9/56 year cycle: lunar north node – apogee angles

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Abstract. A 9/56 year cycle was first established for the timing of financial panics and then extrapolated to seismic episodes. The cycle was believed to arise from lunisolar tidal effects, as the grid correlated perfectly with the ecliptic positions of the lunar north node and the apogee point. This raised suspicions that the angle between these two points would play a key role in seismic and financial trends. September/October panics were assessed and found to occur with angles between the lunar north node and apogee almost exclusively at 0°, 120° and 240°. This astonishing outcome is either an artifact of Moon Sun cycles or it was vitally important in the timing of critical events in the 9/56 year grid. The findings would apply to both earthquake and financial cycles.

Introduction

For many years, the role played by apogee in financial trends remained enigmatic. McMinn (2004) could not produce correlates to support an apogee effect in 9/56 year panic cycle or financial patterns generally. This was despite much personal research and an examination of references in astronomy and technical analysis. He concluded that *"Apogee has no proven relationship with market activity and there are two options:*

*   Earth – Moon distance is irrelevant in financial trends.

*   Apogee functions in an unknown manner in relation to the markets.

Presumably the latter is correct and apogee is relevant to financial patterns, although this view remains entirely conjectural." Importantly, McMinn (2004) was unaware of the early findings by Matlock (1977), who found the Dow Jones Industrial Average (DJIA) tended to rise after the Moon had transited apogee and fall after it had transited perigee.

The 9/56 year cycle consists of a grid with intervals of 56 years on the vertical (called sequences) and intervals in multiples of 9 years on the horizontal (called subcycles). It was first established for financial crises (McMinn, 1986, 1993), and then extrapolated to seismic events (McMinn, 2011a, 2011b, and 2014) and volcanic eruptions (McMinn, 2012). Thus it is important to study financial cycles to gain possible insights into the timing of earthquakes. The key question arises as to what activates the 9/56 year cycle?

The 9/56 year grid correlates perfectly with Moon Sun cycles. Events falling in the same 56 year sequence will always have:

*   the lunar north node sited in a narrow segment of the ecliptic circle (1st   harmonic).

*   the apogee point will be in three sectors on the ecliptic 120° apart (3rd harmonic).

Events clustering in the 9/56 year grid will have the lunar north node in two sectors approximately 180° opposite in the ecliptic circle with no exceptions (1st and 2nd harmonics). For events in the same 9/56 year grid and occurring around the same time of year, apogee will be sited in three ecliptic sectors 120° apart, with no exceptions (3rd harmonic). The link between the lunar north node and apogee implied that the angle between these two points was very important in the timing of critical events that cluster in the 9/56 year grid. Unfortunately, there was no information available on the cycles associated with North Node-Apogee angles (NN-Apogee). This paper examines these angles in relation to September/October financial panics.

Any findings established in finance may also have implications for earthquakes.

Apogee is the point in the lunar orbit, where the Moon is the greatest distance from Earth, whereas the perigee point is the least distance. In the apse cycle, the apogee – perigee axis (apsides) rotates counter clockwise around the ecliptic circle from spring equinox to spring equinox every 8.8474 solar years. The apse cycle is very relevant in oceanic tides on Earth. When the full/new Moon is at apogee, the amplitude of tides in New York Harbor is 50% lower than when the full/new Moon is at perigee. Additionally, the lunar nodes are located where the ecliptic is cut by the plane of the Moon's orbit around the Earth. The north (ascending) node is where the Moon crosses the ecliptic from south to north and the south (descending) node is where the Moon crosses from north to south. It also takes 5.995 years for apogee to pass from north node to north node. The lunar nodes are also important in terrestrial tides.

September - October Panics

In financial history, numerous major panics/crises have occurred between September 19 and October 31 and a listing has been presented in **Appendix 1**. It includes those events given by Kindleberger (Appendix B 1996), with an additional three inserted by the author (1839, 1869 and 1871). It also presented the annual one day (AOD) falls ($\geq$ -3.60%) for the Dow Jones Industrial Average (DJIA) since 1896. The AOD fall is the largest percentage one day DJIA fall during the year beginning March 1. These days are important in financial cycles, a finding supported by numerous correlates (McMinn, 2004).

Of the 18 autumn panics in **Appendix 1**, NN-Apogee angles on 17 occasions occurred near 0º, 120º and 240º, implying a very strong 3rd harmonic. However, this may only be an artifact, due to October panics usually taking place in years ended in odd numbers. The anomaly was October 15, 2008 with NN-Apogee angle of 302 Aº and it was in an even ended year.

