Political Risk and Firm Exit: Evidence from the US-China Trade War

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Abstract

Does international conflict induce foreign firms to "follow the flag" and exit from a profitable market? We show that the US-China trade war broadly elevated political risks for multinational corporations (MNCs) operating in China, increasing firm exit overall. However, investment treaties can mitigate political risks at the country level while firm entrenchment determine resilience to risk at the firm level. Using a new dataset on all foreign-invested firms registered in China between 2014 and 2019, we implement difference-in-difference and triple-difference models to isolate the impact of increased political risks on MNC exit in the context of the US-China trade war. Our findings show that US and allied firms were not more likely to exit China, suggesting that foreign direct investment outflows do not "follow the flag." Instead, firm exit is determined by the balance of heightened political risks against the availability of firm-level and institutional resources to mitigate these risks.

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1 Introduction

Multinational corporations (MNCs) are more likely to invest in markets where political risks are low (Pandya, 2016; Jensen *et al.*, 2012; Jensen, 2008a), national security interests are aligned (Biglaiser & DeRouen Jr, 2007), and property rights are protected(Li *et al.*, 2003; Biglaiser & Staats, 2012). Comparatively little is known, however, about the determinants of *firm exit*, or foreign direct investment (FDI) capital flight. Do elevated political risks increase the likelihood that foreign investors exit from a once promising market? When political relations sour between sender and host countries, will FDI "follow the flag" out of the market? If so, are some firms more likely to exit than others?

We use evidence from the crucial case of the 2018 US-China Trade War to argue that while elevated political risk increases exit, international institutions and firm-level attributes help mitigate risks, reducing the probability of firm exit for some MNCs compared to others. Deteriorating relations between sender and host countries increase the costs of overseas operations, through concrete measures such as tariffs and export controls as well as intangible effects such as uncertainty about the future business environment. Firms also face political pressure from sender governments to exit from strategically antagonistic host countries. But some firms may be protected from the influence of these adverse effects of geopolitical competition. First, firms entrenched in the host market may have sufficient resources and incentives to weather political storms. Second, international treaties that protect foreign investors help offset the increased risks when diplomatic relations falter.

The US-China Trade War offers a unique opportunity to examine the impact of political risk on firm exit in the country which has become the largest recipient of FDI in the world. China consistently ranks as one of the most favored investment destinations for MNCs, ever since its accession to the WTO in 2001. As China opened up its domestic markets to foreign investment and leveraged its low-cost labor to participate in global

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production networks, it and many of the MNCs that invested there became the poster children for win-win globalisation. Today these decades-old trends seem to be in flux; the Trade War transformed trade from a cornerstone of stability in the US-China relationship to a source of uncertainty and risk. The Trade War represents the most serious disruption to global supply chains since their emergence. As we highlight below, the trade war quickly expanded beyond tariffs into other fronts—entities lists to restrict exports, restrictions on foreign investment, and greater scrutiny of academic exchanges and visas—all of which elevated political risks for MNCs. MNCs doing business in China faced the difficult choice of absorbing the costs associated with these risks or cutting their losses by exiting from a fast-growing market.

This paper endeavours to make a first-cut at investigating the determinants of firm exit in a period of heightened political risk using the new Foreign-Invested Enterprises in China Dataset. The dataset spans all officially registered MNCs in China from over one million Ministry of Commerce records from 2014 to 2019.[1] We find that the the onset of the US-China trade war in 2018 elevated political risks in two ways. It elevated macro risk for all MNCs operating in China and made firm exit more tempting for MNCs from all sender countries. It also generated targeted costs for some industries that were subject to tariffs or targeted by US government policies. However, surprisingly, US firms in industry classes with higher tariffs were only marginally more likely to exit than MNCs from other countries in the same industries. This is both because the trade war increased political risks broadly across all firms while firm entrenchment and international investment treaties mitigate risk, reducing the probability of firm exit. These results are consistent with the

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[1] We use foreign invested enterprises (FIE) and multinational corporations (MNC) interchangeably in this paper. FIE is the official Chinese government designation for MNCs with investors from outside Mainland China.

emerging literature on the heterogeneous impact of political risk on domestic economic actors (Vekasi, 2019; Li & Liu, 2019; Miura, 2020; Davis & Meunier, 2011; Kastner, 2007). The trade war increased overall firm exit but had a heterogeneous effect in terms of which MNCs exited.

