Chapter 1: How Geopolitics Can Influence Markets

> Political shocks command a risk premium despite being unrelated to economic shocks. Investors demand compensation for uncertainty about the outcomes of purely political events, such as debates and negotiations.
>
> —*Lubos Pástor and Pietro Veronesi*

The Link between Geopolitics, Economics, and Investments

To understand how geopolitical events can affect financial markets, one must go back to basics and look at the valuation formula for financial assets. Astrophysicist Stephen Hawking wrote in the acknowledgments to his popular book *A Brief History of Time* that "someone told me that each equation I included in the book would halve the sales" (1988). Fortunately, this book is written for investment practitioners and available for free, so I do not have to worry about sales or an audience that is intimidated by equations. Nevertheless, only one equation appears in this book:

$$FV = \sum_{t=1}^{\infty} \frac{E[CF_t]}{(1 + r_f + \pi + k)^t}.$$

Using the discounted cash flow (DCF) model, in this equation *FV* is the fair value of an asset (i.e., the present value of discounted future cash flows), $E[CF_t]$ are the expected future cash flows of the asset at each time *t*, r_f is the real risk-free rate, π is the rate of inflation expected over the life of the asset, and *k* is the risk premium. This equation governs the valuation of every financial asset that produces cash flows, whether it is a bond, stock, real estate, private equity, infrastructure, or something else. Only two major asset classes are not governed by this equation: currencies and commodities.

Because neither currencies nor commodities generate cash flows, they are difficult, if not impossible, to value. Commodity prices are determined exclusively by supply and demand, both of which can be affected by geopolitical events. Some commodities, such as crude oil and gold, are extremely sensitive to geopolitical events, which is why I discuss them in some detail in

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Chapter 3 of this book. Currencies, on the other hand, reflect differences in inflation, interest rates, and other factors between two countries and hence are influenced by geopolitical events insofar as the effect they have on these variables. As a result, throughout this book I discuss the impact of geopolitical events on currencies only when clear evidence exists for a measurable effect. In particular, I focus in Chapter 3 on commodity currencies, such as gold.

Going back to the discounted cash flow model just presented, geopolitical events can affect each of the variables in the model in different ways. At the end of this chapter, I discuss a case study on the impact of defense spending on the fair value of investments. However, the most obvious and direct way for geopolitical events to influence the fair value of an asset is through a changing risk premium. Pástor and Veronesi (2013) investigated whether policy events in general are associated with a risk premium. Traditionally, one would expect only economic events to demand a risk premium, given that they affect future cash flows and the components of the discount rate. Political events have only an indirect effect on assets insofar as policy decisions by the government might change future cash flows and inflation or force the central bank to adjust monetary policy, thereby changing the risk-free rate.

Pástor and Veronesi (2013) looked at all kinds of policy uncertainties, not just geopolitical risks, and found that this uncertainty does indeed command a risk premium that is independent of the risk premium from economic factors. In their model, they explained this risk premium with uncertainty aversion. Political risk reflects uncertainty about the future (including a possible but uncertain impact of government policies on the economy), and uncertainty-averse investors want to be compensated for the risk of changing policies.

But whether this policy risk premium is positive or negative, large or small, is not clear. On the one hand, policy mistakes by the government can lead to higher taxes, recessions, or even war—all of which reduce future cash flows and should cause investors to demand a positive risk premium. On the other hand, the government provides a put option to financial markets insofar as it has the means to prop up a weak economy through fiscal and monetary policy measures and avoid, or at least dampen, a recession. Therefore, the policy risk premium is reduced by the value of this implicit government put option.

Unfortunately, the value of this put option declines in a weak economy, just when it might be needed the most. This decline occurs because the government has not only economic goals but also political ones. In a weak economy, a government might be tempted to engage in populist policies that improve voter support but might be damaging to businesses and the overall economy in the long run. Moreover, in weak economic times, a government

might be ousted and replaced by a new government that follows more extreme economic policies. Whether these are left-wing or right-wing policies does not really matter; in both cases, the long-term economic impact of populist policies tends to be negative.

Because policy uncertainty is higher in weak economic times, Pástor and Veronesi (2013) predicted that the policy risk premium increases as well. They found empirical evidence in favor of this prediction by looking at the Economic Policy Uncertainty (EPU) indices that were developed by Baker, Bloom, and Davis (2016) and their relationship with different economic indicators. Economic policy uncertainty is higher in a recession or in times of weak economic activity in the United States than in times of strong growth. Pástor and Veronesi also found that heightened policy uncertainty filters through to financial markets by increasing both realized and implied volatility as well as correlations between stocks. What they could not find, however, is statistically significant evidence that equity market returns are higher in the aftermath of heightened policy uncertainty. They identified some statistical evidence in favor of higher equity market returns in the 12 months after a period of heightened policy uncertainty but not in the 3 or 6 months after that.

