



# Geopolitical Summits and Market Volatility

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## Abstract

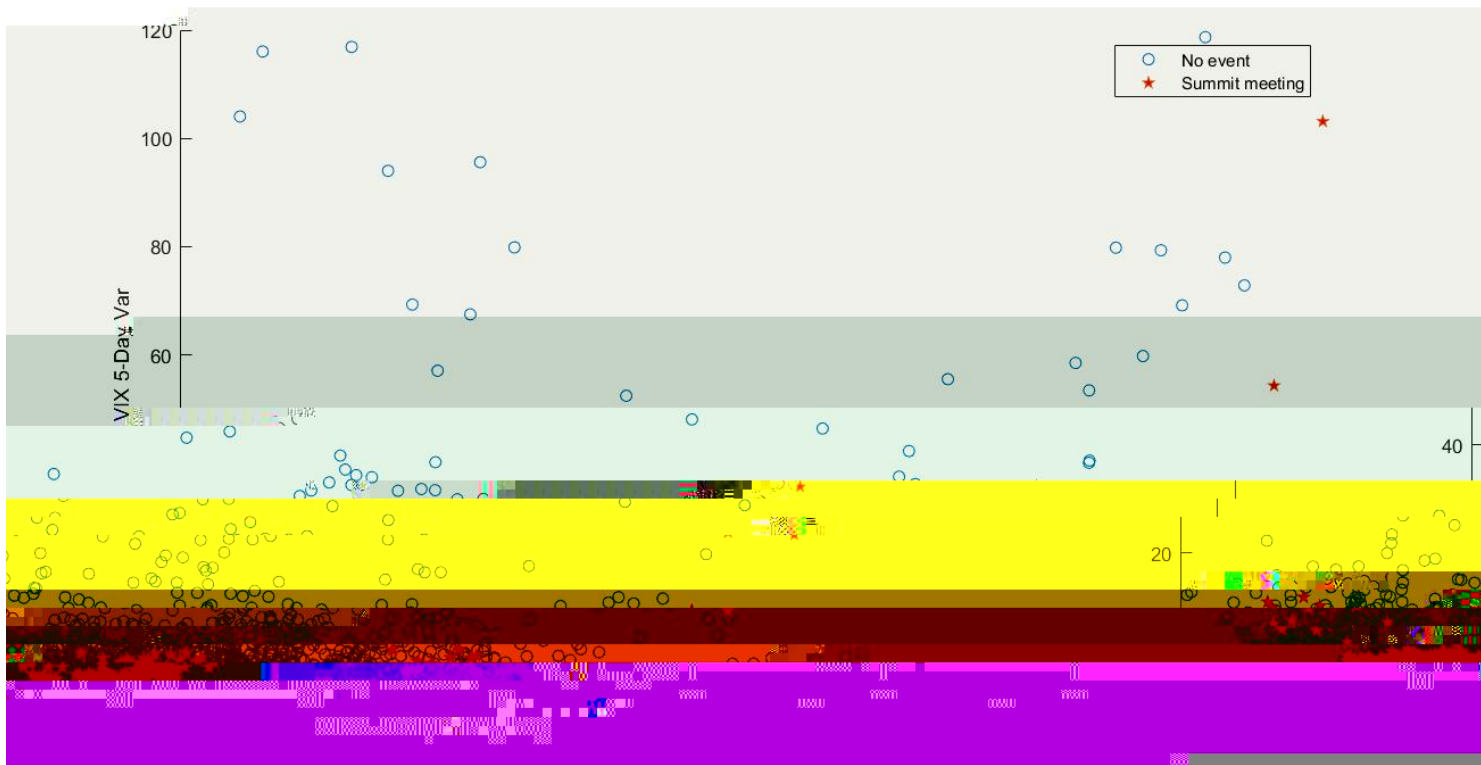
We provide evidence of a negative relationship between short-term market volatility and geopolitical summit meetings. More specifically, our results show a significant decrease in the VIX volatility index for days surrounding geopolitical events such as G7 or G20 meetings. Though the decrease in volatility is short-lived, this finding may be surprising given the nature of these events as well-known, publicized meetings that are primarily focused on long-term goals.