Our results have significant theoretical and empirical implications for understanding the dynamics of FDI flows, especially between geopolitical competitors. Theoretically, we present one of the first systematic attempts to understand firm exit during a clearly demarcated period of heightened political risk. We show that firm exit is driven by the interaction of heightened macro risk and the differing capacity for firms to mitigate micro risk. Empirically, we provide evidence that the trade war elevated political risks for all foreign MNCs in China, but tariffs did not accelerate FDI outflows in effected industries as might be expected. Instead, the trade war had a greater blunt effect than targeted effects, with smaller and newer firms bearing the brunt of its impact. This suggests policy initiatives using tariffs to encourage the re-shoring of specific industries may have limited effects and carry unintended distributional consequences. Our results also explain the uneasy coexistence of economic decoupling with business as usual found in the current era of the US-China Trade War. They help explain why the anecdotal evidence is so mixed on how much economic decoupling is actually happening as a result of Western politicians encouraging MNCs to divest from China.

2   The US-China Trade War and the Puzzle of Firm Exits

After accusing China of unfair trade practices and intellectual property theft, the Trump administration imposed four rounds of tariffs on Chinese goods between July 2018 and

May 2019. US tariffs initially targeted intermediate and capital goods that were supported by the Made in China 2025 Initiative but quickly expanded to include a wide array of consumer goods as well. Chinese officials retaliated with four rounds of tariffs on US goods that targeted goods that had production concentrated in Republican-supporting counties such as soybeans (Kim & Margalit, 2021). Overall, more than $470 billion worth of products faced tariffs.[2]

A slew of other policy measures designed to curb Chinese competitiveness in emerging technologies—the so called "tech-war"—and to heighten ideological competition between the two systems of government—the so-called "new cold war"—accompanied the escalation of tariffs. Since 2018, the Department of Commerce added over 275 Chinese companies, including Huawei, one of the world's largest information and communication technology suppliers, to a list of entities subject to stringent export licensing requirements for US technology. The US Congress expanded controls via the Export Controls Reform Act (ECRA) to cover dual-use emerging and foundational technologies and also increased scrutiny of Chinese investment in dual-use, high-technology sectors via the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA).[3] The Department of the Treasury expanded the Office of Foreign Asset Control's (OFAC) financial sanctions to penal-

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[2]The US threatened 25 percent tariffs on $50 billion of Chinese imports in May 2018 and, after rounds of failed talks, the first of these tariffs on $34 billion came into effect in July 2018. The trade was subsequently escalated throughout 2018 and early 2019, with 10 percent tariffs levied on another $200 billion of imports in September 2018. China retaliated with 10-25 percent on some $150 billion of American goods. Some of these tariffs were eliminated but most remain in place after the Phase One Trade Deal was signed in January 2020.

[3]Dual-use refers to technology used both by civilian and military consumers.

ize Chinese human rights abuses in Xinjiang and Hong Kong. The Department of Justice launched a nation-wide China initiative to identify instances of Chinese intellectual property theft and the Department of State canceled visas of Chinese scholars suspected of economic espionage.

The rapid deterioration of US-China relations and resulting policy uncertainty caught MNCs by surprise. Between 2018-2019, the US trade policy uncertainty index would top 800, multiple times above its mean of 100 from 1985-2019, reflecting an "extraordinary" level of uncertainty (Baker *et al.*, 2019). President Trump had initially threatened imposing tariffs on $60 billion in Chinese goods and restricting Chinese investment in key technology sectors in March 2018 and prompted Beijing to issue a list of retaliatory tariffs on $50 billion in American goods in April. But most analysts and business leaders expected a negotiated settlement to be reached before the tariffs would be implemented (Davis & Wei, 2020). They saw the threat of tariffs as mostly "theater and posturing"(Meyersohn & Wiener-Bronner, 2018), and thus the breakdown of talks and implementation of these tariffs in July and August 2018 startled many MNCs. The timing of this bargaining failure was difficult for MNCs to anticipate in advance. But the onset of the trade/tech/cold war with the US dramatically increased political risks for foreign MNCs doing business with China.

The architects of the trade war seem to believe that US and allied businesses would "follow the flag" and respond to risk by moving production out of China. US Trade Representative Robert Lighthizer argued in a *New York Times* op-ed that Trump's trade policies pushed companies to realize that offshoring creates risks and accelerated a trend to bring manufacturing back to America. His response to critics of the Trump administration's trade policies was: "If you want certainty, bring your plants back to America" (Lighthizer, 2020). Other supporters of the tariffs went even further. One columnist in the *National Review* argued that "The true value of the trade war lies in preventing American busi-

nesses from aiding the rise of an adversary. Tariffs are a tax on American businesses, consumers, and investment. But we should be happy to pay taxes toward a worthwhile end" (Phillips, 2019). Deputy National Security Adviser Matthew Pottinger argued in a *Wall Street Journal* op-ed that CEOs need to take a side in the strategic and ideological competition between the US and China, "If you want to do business in China, it must be at the expense of American values" (Pottinger, 2021). The message was for US firms to forgo short term profits in China and align their long-term strategy with US national security interests. The messaging to allied governments and firms was for them to do the same as evidenced by the declassified US Strategic Framework for Countering China's Economic Aggression.

