

The first half of 2022 was the lowest performing six month period in the last 50 years. Investors struggled as large cap stocks fell by 19.98% and small cap stocks fell an even greater 23.51%.<sup>1</sup> In addition, the investor experience was bumpy across the 124 trading days in the first half of the year as the market was down over 2.00% on 14 days and up over 2.00% on 12 days.<sup>2</sup> While bad news is never easy to stomach, frequent and significant changes in market direction make for much choppier waters.

## The Value of the Night Effect

The Night Effect is a persistent phenomenon whereby overnight markets have historically outperformed the daytime trading session on a risk-adjusted basis. To understand if (and how) the Night Effect worked in the first half of the year, we evaluated U.S. Large and Small Cap markets - looking at daily performance differences between the Night and Day trading sessions. In summary, while both Night and Day declined in this recent downward market, the Night Effect was pronounced in both capitalization categories:

Time Period	Large Cap ETF (SPY)		Small Cap ETF (IWM)	
	Return (%)	Volatility (%) <sup>*</sup>	Return (%)	Volatility (%) <sup>*</sup>
24 Hour Cycle (Hold)	-19.98	17.72	-23.51	20.74
Night	-10.04	9.38	-6.79	9.53
Day	-11.06	14.74	-17.94	18.43

Source: AlphaTrAI research, analysis based on open and closing prices of broad based equity index ETF as index data not available on a daily basis at both open and close (1/2/2022 - 6/30/2022)

<sup>\*</sup>Realized volatility is computed as the square root of the sum of squared one-day returns over the period.

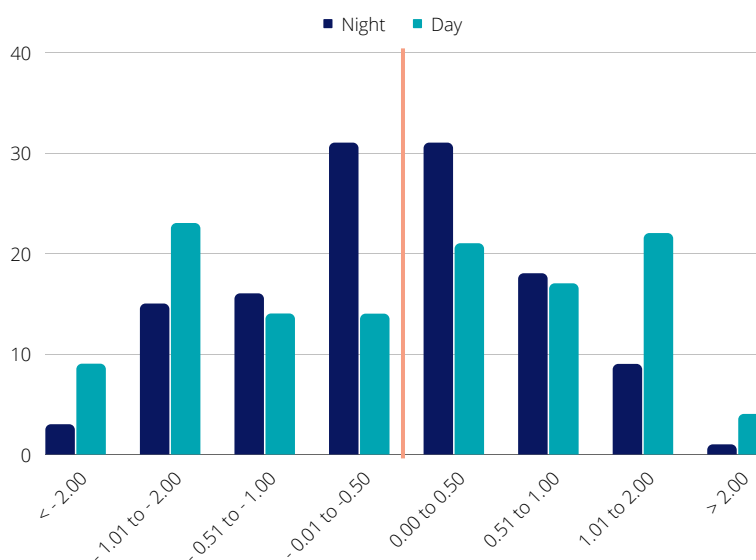
## Understanding the Night Effect in Large Caps

While both the Night and Day sessions were almost evenly matched in terms of their respective declines, the two sessions delivered a different investor experience given their relative volatilities. To understand the underlying volatility story, Chart 1 shows the daily return distribution for both the Day and Night sessions:

<sup>1</sup> As measured by the return of the SPDR S&P 500 ETF (SPY) and the iShares Russell 2000 ETF (IWM)

<sup>2</sup> As measured by the daily return of the SPDR S&P 500 ETF (SPY)

### Number of Days by Daily Return



Source: AlphaTrAI research, analysis based on open and closing prices of broad based equity index ETF exchanges as index data not available on a daily basis at both open and close (1/2/2022 - 6/30/2022)

The number of days centered between -0.50 to 0.50% was much greater for the Night Session than the Day or put another way, there were far fewer big swings in daily performance for Night than there were during the Day session. In fact, there were 32 days in the Day session that were down over 1.00%, versus just 18 days during the Night.

As most investors are exposed to the full 24 hour trading cycle, it is worth understanding the daily decline in the “bottom 10% of days” (12 days out of the 124). In 8 of those 12 days, the Night Session was down less than the corresponding Day session and in only two cases was Night down more than 2.00%, versus the six sessions when Day fell by more than that same amount.

