	Record High
Oct 19, 1987	123.97	Oct 27, 1997	AOD Fall
Oct 21, 1987	123.97	Oct 28, 1997	AOD Rise
Synodic Month (or Lunar Month) is the interval between successive new Moons and is equal to 29.5306 days.			

The **1929 & 1987** October black days took place two tropical months after the record peak, while the comparable interval for the 1997 event was exactly three tropical months (see Table 6). The 1929 & 1997 post-crash lows happened 0.5 synodic months after the panic day, whereas the comparable interval for 1987 1.5 synodic months.

Table 6 INTERVALS FOR THE 1929, 1987 & 1997 PANICS			
Record Peak	Interval	Black Day	Trop Mths
Sep 03, 1929	55 days	Oct 28, 1929	2.01
Aug 25, 1987	55 days	Oct 19, 1987	2.01
Aug 06, 1997	82 days	Oct 27, 1997	3.00
Black Day	Interval	Post-Crash Low	Syn Mths
Oct 28, 1929	16 days	Nov 13, 1929	0.54
Oct 19, 1987	46 days	Dec 04, 1987	1.56
Oct 27, 1997	16 days	Nov 12, 1997	0.54
(a) The DJIA low occurred on the day of the panic. However, the post-crash lows happened on Dec 4, 1987 and Nov 12, 1997.			
Synodic Month (or Lunar Month) is the interval between successive new Moons and is equal to 29.5306 days.			
Tropical Month is the time taken for the Moon to complete one cycle of the ecliptic from spring equinox to spring equinox and is equal to 27.3216 days.			

#### Lunar Phase

Record DJIA peaks before the 1929, 1987 and 1997 crashes took place around a new Moon ( $00 - 40 A^\circ$ ) with the Moon and Sun in similar ecliptic positions (see Table 7). The AOD falls happened a few days before a full Moon ( $310 - 325 A^\circ$ ). In financial history, there are two types of October panics – those happening around a full Moon and those occurring a few days before a new Moon (see Appendix 1).

Table 7 LUNAR PHASE & THE 1929, 1987 & 1997 PANICS			
	Sun E°	Moon E°	Phase A°
<b>Record DJIA Highs – Lunar Phase Range 00 - 40 A°</b>			
Sep 03, 1929	161	164	003
Aug 25, 1987	152	165	013
Aug 06, 1997	134	171	037
<b>October DJIA Highs – Lunar Phase Range 85 - 120 A°</b>			
Oct 10, 1929	197	286	089
Oct 02, 1987	189	309	120
Oct 07, 1997	194	262	068
<b>DJIA AOD Falls – Lunar Phase Range 310 - 325 A°</b>			
Oct 28, 1929	216	182	313
Oct 19, 1987	206	170	324
Oct 27, 1997	214	174	320
<b>DJIA AOD Rises – Lunar Phase Range 330 - 350 A°</b>			
Oct 30, 1929	217	195	338
Oct 21, 1987	208	195	347
Oct 28, 1997	215	185	330

Source: McMinn, 2006.

#### 2-8/60 Year Grid

Between 1910 and 2000, 6 major DJIA October AOD falls ( $\geq -3.60\%$ ) happened in 1927, 1929, 1937, 1987, 1989 & 1997. They yielded a precise grid based on 2-8/60 solar years (see Table 8), with lunar phase in narrow ranges  $150 - 165 A^\circ$  (before a full Moon) and  $310 - 330 A^\circ$  (before a new Moon). These AOD October falls were followed a few days later by an AOD rise, with one anomaly in 1927 (Sep 6 prior to the AOD fall). (NB The term 2-8/60 year grid is derived from the 2-8 year intervals on the horizontal and 60 years on the vertical in Table 8.)

The 2-8/60 year grid may be extended on the right hand side by adding 11 years. This gave the 2008 AOD fall (Oct 15, -7.75%) during Black October. Subtracting 60 years from this date gave the 1948 AOD fall (Nov 3, -3.85%), when Truman's surprise victory in the presidential election sparked stock market tremors.