High ranking US officials emphasized the need for the US and its allies to "decouple" economically from China. US Secretary of State Mike Pompeo, speaking at the Nixon Library, concluded that 50 years of engagement with China had failed: "We must admit a hard truth that should guide us in the years and decades to come, that if we want to have a free 21st century, and not the Chinese century of which Xi Jinping dreams, the old paradigm of blind engagement with China simply won't get it done." He called for a new "alliance of democracies" to "secure our freedoms from the Chinese Communist Party"(Pompeo, 2020).

Pressure to decouple did not come from just the US side. Chinese officials also called for disengagement, pressuring a China-first attitude that negatively affects MNCs. President Xi Jinping called for the Chinese people to seek technological self-reliance in a "modern Long March" and to strengthen strategic partnerships with Russia and Iran, both US adversaries. Both Washington and Beijing seemed intent on rallying businesses behind their respective national banners.

Has the political pressure to decouple from China succeeded in driving more US and allied MNCs to exit China? Anecdotally, there is mixed evidence of increased political

risks leading to MNC capital flight. The Eurasia Group, a leading political risk consultancy, identified the "broken" US-China relationship as a top risk for its clients in 2019. The *South China Morning Post*, a Hong Kong-based newspaper, reported in 2020 that 95 percent of polled companies from the United States and half from the European Union planned to move suppliers away from China "due to the confluence of current issues and the uncertainty of future trading patterns" (Bermingham, 2021). Earlier that year, a Pricewaterhouse Cooper China poll in partnership with the American Chambers of Commerce in China concluded that "companies are considering adjustments to their business strategy, but... most respondents expected continued healthy commercial relations between the US and China." Foreign investment in China held steady during 2018 and 2019 and actually increased dramatically in 2020 despite the coronavirus pandemic, when China overtook the US as the largest recipient of FDI, according to UNCTAD data.[4]

Looking specifically at MNCs in China, the year after the start of the Trade War saw the highest rate of exit in the last five years. Figure 1 shows a significant uptick in MNC exit in 2019, from an average of 7.1 percent in the first two years of Trump's presidency before the escalation of the trade war to 11.4 percent in 2019 after new tariffs and retaliatory tariffs were placed on nearly all bilateral trade. But, at the same time, the total number of MNCs increased from 257,404 in 2018 to 308,569 in 2019. The number of US MNCs, where at least one foreign entity was registered in the United States, held relatively steady between 16,141 in 2017 to 16,536 in 2019. How do we make sense of these seemingly contradictory pieces of data?

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[4]FDI inflows to China rose by 4 percent to \$163 billion in 2020 while inflows to the US fell by 49 percent to \$134 billion amidst plummeting global investment flows as a result of the COVID-19 pandemic

Figure 1: MNCs: Stock and Exits since 2015
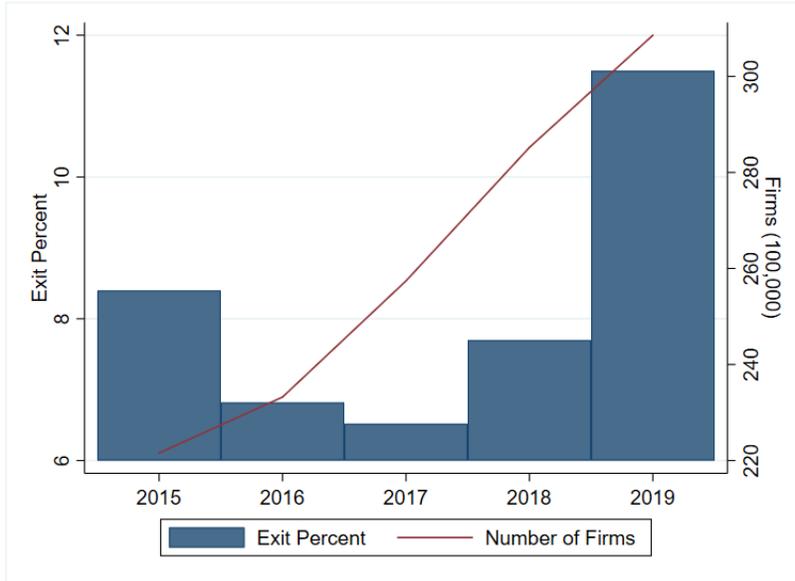
Source: FIEC Dataset

3 Theorizing Firm Exit: Following the Flag or Business as Usual?

We argue that MNCs face conflicting forces that determine if they will "follow the flag" out of a country or maintain business as usual. Political risk increases the likelihood of exit, but not all firms experience the exit pressure equally. Political risk is mitigated by international institutions such as bilateral investment treaties (BITs) that are designed to reduce investment risk. Additionally, firm entrenchment, a function of the size of investment and length of experience in China, provides both resources and incentives for firms to wait out political storms, at least in the short run.