Measuring Geopolitical Risk

A more recent approach to measuring the impact of geopolitical risks on the fair value of financial assets was undertaken by Caldara and Iacoviello (2019). They constructed a dedicated Geopolitical Risk (GPR) index by looking for words associated with wars, civil wars, and terrorism in 11 newspapers in the United States, Canada, and the United Kingdom since 1985.[1] For historical purposes, they went back to the year 1900 with the help of three newspaper archives.[2] **Exhibit 1** shows the historical GPR index with some major geopolitical events marked. The two world wars clearly stand out in the first half of the 20th century, but other prominent events—such as the Falklands War, the Gulf War of 1990, and the September 11, 2001 (hereafter 9/11), terrorist attacks—also stand out. Because the GPR index is based on a textual analysis of newspapers in North America and the United Kingdom, it is a measure of the public perception of wars in these regions. Regional wars that did not involve US or British troops are thus clearly underrepresented in the index. Still, we have to admit that from the viewpoint of investors, global financial

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[1]The index is designed in such a way that the average index level for the years 2000 to 2009 is 100 points.

[2]The archives used were those of the *New York Times*, the *Chicago Tribune*, and the *Washington Post*.

**Exhibit 1. Historical Geopolitical Risk Index**
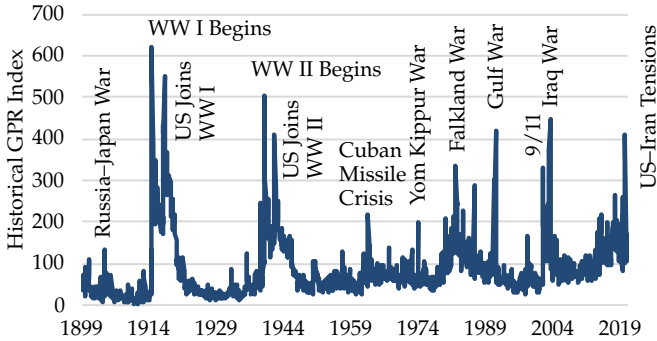
Source: Caldara and Iacoviello (2019).

markets are dominated by geopolitical events involving the United States because it is the largest economy in the world, with the largest stock market, the leading global currency, and one of the largest bond markets. Hence, geopolitical events appear to have the greatest influence on financial markets if they appear on the radar screen of a US audience.

The GPR benchmark index available since 1985 can be used to analyze the impact of geopolitical risks on the economy and on financial markets in general. Caldara and Iacoviello (2019) found that moderate increases in geopolitical risks tend to have a negligible impact, but for a two-standard-deviation spike in the GPR index, they noted that company fixed investments decline by 1.8% over the subsequent 12 months. To put this into perspective, such a two-standard-deviation event corresponds to a spike in the GPR index of 82 points and is roughly what happened when Russia annexed Crimea in 2014 and after the 2005 London bombings. In comparison, the 9/11 terrorist attacks were a six-standard-deviation event and thus had a much larger impact.

In addition to the decline in company fixed investments, Caldara and Iacoviello (2019) found a temporary setback in consumer confidence and a 0.4% decline in employment in the 12 months following a two-standard-deviation spike in the GPR index. Given the impact on consumer sentiment and employment, we should expect that an increase in the GPR index leads to an increase in the risk premium, k, in the fair value equation presented earlier and hence a decline in equity markets and other risky assets. Caldara and Iacoviello (2018) investigated the immediate impact of an increase in the GPR index on stock markets around the globe and found that in the month after a 100-point spike, stock markets typically declined by 1% to 3%.

Exhibit 2. Impact of Geopolitical Shock on Stock Markets
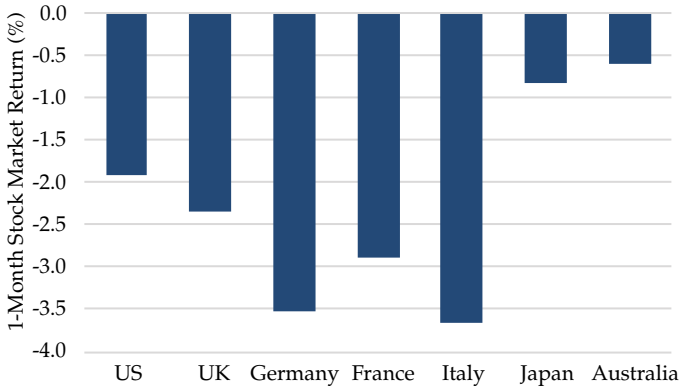
Source: Caldara and Iacoviello (2018).