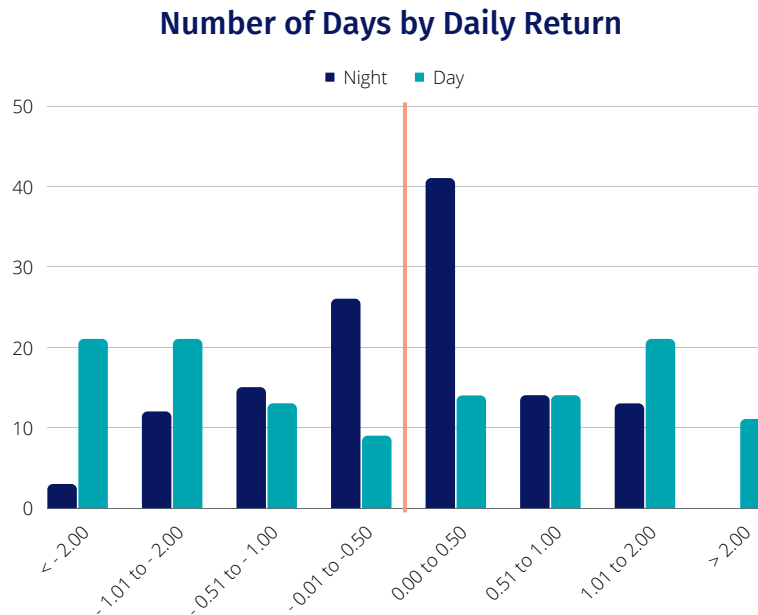
Date	Night	Day	Hold
05/18/2022	-1.18%	-2.88%	-4.03%
06/13/2022	-2.55%	-1.28%	-3.80%
04/29/2022	-0.99%	-2.74%	-3.70%
05/05/2022	-1.05%	-2.53%	-3.55%
06/16/2022	-2.29%	-1.04%	-3.31%
05/09/2022	-1.52%	-1.71%	-3.20%
03/07/2022	-0.14%	-2.81%	-2.95%
06/10/2022	-1.63%	-1.29%	-2.90%
04/26/2022	-0.63%	-2.28%	-2.90%
04/22/2022	-0.26%	-2.49%	-2.74%
06/09/2022	-0.46%	-1.93%	-2.38%
02/03/2022	-1.40%	-0.96%	-2.35%

Source: AlphaTrAI research, analysis based on open and closing prices of broad based equity index ETF exchanges as index data not available on a daily basis at both open and close (1/2/2022 - 6/30/2022)

### Understanding the Night Effect in Small Caps

The Night Effect was more pronounced in Small Caps than in Large Caps. The impact was seen in both returns and volatility when comparing the Night versus the Day trading sessions.

The reasons for these differences can be seen in Chart 2, which looks at the distribution in the number of days across a range of return distributions:



Source: AlphaTrAI research, analysis based on open and closing prices of broad based equity index ETF exchanges as index data not available on a daily basis at both open and close (1/2/2022 - 6/30/2022)

There were 67 days when the Night return was between -0.50 to 0.50% versus 23 for the Day session (or just 19% of the 124 H1 trading days) In addition, there were 42 days when the Day session was down over 1.00%, versus just 15 days during the Night. Like with Large Caps, the Night Time investor in Small Caps would have experienced lower volatility by steering clear of the Day session.

It is also useful to understand the relative performance between the Day and Night sessions when examining the worst performing 24 hour periods:

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Date	Night	Day	Hold
06/16/2022	-2.34%	-2.35%	-4.63%
05/09/2022	-1.49%	-2.76%	-4.21%
05/05/2022	-1.03%	-3.06%	-4.06%
05/18/2022	-1.19%	-2.34%	-3.50%
01/05/2022	-0.05%	-3.34%	-3.39%
04/26/2022	-0.79%	-2.38%	-3.15%
01/18/2022	-0.98%	-2.06%	-3.02%
04/29/2022	-0.45%	-2.45%	-2.89%
06/10/2022	-1.67%	-1.06%	-2.71%
04/22/2022	-0.47%	-2.13%	-2.59%
02/17/2022	-0.94%	-1.64%	-2.56%
03/07/2022	0.28%	-2.76%	-2.49%

Source: AlphaTrAI research, analysis based on open and closing prices of broad based equity index ETF exchanges as index data not available on a daily basis at both open and close (1/2/2022 - 6/30/2022)

The daily decline in the “bottom 10% of days” (12 days out of the 124) saw declines ranging from -2.49 to -4.63 percent. In 11 of those 12 days, the Night Session was down less than the corresponding Day session and in only one case was Night down more than 2 percent, versus the ten sessions when Day fell by more than that same amount.