Trade and investment create security externalities. Trade with allies create positive externalities for security relations while trade with adversaries increases security costs (Gowa & Mansfield, 1993). The decoupling rhetoric exhibited by high-level officials like Lighthizer and Pompeo reflects the logic of the "follow the flag" literature. Historically,

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US FDI tends to "follow the flag", with higher rates of investment flowing to US allies (Biglaiser & DeRouen Jr, 2007), and greater bilateral FDI exchanges occurs between security allies (Li & Vashchilko, 2010). It stands to reason that firms may also "follow the flag" out of a market if political relations with a host country deteriorates.

But another line of research raises doubts about the likelihood that investors from the US and allied countries will exit China in response to the elevated political risks of the trade war. The most prominent recent study on the effect of political tensions on trade and investment finds a powerful null relationship (Davis & Meunier, 2011). The authors point out that the costs of movement are substantial for firms engaged in intra-industry trade and these relationship-specific sunk costs discourage fluid adjustment by economic actors to changing political circumstances. Foreign MNCs in China depend on its vast industrial base for suppliers and are embedded in regional supply chains. China has actively attracted FDI domestically through establishing free trade zones and internationally through signing bilateral investment treaties (BITs). These are production network relationships that take years to forge and very costly to replace. Davis & Meunier (2011) point out that weakening alliance ties or animosity between rivals would not produce a parallel shift in economic ties. They conclude that in an era of globalization, "actors lack incentives to link political and economic relations," and thus investment can proceed 'business as usual' despite political conflict.

3.1 Driving Exit: Degree of Political Risk

Political risk is a primary determinant of FDI and MNC establishment in political economic theories (Pandya, 2016). Political risk refers to the potential for expropriation or resource extraction from the MNC. Political risk can be extreme, such as when MNCs are nationalized and all resources are expropriated by the host government. They can also be

incremental, such as when the cost of business increases because of higher tax rates or regulatory burdens.

The literature evaluating the role of political risks in determining FDI focuses on the domestic institutions of the host country. MNCs prefer to locate in democracies where contract enforcement is better (Jensen, 2003, 2008b; Biglaiser & Danis, 2002; Li *et al.*, 2003).[5] Institutions that protect property rights and provide credible commitments reduce these domestic sources of political risk.

Political risks are also driven by international diplomatic relations. Relationships between sending and host countries can improve—or undermine—the business environment for MNCs. When political relations between the sending and host countries deteriorate, political risks are increased in targeted (micro) and blunt (macro) ways. First, specific policy initiatives can directly increase the cost of doing business for specific sectors or firms. Tariffs and non-tariff trade barriers are micro risks that make trade more costly for targeted industries. MNCs and the global supply chains they participate in depend on the trade of intermediate goods as well as finished products, all of which can be more difficult to produce when trade barriers increase. Additionally, sender country governments can put pressure on MNCs to leave a particular host country.

Second, political tensions generate indirect costs for MNCs by elevating macro or country risk in the host country. When political ties are unstable, the business environment for MNCs become more uncertain, deals become harder to negotiate, financing becomes more difficult to obtain, political risk premiums become more expensive, and state meddling in markets become more likley. Unstable political ties between the host and sending coun-

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[5]There are some scholars who argue that autocrats may have more power to repress protesters and could provide a more stable investment environment (Huntington, 1968; Oneal, 1994), although this claim is highly contingent on the context.

tries increases uncertainty not only for MNCs of the sender country, but also for all MNCs linked together by global value chains. The uncertainty that results from the macro risk emanating from the trade war should accelerate capital flight.

Both micro and macro political risk are present in the current trade war. Firm-exit occurs when the political risk exceeds some firm-specific, unobserved threshold for the cost of exiting China. Tariffs directly increase the cost of business for specific firms. The clear intent of US officials was to encourage the repatriation of US MNC operations and to encourage allies to disengage with China. However, the trade war also injected uncertainty into many global value chains and raised the cost of doing business in China for many non-US firms as well. This leads to the first hypothesis:

H1: *Firms facing higher political risks will be more likely to exit.*

We measure both macro (blunt) and micro (targeted) political risk raised by the trade war. Political risks are expected to be felt broadly, by all MNCs involved in US-China trade regardless of industry. Industries targeted with more tariffs and those with greater tariff intensity should see the highest political risks. While firms from all countries are open to the blunt impact of the trade war, US and US allies are expected to feel the brunt of the effects from targeted policies.