But, as **Exhibit 2** shows, stock markets reacted differently in different countries. The United States' market was close to the global average. Markets in Europe tended to show bigger declines, while markets in Asia suffered less. This phenomenon might well be another reflection of the fact that the GPR index is based on information from North American and British newspapers and thus focuses more on risks that are prominent in the West. Furthermore, Caldara and Iacoviello (2018) found weak evidence that investment flows reverse after a spike in the GPR index, so that emerging markets and international developed markets suffer outflows while the United States experiences capital inflows. This flight to safety is also corroborated by a small decline in two-year Treasury yields of 20 basis points.

However, in a follow-up version of their 2018 paper, Caldara and Iacoviello (2019) built a value at risk model to simulate the propagation of a geopolitical shock through the economy and markets and found that the impact on stock markets is short-lived and starts to disappear after two quarters. This effect makes sense given that the risk premium, k, is likely to normalize if a risk has been digested by the market and leaves long-lasting impacts on financial markets only if it triggers a persistent change in economic growth (thus changing future cash flows), inflation, or the risk-free rate.

One drawback of the GPR index is that it focuses on only a very narrow set of geopolitical risks—namely, threats or incidents of war and terrorism. It ignores other risks that I would call geopolitical in nature, such as the US–China trade war. **Exhibit 3** compares the GPR index with the Global EPU

Exhibit 3.   GPR Index versus Global EPU Index
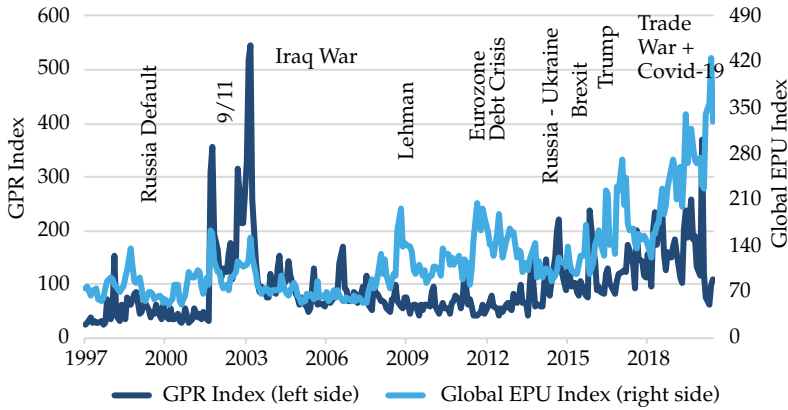
Sources: Caldara and Iacoviello (2019) and Baker et al. (2016).

(GEPU) index, which builds on the country-level EPU indices developed by Baker et al. (2016).

The purpose of EPU indices for different countries and globally is not so much the measurement of geopolitical risks but the measurement of risks to economic policy of all kinds. Thus, in some cases it shows heightened risk whenever these risks were triggered by geopolitical events (e.g., after 9/11 or the Iraq War), but it also shows spikes after events that I would classify as purely economic developments, such as the Global Financial Crisis of 2008–2009 and the eurozone debt crisis of 2011–2012. In recent years, the EPU index for the United States has been extremely high as a result of the US–China trade war. This event is geopolitical in nature, as we will see in Chapter 6, but it is not captured by the GPR index. Hence, while both the GPR and EPU indices are interesting ways to quantify risks, neither of them is a panacea for investors.

Finally, one needs to be aware that stock market risks as measured traditionally by the Cboe Volatility Index (VIX) are not linked to all risks. The VIX and its international cousins are calculated based on one-month, option-implied volatility and are, by definition, short-term in nature. They do not incorporate long-term risks from economic or geopolitical events. For example, the VIX has been relatively calm throughout most of the US–China trade war, with only the occasional small spike, as shown in **Exhibit 4**. In general, however, the VIX more closely resembles the GPR index in recent years than the EPU index. Meanwhile, at the height of the Global Financial Crisis during the collapse of Lehman Brothers and during the Covid-19–related crash