NB: Any episodes in September/October will have NN-Apogee angles at 0º, 60º, 120º, 180º, 240º and 300º. Years in odd numbers have the NN-Apogee angles at 60º, 180º and 300º and years ended in even numbers at 60º, 180º and 300º.

NN-Ap Angle	Number	Range	September 19 to October 31 Panics
0 degree	7	358-008	1847, 1871, 1907, 1931, 1937, 1955, 1997
120 degree	5	118-126	1873, 1897, 1903, 1927, 1987
240 degree	5	238-246	1839, 1857, 1869, 1929, 1989
Anomalous	**AOD Fall**		
300 degree	1	302	2008

Intervals of 30 and 60 years arise between October panics (McMinn, 2010), with the same NN-Apogee angle and years ending in the same digit (eg: 1, 3, 7 or 9). Apogee takes 5.995 solar years to complete one cycle north node to north node. This multiplied by 5 and 10 gives 30 and 60 years respectively.

NN-Ap Angle	Panics Btn Sep 19 and Oct 31
0 degree	1847 +60 1907 +30 1937 +60 1997
	1871 +60 1931
120 degree	1873 +30 1903
	1897 +30 1927 +60 1987
240 degree	1839 +30 1869 +60 1929 +60 1989

Since 1896, there have been three DJIA AOD falls ($\geq$ -4.50%) in the month to September 17. The British Black Wednesday (Sep 16, 1992) and the World Trade Center attack (Sep 11, 2001) were added to the listing (see **Appendix 1**). Only September 11, 2001, occurred at angles of 0º, 120º or 240º (3rd harmonic), as it was a year ending in an odd number. The four exceptions took place in angles of 60º and 180º, which was indicative of a 3rd harmonic and years ended in even numbers.

Discussion and Conclusions

Initially the results appeared astonishing. Virtually all October panics and DJIA AOD falls in **Appendix 1** took place when the NN-Apogee angles were at about 0º, 120º and 240º. However, the importance of these

angles may simply be an artifact of lunisolar cycles, with no real influence on financial activity and thus a research dead end. Any sample of September/October events will have NN-Apogee angles at 0º, 60º, 120º, 180º, 240º and 300º with no exceptions. October panics are most likely to happen in odd ended years and thus will have NN-Apogee angles near 000 Aº, 120 Aº and 240º. Events in even ended years would all have NN-Apogee angles near 60º, 180º and 300º, but only one October panic fell in this pattern – 2008 (300 Aº). Why October panics fall preferentially in odd ended years was unknown.

It takes 5.995 solar years for apogee to complete one cycle north node to north node. Thus on the same date every year, apogee will complete one-sixth of this cycle. For example, if the NN-Apogee angle occurred at 0 Aº in September, it would progress to 60 Aº in September of the following year and to 120 Aº during the subsequent year and so forth, thus always giving angles in September of 0º, 60º, 120º, 180º, 240º and 300º.

During a solar year, apogee moves 60º relative to the north node. Therefore, the NN-Apogee angle recorded in a particular month will deviate from the findings for September and produce different outcomes.

In December, the NN-Apogee angles would always be at about 15º, 75º, 135 Aº, 195º, 255º and 315º – all separated by 60º.

In March, the angles would always be at about 30º, 90º, 150º, 210º, 270º and 330º – all separated by 60º. In June, the angles would always be at about 45º, 105º, 165º, 225º, 285º and 345º - all separated by 60º. The results were only be achieved by assessing financial panics by month. If a full sample of financial panics (January to December) had been appraised, the effect would not have been detected.

For the 9/56 year grid, apogee takes 5.995 solar years to complete one cycle north node to north node. Thus, the 9 year Half Saros eclipse cycle divided by 6 gives 1.5 (one plus a half), while the 56 year cycle divided by 6 gives 9.333 solar years (9 plus one third). In these examples, the 2nd, 3rd and 6th harmonics applied to NN–Apogee angles, a finding that would pertain to any event clustering in the 9/56 year grid.

In this paper, the mean ecliptic position for apogee has been used throughout. However, distortions arise as the Moon orbits the Earth and the true apogee position can deviate from the mean by a wide margin. For comparison, the mean versus true position of apogee has been presented in **Appendix 2**. The relative merits of using mean or true apogee are unknown.