The macro impact of the trade war was the creation of uncertainty for all MNCs. Changing tariff rates and adding Chinese firms to the entities list increases the cost of businesses for everyone engaged in US-China trade. These risks effect not only US MNCs but any firm that participates in global supply chains that either sources goods from the US or exports to the US. This blunt effect of the trade war increases political risk systematically across a wide range of firms.

The targeted effect of the trade war comes primarily from the use of tariffs. Tariffs are a micro risk that explicitly increase the costs of doing business for some firms by target-

ing specific products. US tariffs are taxes on Chinese exports, meaning that they should raise costs for all MNCs creating goods for sale in the US market. Chinese tariffs are taxes on American imports, meaning that they should raise costs for all MNCs that use US produced materials or components. Tariff levels differed significantly across industries. Some industries, like coal mining, only faced 15 lines of US tariffs, while the pharmaceuticals industry faced 8,052 lines of US tariffs, meaning more firms were likely to experience even higher costs.

US firms and firms of US allies should be particularly vulnerable to both micro and macro political risks due to policies to encourage decoupling from China. Investors watch events of cooperation or conflict between the nations closely for information about the business environment they might face in the host nation Nigh (1985). Inter-national cooperation increases US investment and conflict decreases US investment. US officials also urged allies to join in on confronting China. Many in the Trump administration framed the trade war with China as part of a greater struggle between Western democratic capitalism and Chinese state capitalism. On a visit to London to urge Britain to join the US Huawei ban, Secretary of State Mike Pompeo said "maybe it's time for a new grouping of like-minded nations, a new alliance of democracies," while adding: "If the free world doesn't change, Communist China will surely change us." The trade war has intensified conversations in European and Asian capitals about the challenge of Chinese industrial policy and the merits of investment screening. All of this would imply that US and allied firms are marginally more likely to be exposed to targeted policies that elevate micro political risk.[6]

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[6]There is room for reasonable doubt about whether FDI will follow someone else's flag. Indeed, MNCs from US allies might be opportunistic if they see a market gap created by tariffs that they do not face. This is an area where the marginal effects from different types of micro political risk can be cross-cutting and something we hope to explore in future work. Our finds suggest that the US government has been

3.2 Mitigating Exit: International Institutions

While tariffs and geopolitical competition put pressure on MNCs to exit China, their effects should be mitigated by home country participation in international institutions. During periods of elevated political risk, such as the trade war, international agreements with China should help mitigate uncertainty about the business environment. We argue that both security and financial treaties should reduce exit by mitigating the rising political risks seen in the trade war.

Based on "follow the flag" logic outlined above, security agreements between countries should increase trade and investment because of the security externalities of trade. Therefore, existing security treaties should mitigate the heightened political risk brought by the trade war.

Since 2008, China has taken a more proactive role towards international institutions, from joining and adapting to the existing international order under Jiang Zemin and Hu Jintao to actively shaping and reforming it to accommodate China's rise (Goldstein, 2020). Bilaterally, China worked to expand defense cooperation with a larger set of countries, most recently with Singapore in 2019. China lacks formal treaty allies but instead uses these Defense Cooperation Agreements (DCAs) to coordinate defense policies, conduct joint military exercises, promote training and education exchanges, and support defense related research and development. Kinne (2018) argues that the proliferation of DCAs can help build trust among like-minded states. As such we expect MNCs from home countries with active DCAs with China to be less likely to exit:

H2a: Security treaties between the home country and China play a mitigating role in

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limited in its ability to coerce or persuade US firms into decoupling from China, its influence is even more limited with firms belonging to US allies.

the trade war, reducing the impact of political risk on exit.

Economic treaties are another way to mitigate political risks. A sizable literature on how international agreement influence FDI flows find that bilateral investment treaties (BITs) address the obsolescing-bargain problem by forestalling ex post trade barriers or expropriation by the host government (Pandya, 2016). BITs can reassure foreign investors by obligating sovereign host countries to consent to binding third-party arbitration, multiple dispute-settlement venues, and arbitration by a standing body rather than an ad hoc one (Allee & Peinhardt, 2014). BITs have been shown to stimulate FDI to developing countries that have the necessary domestic institutions in place to make international commitments credible and valuable to investors (Tobin & Rose-Ackerman, 2011). Home government participation in these international agreements, all else equal, should reduce MNC concerns over macro political risk and decrease the probability of exit. When political risks rise, BITs ensure regularized means of reducing uncertainty. Hypothesis H2b captures the effect of Chinese BITs on firm exit.

> H2b: Bilateral investment treaties (BITs) play a mitigating role in the trade war, reducing the impact of political risk on exit.