**Exhibit 4. Geopolitical Risks versus Stock Market Volatility**
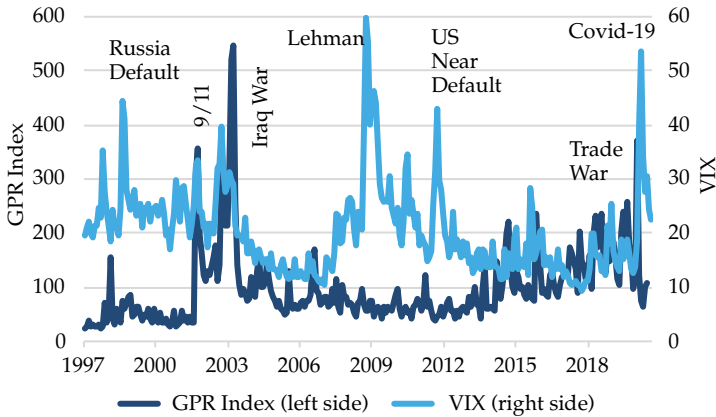
Sources: Caldara and Iacoviello (2019) and Cboe.

in spring 2020, the VIX spiked dramatically. In other words, the VIX is a measure of imminent risks, while both the EPU and GPR indices are measures of broader sources of risk.

Case Study: The Cost of Wars and the Peace Dividend

So far, I have been concerned only with the risk premium, k, in the fair value equation. To see how geopolitical events can influence the other variables, looking at the cost of wars and the so-called peace dividend is worthwhile. Fighting wars can be expensive, even for a large country such as the United States. **Exhibit 5** shows the peak of defense spending, as a percentage of GDP, in some of the major wars the United States has fought throughout its history. The cost of World War II was overwhelming, and the Civil War is well known to have been costly not only in terms of casualties but also in terms of money. In fact, the percentage for the Civil War, shown in Exhibit 5, reflects only the cost to the Union because no reliable estimates are available for the cost to the Confederacy. Given that the Civil War was catastrophic for the Confederacy, though, one can speculate that the true defense cost of the war might have been comparable to that of World War II. But even smaller wars, such as the recent engagements in Iraq and Afghanistan, caused serious strains on the US budget, with total defense expenditures sucking up more than 4% of GDP in some years.

Economic theory states that increased defense spending is good for defense contractors, but that might lead to a crowding out of private consumption

Exhibit 5. Peak Defense Spending during US Wars
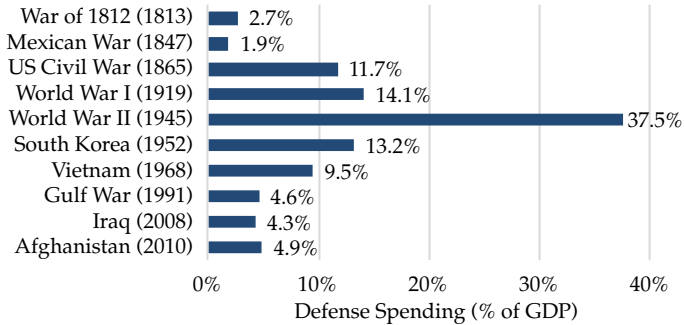
Source: Daggett (2010).
Notes: The year of peak defense spending is given in parentheses. The fiscal years do not match calendar years, so in some cases, the peak spending year occurred after the war in question was over. GDP numbers before World War II are retrospective estimates.

and investments by the government because capacity that would have been used for civilian products must now be dedicated to defense. Furthermore, increased defense spending implies bigger deficits and thus higher interest rates and taxes in the future, both of which can lead to a slowdown in private consumption and investments.

Conversely, after the end of the Cold War, the prospect of a peace dividend got traction in investment circles. The military standoff between the United States and the Soviet Union came to an end, and defense budgets were being cut. If defense spending crowds out private investments and consumption, then these cuts should lead to increased private investments. This increase should lead to stronger economic growth because the private sector is much bigger than the government sector, and increased investments in the private sector more than compensate for the losses in government spending. Finally, as defense spending declines, the budget deficit should decline and the cost of debt might decline as well. And because interest rates for the private sector are priced relative to Treasury yields, lower cost of debt for the government should also lead to lower financing costs for the private sector.