Table 8 OCTOBER AOD FALLS & THE 2-8/60 YEAR GRID Solar Year Intervals & Lunar Phase				
1927	Oct 08 -3.65% 150 A°	1929 Oct 28 -11.73% 326 A°	1937 Oct 18 -7.75% 164 A°	1937 Oct 18 -7.75% 164 A°
+ 60 yrs	+ 2 yrs	+ 60 yrs	+ 8 yrs	+ 60 yrs
1987	+ 2 yrs	1989	+ 8 yrs	1997

Oct 19 -22.61% 324 A°	Oct 13 -6.91% 164 A°	Oct 27 -7.18% 320 A°
<b>Source:</b> McMinn, 2010.		

#### Discussion and Conclusions

Lunisolar tidal effects are hypothesised to influence human physiological cycles, which in turn determined the prevailing mass mood and thus market outcomes. Periods of optimism lead to rising markets, while periods of pessimism result in declining indexes and depressed markets. The crisis occurred when there is a sudden shift in sentiment from greed to fear. The collective mood is viewed as fluctuating through cycles of optimism - crisis - fear, in harmony with lunisolar cycles. A connection between Moon Sun effects, physiological cycles and market outcomes can be supported by various studies. Hormone levels of animals and humans have been shown to fluctuate over the synodic month (Endres & Schaad, 2002; Zimecki, 2006), while studies have linked hormone levels to market trading success (Chen & Ozdenoren, 2005; Coates & Hebert, 2008; Coates et al, 2009).

The Moon – Sun parallels between the 1929 and 1987 great panics were remarkable and it seems strange that such similarities have been ignored in mainstream academia. The difficulty arises to explain how these parallels arise and why the importance of 717 and 718 synodic months between the key market turning points in 1929 and 1987. Moon Sun effects are strongly evident in financial patterns, which is hypothesized to account for the mathematical structuring found in trading activity. How the Moon Sun tidal harmonics actually functioned is completely unknown. Solving the mystery will require major advances in cycle theory, something that is unlikely to happen any time soon.

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#### Appendix 1 OCTOBER PANICS AND LUNAR PHASE

Since 1896, there have been 8 DJIA AOD falls ( $\Rightarrow -3.60\%$ ) occurring in October. There were additional October panics in 1847, 1857 and 1907 listed by Kindleberger (Appendix B, 1996), as well as the New York panic caused by the 1871 Chicago fire. The listings gave 13 October panics, all of which had lunar phases between:

- \* 150 & 205 A°, 1847, 1897, 1907, 1927, 1937, 1989, 2008. Around a full Moon.
- \* 300 & 350 A°, 1857, 1871, 1903, 1929, 1987, 1997. Before a new Moon.

The Moon's ecliptical position was also always near the 180 E° autumn equinox point (range: 135 – 195 E°) or the 000 E° spring equinox point (range: 340 – 045 E°). In the month of October, the Sun is always sited between about 190 and 220 E°.

Table A, Appendix 1 OCTOBER PANICS AND LUNAR PHASE				
DJIA AOD Fall $\geq -3.60\%$	% Fall	Sun E°	Moon E°	Phase A°
Oct 12, 1897 (a)	-3.95	200	042	202
Oct 19, 1903 (a)	-4.17	205	193	348
Oct 08, 1927	-3.65	194	344	150
Oct 28, 1929	-12.83	215	182	326
Oct 18, 1937	-7.75	205	009	164
Oct 19, 1987	-22.61	206	170	324
Oct 13, 1989	-6.91	200	004	164
Oct 27, 1997	-7.18	214	174	320
Oct 15, 2008	-7.85	202	034	192
October Panic	Event	Sun E°	Moon E°	Phase A°
Oct 23, 1847	UK panic	210	023	173
Oct 14, 1857	US & UK panics	201	165	324
Oct 22, 1907	US panic	208	044	196
Oct 09, 1871	Chicago fire panic	195	139	303

(a) Two almost equal AOD falls took place in 1897 and 1903. However, the DJIA AOD declines on September 21, 1897 (-3.90%) and August 19, 1903 (-4.07%) were omitted because only October events were considered.