China has signed BITs with 122 countries as of 2016, including agreements with developing countries such as Kazakhstan as well as developed countries such as Canada.[7] While

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[7]Similarly, preferential trade agreements (PTAs) can promote FDI by facilitating multinational production networks. They liberalize trade between member states but discriminates against third parties (Kim *et al.*, 2016). Manger (2009) attributes the proliferation of developed-developing country PTAs to vertically integrated production networks within which developed country firms relocate lower-value-added production activities to developing countries. According to the Chinese Ministry of Commerce, China signed 25 free trade agreements in 2018.

China has not signed a BIT with the United States, it does have active agreement with many US allies. Firms from BIT-signatory countries should have a lower probability of exit because of the mitigation mechanisms of the international agreements.

3.3 Mitigating Exit: Firm-level Heterogeneity

MNCs differ in their entrenchment in the local environment. Firms with greater local entrenchment have higher potential for relationship-specific sunk costs and political resources. These firms are not passive ciphers for political events but active political agents capable of influencing policy in both home and host countries (Zhang, 2018). Whether or not a conflict reduces trade or investment depends on how firms incorporate rational expectations and uncertainty into their profit calculus of trading firms (Li & Sacko, 2002). Unexpected conflict onset or severity, in the case of the trade war, could induce rational firms to exit China if these risks outweigh its expected profits from staying.

An emerging body of scholarship shows that firms have heterogeneous political preferences towards globalization and that a few large firms typically account for the majority of global activity (Kim & Osgood, 2019). Large firms are more likely to invest abroad, to publicly support free trade, and lobby on free trade. We anticipate that large MNCs in China, measured by amount of registered capital, are more likely to be engaging in intra-firm trade but also more likely to have greater amounts of resources at their disposal to mitigate political risk. Larger MNCs are much more likely to have government relations teams and to cultivate political connections with local officials and thus less likely to exit. These firms have more at stake and more resources with which to face the elevated political risks of the trade war. Similarly, we anticipate that older firms, with more experience weathering political risks in China and with more time to develop political connections are also less likely to exit.

H3: More entrenched firms are less likely to exit, even in the face of political risks.

Firm heterogeneity in sensitivity towards political risk has been shown in the case of Japanese firms in China. The Senkaku/Diaoyu island disputes with Japan created tensions since the negotiations to normalize diplomatic relations in 1972, but trade and investment between the two countries flourished even though the dispute remains unresolved. However, large Japanese firms respond differently to cycles of political risk and anti-Japanese sentiment than smaller firms (Vekasi, 2019). Vekasi (2019) found that "Factors that would lead to an exit from China—high levels of both direct damages and risk perception—rarely reach the threshold where they would consider exiting or even scaling back investments in the China market." But interestingly, that smaller Japanese firms are more likely to report higher levels of risk perception, but are relatively less likely to be targeted by anti-Japanese demonstrations and suffer direct damage. Instead, larger Japanese firms were more vulnerable to direct damage but their size and experience increased their ability to manage political risk from geopolitical tensions. It is reasonable to expect these patterns of firm heterogeneity to hold true in the trade war and buffer firms from the rising political risks.

4 Methods and Data

The lacuna of information on the political determinants of foreign capital flight in the international political economy literature stems primarily from the lack of reliable data. Research on economic responses to political conflict have relied on FDI inflows and aggregate trade data because these are more readily available (Li, 2006; Li & Vashchilko, 2010; Davis & Meunier, 2011; Li & Liu, 2019). The Foreign-Invested Enterprises in China (FIEC) dataset allows us to more directly evaluate the international-level and firm-level determinants of firm exit as a result of the US-China Trade War.

All foreign-invested enterprises in China are required to report annually to the Ministry of Commerce. Firms report their name, foreign business investors, addresses, industry, business practices, and amount of registered capital by June of each year. The FIEC Dataset compiles each of these reports from 2014 through 2019. Over six years, there are more than one million firm-year observations. These MNCs range from investments by wealthy individuals to subsidiaries of major multinational corporations. The data also reflect the fragmentation of the Chinese market. For example, in 2018, Starbucks had 15 registered MNCs in 11 different municipalities—some of which are sales offices and others are business offices—meaning Starbucks-affiliated MNCs appear 15 times in the dataset in one year. This dataset provides unique and detailed information into foreign investment in China.

The unit of analysis for all subsequent sections is the MNC-panel. From the FIEC Dataset, we primarily utilize two panels: 2017 to 2018 and 2018 to 2019. Because we are primarily interested in firm exit, these two panels are defined by one year of exit before the trade war, the 2017-2018 panel, and after the trade war, the 2018-2019 panel. Results presented below represent the short-run effects of the trade war on firm exits in the year following the major escalation of US-China trade hostilities in 2018.