Exhibit 6 shows the decline of defense spending throughout the 1990s, before the 9/11 attacks and the engagements in Afghanistan and Iraq triggered a renewed increase in military spending. The decline in defense budgets coincided with declining government deficits in the 1990s, giving some plausibility to the theory of the mechanism behind the peace dividend. However, Exhibit 6 also shows that the federal deficit is much more volatile than the

Exhibit 6.   US Defense Spending and Federal Deficit
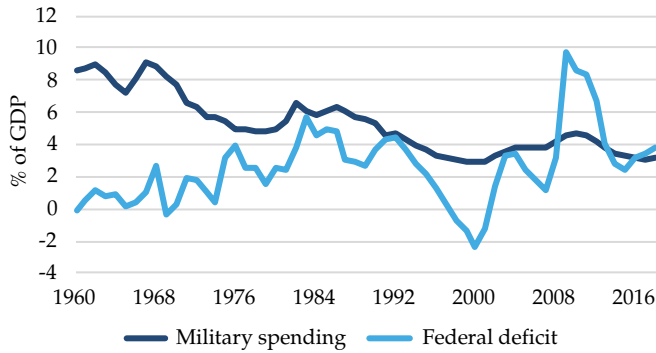
Sources: World Bank and the Federal Reserve Bank of St. Louis.

defense budget and is largely influenced by economic circumstances (e.g., the Great Recession of 2009) and domestic policy measures, such as tax cuts and hikes.

Nevertheless, Mintz and Huang (1990) set out to test the peace dividend empirically. They looked at the relationship between the US defense budget and US economic growth. On the one hand, they checked for a direct negative link between US defense spending and economic growth. If this link were to exist, then the reduction of a geopolitical risk (in this case, the Cold War) would lead to a decline in defense spending and higher economic growth. For investors, that would mean higher expected future cash flows $E[CF_t]$ and thus a rising fair value of risky assets, such as stocks. On the other hand, Mintz and Huang checked for an indirect peace dividend by looking at the relationship between lower defense spending and future private investment, which could be triggered by lower interest rates. Lower interest rates should be reflected in some combination of lower risk-free rate r_f and lower rate of inflation π in the discounted cash flow model presented earlier in the chapter.

Unfortunately, the evidence in favor of the peace dividend is mixed, at best. Mintz and Huang (1990) found no direct effect of reduced defense spending on economic growth and no empirical validation of a crowding out of the private sector. However, their study investigated the years after World War II, when military spending was relatively low. In an all-out war, such as World War II, or a war fought on home soil, such as the Civil War, military spending could become so large that it would crowd out the private sector. As we will see in the next chapter, where a war is fought and how intensive the war is do make a difference for an economy.

Like many authors before and since, Mintz and Huang (1990) also found little evidence of an indirect peace dividend. The problem with identifying an indirect peace dividend is that the signal is subject to a lot of noise, such as the regular economic and credit cycles that have a far stronger impact than the defense budget on interest rates and private investment. The authors did find that with an approximately five-year delay, a statistically significant increase in private investment occurs after a decline in defense spending; however, this effect appeared only after they optimized the lag structure of their regression model, suggesting that the effect is weak or dispersed over time.

A follow-up study by Mintz and Stevenson (1995) involving a sample of 103 countries showed that the peace dividend could be identified in only approximately 10% of the countries in the sample and thus seems unlikely to be a real effect. A comprehensive literature review of the topic by Dunne, Smith, and Willenbockel (2005) showed that the papers that identified a significant peace dividend usually used an economic model that made some flawed assumptions about the efficiency of the defense sector and the private sector. The assumptions resulted in stronger apparent economic growth whenever resources were shifted from the military to the private sector. Hence, the relationship between reduced defense spending and increased private investments is probably small and might even be an artifact of the specification of the economic models used to empirically test it.

Conclusions

This chapter has provided a simple framework for the way geopolitical events can affect the valuation of financial assets. As we have seen here, the impact can be short-term if geopolitical risks lead to increased risk premiums that eventually normalize. Different approaches have been taken in recent years to measure geopolitical risks and economic policy uncertainty. All these approaches create useful proxies for the geopolitical risk premium, but none of them is a panacea. The approaches all use different definitions of *uncertainty* and *risk*, and hence, neither of them has a good correlation with the impact of geopolitical risks on financial markets. But all these approaches do indicate that at least a short-term impact on risky assets is possible.

However, the framework introduced in this chapter also shows that geopolitical events might have a long-term impact on financial markets. If geopolitical events affect future economic growth, expected cash flows of assets can change and introduce a permanent shift in valuations. Similarly, changing economic fortunes triggered by a geopolitical event might shift the discount rate used to calculate the present value of future cash flows and hence affect asset valuations.

Throughout the next three chapters, I will investigate the empirical evidence on both the short- and long-term impacts of geopolitical events on the economy and financial markets.

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