**JEL Classification Codes:** E44, F42, F53, G14.

**Keywords:** Geopolitics, G7, G20, NATO, volatility.

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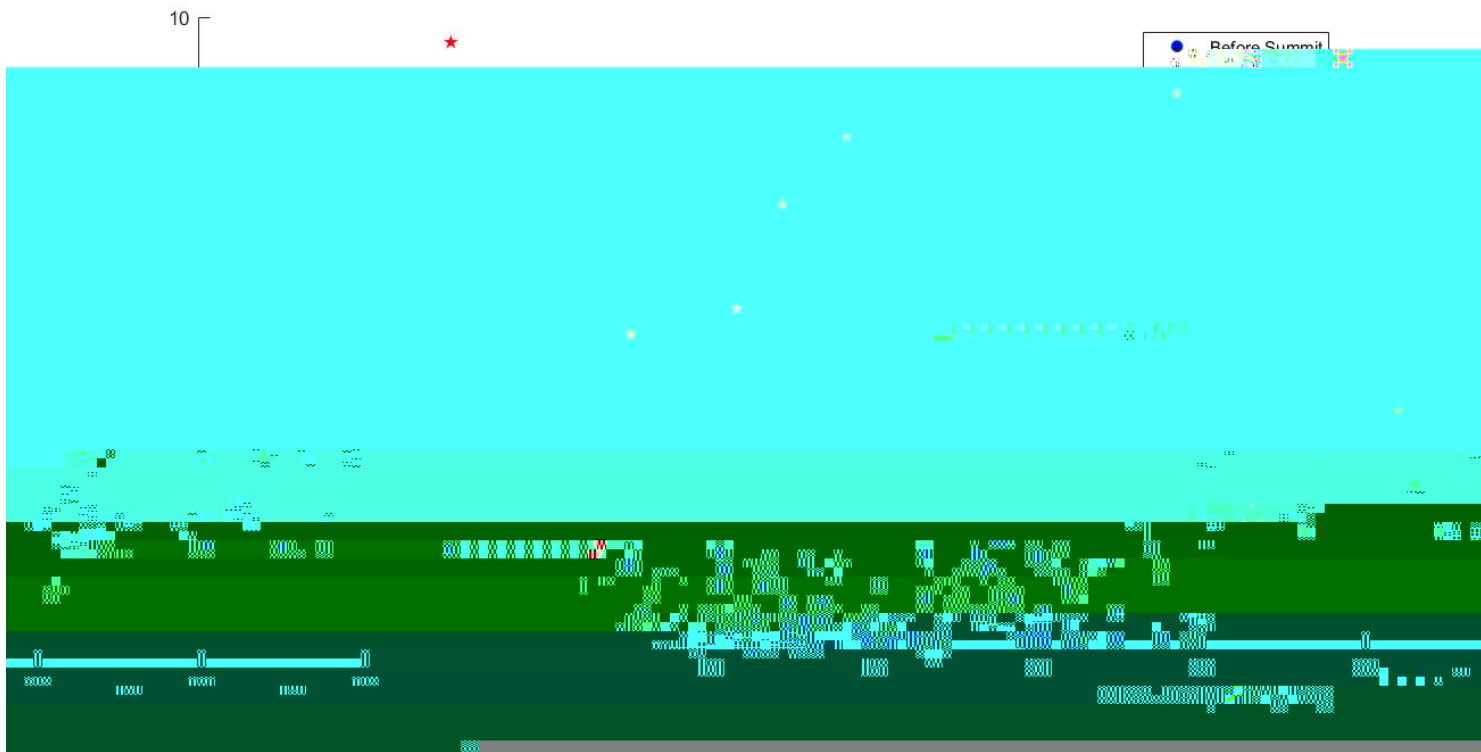
# 1 Introduction



such as the meeting in 1993 in which NATO intervened in the Bosnian conflict. We also similarly omit OPEC meetings with major declarations of changes in oil supply.

Figure 1 displays a very broad overview of the VIX data in terms of its 5-day moving average and variance. We plot the mean-variance for each day for 1990-2019, with non-event days in blue and the days of summits in red. Though this is an admittedly simple view, the distinction does begin to emerge. The days of events seem to display a lower mean and variance than non-event days. For a slightly clearer view, Figure 2 focuses on just those days 5 days before a summit, two days after a summit occurred, and a week after a summit occurred<sup>1</sup>. Though the contrast is not as stark, the pattern is still consistent. Days just following the summit display lower volatility than non-event days surrounding the same time period. In the next section we explore the relationship further.

<sup>1</sup>We experimented with the number of days before and after the event, and the image was consistent. The graphs axis are different scales.



### 3 Estimation and Results

We use a treatment effects estimation with k-nearest neighbor matching to compare the event days to the non-event days. The treatment effects estimation is a type of difference-in-difference approach that tests whether the VIX (as well as its moving average and variance) on average is different based on whether an event has occurred or not. We use the event days as the treatment variable, lagged  $\sqrt{VIX_t - 4}$ , time fixed effects, differenced DOW Jones values and volumes as control variables, and VIX as the dependent variable which returned a coefficient value of -1.61 and a z-score of -11.61 (table 1 row 1). The treatment effects estimation using VIX variance as the dependent variable returned a coefficient value of -.976 with a z-score of -9.96 (table 1 row 2), and using VIX average as the dependent variable returned a coefficient value of -1.61 with a z-score of -12.82 (table 1 row 3). Not included are our estimates with alternative lag specifications and additional controls, but this brief synopsis does show a consistent relationship: market volatility is muted immediately following and preceding the global summits we study in spite of their fairly limited actions.

Table 1: Treatment-effects Estimates with K-Nearest Neighbors Matching(Lag)

	coef	std.err:	Z
VIX	1:61	:138	11:61
VIXavg	1:61	:125	12:82
VIXvar	:976	:098	9:96

Table 2: Treatment-effects Estimates with K-Nearest Neighbors Matching(Lead)

	coef	std.err:	Z
VIX	1:63	:133	12:20
VIXavg	1:58	:136	11:61
VIXvar	1:01	:085	11:86

We have also experimented with leading days of VIX as suggested by Imai, Kim, and Wang (2020), and found results similar in size and significance to those using leads. This indicates that there are significant differences in the market in the days both preceding and after the events we study. Since we are using a

and Wilson (2013) and Lucca and Moench (2015) has found that economic announcements on inflation data or news from the FOMC (respectively) impact the market, but as far as we know, other than Lo Duca and Stracca (2014), who restrict attention to the G20, we are the only ones to investigate the market impact of these major summits.

## References

Duca, M. L. and L. Stracca (2014). The Effect of G20 Summits on Global