4.1   Dependent Variable: Firm Exit

The dependent variable measures *firm exit*. A firm is defined as exiting if they report in one year but do not report in subsequent years. Between 2018 and 2019, just over 32,000 firms exit the dataset (Table 1).[8] Our pre-trade war panel defines exits that occur between the 2017 and 2018 registration periods and the post-trade war panel defines exits that oc-

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[8]Less than one percent of firms disappear and then re-appear in later years. If a firm re-appears with a near identical report, including address, we assume these missing reports are an oversight rather than exit and re-entrance.

cur between the 2018 and 2019 registration periods. Firm exit is a restrictive measure of decoupling because MNCs may scale back their operations in China or redirect investment that would have gone to China to other markets.[9]

Table 1: Number of MNCs by year and Ownership, with percent exits

Year	Total MNCs			US MNCs		
	Number	Exits	(Exit%)	Number	Exits	(Exit%)
2017	257,404	16,731	(6.50)	16,141		
2018	285,203	21,846	(7.66)	16,670	1,341	(8.05)
2019	308,569	35,238	(11.42)	16,536	1,893	(11.45)

Source: Foreign-Invested Enterprises Dataset
Note: Firm ownership is not available for 2016.

Exit increases between 2017 and 2019 for firms of all ownership from seven percent to eleven percent. US firms had a slightly higher probability of exit in 2018 but exited at an average rate in 2019.

4.2 Independent Variables

4.2.1 Political Risk

As discussed above, we expect the probability of exit to be affected by the level of political risk. We identify three subsets of firms that differentially experience these forms of risks.

Blunt macro effects relate to the souring business relationships and heightening of uncertainty overall. We capture the blunt effects of the trade war with an indicator variable that captures the trade war period: after 2018. This is a general measure to capture time effects related to the start of the trade war that plays a key roll in our modeling decisions.

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[9]Unfortunately, the MofCOM registration data does not provide such operational-level detail about firm-level changes in investment or personnel. We also do not have access to comparable firm-level data from other markets such as Vietnam. These alternative measures are interesting areas for future research.

We measure the blunt effect of the trade war as a time variable. All firms doing business related to US-China trade face greater uncertainty after 2018 than before.

Targeted micro effects of the trade war relate to tariffs. Firms targeted by tariffs should exit more than firms unaffected by tariffs. First, tariffs are measured as an indicator variable by industry class. If any products within a given industry class face tariffs, the indicator variable takes the value of 1. US and PRC tariff data are from Bown (2019). To understand variation in how many products suffered tariffs, we constructed a *tariff intensity* measure for both the US tariff set and the PRC tariff set. Tariff intensity takes the count of number of products subject to tariffs in the industry-class divided by the number of industries in that class to account for variation in industry size. The US tariff intensity ranges from 0 to 894 (pharmaceuticals) whereas the PRC tariff intensity measure ranges from 0 to 225 (textiles manufacturing). These are admittedly rough measures of the targeted effects of tariffs because we are inferring tariff impact from the firm's industry. But it is the best we can do because we do not have information on which products the firm produces or how much it exports or imports.

We focus on tariff intensity rather than other kinds of sector or industry level variation because it is the most direct and transparent way to measure the targeted effect of the trade war. There are no clearly discernible patterns of exit by sector as a result of the trade war. We include Table A1 in the appendix which compares the rates of exit for US firms versus the sector as a whole. After the onset of the trade war, firm exit accelerates for almost all sectors, but we do not see significant movement in the manufacturing sector either for US or non-US firms. Instead the sectors that saw the greatest increases in firm exit after the trade war were services sector such as Finance, Leasing and Business Services, and Transport, and Education.[10]

Finally, MNCs registered to the US and US allies should be particularly vulnerable to

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[10]Sector-level variation is an important area for future research beyond the scope of this analysis.

both micro and macro political risks due to policies to encourage decoupling from China as well as tariffs. This expectation rests on the fact that US and allied firms are more likely to be subject to targeted policies, in addition to tariffs, that discourage investment in China.[11]

4.2.2 International Institutions

Our primary measures of international institutions are bilateral investment treaties (*BIT*s) active in 2018 and security alliances between the home country with Washington and Beijing. BITs, specifically related to international investments, should have the largest impact on reducing exits in the face of rising political risks.[12] We measure the active number of defense cooperation agreements (DCAs) between China and FDI-sending countries using the most recent data available from the World Economics and Politics Dataverse. Participation in these economic and security institutions by their home governments is expected to either exacerbate or mitigate political risk for MNCs.

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[11]For example, Japan set up a \$2.2 billion fund to help its manufacturers shift production out of China in 2020. We hope unpack the content of similar government policies to decouple from China in order to develop more sophisticated sector-level measures of political risk in each sender country. But this would require more original data collection that is beyond the scope of this paper.