There are two options to account for the findings on NN-Apogee angles and autumn panics:
*   NN-Apogee angles are merely artifacts of Moon Sun cycles. Any events in September - October will have NN-Apogee angles near 0º, 60º, 120º, 180º, 240º and 300º with no exceptions.
*   NN-Apogee angles and the 6th harmonic are extremely relevant in financial and seismic activity and further research is warranted in this area.

Presumably the latter is correct although no proof can be offered. Both apogee and the lunar nodes should have a profound impact upon anything on Earth that is influenced by lunisolar tides, including the 9/56 year cycle. Such tidal forces are believed to drive market and seismic activity. Thus, NN-Apogee angles can be hypothesized to play a key role in the timing of critical phenomena and are vitally important in assessing trends in financial and earthquake history.

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Appendix 1
NORTH NODE – APOGEE ANGLES & OCTOBER PANICS

	Sun E°	Moon E°	Phase A°	NN E°	Apo E°	NN-Ap A°
Panics & DJIA AOD Falls 1840 to 2015 ≥ -3.60% **September 18 – October 31**						
Oct 09, 1839	196	219	023	344	224	240
Oct 23, 1847	210	023	173	189	191	002
Oct 14, 1857	201	165	324	356	237	241
Sep 24, 1869	182	044	222	125	003	238
Oct 09, 1871	196	139	303	085	086	001
Sep 19, 1873	177	155	338	047	165	118
Sep 21, 1897 (a)	179	118	299	304	062	118
Oct 12, 1897 (a)	200	042	202	302	064	122
Oct 19, 1903 (b)	205	193	348	186	309	123
Oct 22, 1907	208	044	196	108	112	004
Oct 08, 1927	194	344	150	082	204	122
Oct 28, 1929	216	182	326	042	288	246
Sep 24, 1931	181	338	157	005	005	000
Oct 18, 1937	205	009	164	248	252	006
Sep 26, 1955	183	301	119	261	262	001
Oct 19, 1987	206	170	324	001	127	126
Oct 13, 1989	200	004	164	323	208	245
Oct 27, 1997	214	174	320	167	175	008
Oct 15, 2008	203	036	193	315	261	306
Early September DJIA AOD Falls **August 31 - September 17 ≥ -4.50%**						
Sep 03, 1946	161	252	091	076	253	177
Sep 11, 1986	169	264	095	022	082	060
Sep 16, 1992	174	044	230	266	327	061
Aug 31, 1998	158	265	107	150	209	059
Sep 11, 2001	169	090	281	092	332	240
(a) Two AOD falls of almost equal declines were recorded in 1897. (b) Another almost equal decline was evident on Aug 19, 1903 (-4.07%), but it was not included as it did not happen between Sep 19 and Oct 31. NB: E° denoted ecliptic degrees and A° angular degrees for lunar phase and NN-Apogee.						

Appendix 2
APOGEE ECLIPTIC POSITION: MEAN VS TRUE
Panics & DJIA AOD Falls 1840 to 2015 ≥ -3.60%
September 18 – October 31

Panic/AOD fall	Mean Apo Eº	True Apo Eº	Panic/AOD fall	Mean Apo Eº	True Apo Eº
Oct 09, 1839	224	227	Oct 08, 1927	204	212
Oct 23, 1847	191	199	Oct 28, 1929	288	279
Oct 14, 1857	237	222	Sep 24, 1931	005	356
Sep 24, 1869	003	013	Oct 18, 1937	252	240
Oct 09, 1871	086	080	Sep 26, 1955	262	258
Sep 19, 1873	165	160	Oct 19, 1987	127	119
Sep 21, 1897 (a)	062	057	Oct 13, 1989	208	209
Oct 12, 1897 (a)	064	068	Oct 27, 1997	175	169
Oct 19, 1903 (b)	309	329	Oct 15, 2008	261	264
Oct 22, 1907	112	126			
Early September DJIA AOD Falls **August 31 - September 18 ≥ -4.50%**					
Sep 03, 1946	253	253	Aug 31, 1998	209	210
Sep 11, 1986	082	086	Sep 11, 2001	332	329
Sep 16, 1992	327	343			
(a) Two AOD falls of almost equal declines were recorded in 1897. (b) Another almost equal decline was evident on Aug 19, 1903 (-4.07%), but it was not included as it did not happen between Sep 19 and Oct 31. NB: Eº denoted ecliptic degrees.					