[12]Another potential measure is preferential trade agreements. The current set of PTAs from the WEPS database correlates highly with BITs, including a smaller subset of countries. For the more comprehensive measure, we include BIT in the primary models and used PTAs as a robustness check. The results remain unchanged.

4.2.3 Firm-level Entrenchment

For hypothesis three, we utilize commonly used indicators of firm entrenchment: length of time operating in China and size of registered capital. As both of these indicators increase, firm exit is expected to decrease. Across the dataset, the average firm has been operating in China since 2009, with the vast majority entering after 1989.[13] The earliest registered US-invested firm in China was registered in 1980. Registered capital is highly skewed across firms, with the median firm having 2,500,000 million USD invested. The average US firm in 2018 has 26 million USD in registered capital.

4.2.4 Controls

The models presented below also include standard control variables. To capture characteristics of the sending country that may mitigate risks of engaging with China in trade, we include sending country GDP (log), democracy (0/1 based on Polity),[14] and tax-haven status. To control for firm-level variation, we include controls for joint venture status measured as an indicator variable based on reported ownership structure, and exporter status indicating if the firm indicated exporting in its business activities. All models also include provincial fixed effects to capture regional variation within China.

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[13]One firm has a stated entrance date of 1951, a Polish-funded joint venture in Shanghai.

[14]The literature on regime type is quite a bit more complicated and focused on democratic institutions in the receiver, not the sender state (Li *et al.*, 2003, 2018; Jensen *et al.*, 2012). There is also significant overlap between US allies and the set of democracies, which leads us to use a simplified measure of democracy.

4.3 Modeling strategy

In subsequent sections, we use a variety of logit and hierarchical logit models to estimate the relationship between firm exit, political risk, and the mitigating factors of international institutions and firm entrenchment. First, we focus on country-specific subsamples and employ standard logit models with interaction terms and robust standard errors to capture the blunt and targeted impact of the trade war on the subsample of US firms. Second, when firms from multiple countries are included, we employ hierarchical models. Hierarchical models provides less biased results when our sample of firms include multiple countries because this compensates for correlation in errors associated with the nesting of firms by sending country.

Within these two types of models, we employ a series of interaction terms and subsample analysis to show the effect of the trade war. We cannot claim that the implementation of tariffs was fully exogenous. It is possible the governments of the United States and China specifically identified industry classes that were more likely exit to single out for tariffs. Not knowing the specific determinants of why tariffed products were chosen, we use interaction terms to create a difference-in-difference design to isolate the impact of the trade war. Within the full sample, we also implement a triple difference to determine if the trade war is disproportionately hurting US firms.

In order for our method to be valid, our baseline panel, 2017 to 2018 exits, has to be a reasonable point of comparison. If exits in this pre-trade war panel were particularly low, for example, our results would be upwardly biased. Looking at the pattern of exits, the pre-trade war panel, labeled as "2018" in Figure 1, is not unusually low compared to the previous three years. A two-sample t-test shows that exits in the 2017-2018 panel are higher than in the previous three panels, suggesting in the context of this six year panel, our baseline is not artificially low. A longer historical panel would provide greater context

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for exit fluctuations, if additional data become available.

5   Determinants of Firm Exit

## 5.1   Political Risks: Tariff Intensity and National Origin

Our first hypothesis states that political risk, raised by the trade war, increases the like-lihood of firm exit. The first set of models focuses the sample of US firms. If the trade war between the United States and China is increasing exits, it is in this sub-sample of firms that we are most likely to see an impact. We implement a series of logit models with interaction terms to isolate the marginal effect of the trade war. Figure 2 presents the marginal effects of all three trade war measures during the trade war.[15] The Trade War indicator, our measure of the trade war's blunt effect, is consistent across all models. US firms are approximately three percentage points more likely to exit in after the onset of the trade war, regardless of their experience of tariffs. Of our measures of targeted trade-war effects—experiencing any tariffs from the US or China, and the intensity of tariffs—only the existence of Chinese tariffs increase exit. US firms operating in industry classes with Chinese tariffs are about one percentage point more likely exit than US firms in in-dustry classes without Chinese tariffs. Chinese tariffs targeted US commodities exports such as petroleum as well as intermediate goods such as electronic machinery. These re-sults would suggest that US MNCs operating in these sectors that depend on US suppliers may be marginally more likely to exit. Tariff intensity does not have a statistically signifi-

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[15]The reason there are 4 models/markers in Figure 2 is because each tariff measure is estimated in its own model because of colinearity of the measures. Across all 4 models, the trade war effect is incredibly consistent while the targeted effect of tariffs are not.

cant relationship with exit during the trade war, regardless of whether the tariffs are from the US or China.

Figure 2: Marginal Effects of Different Political Risk Measures during the Trade War on Firm Exit, US Firms
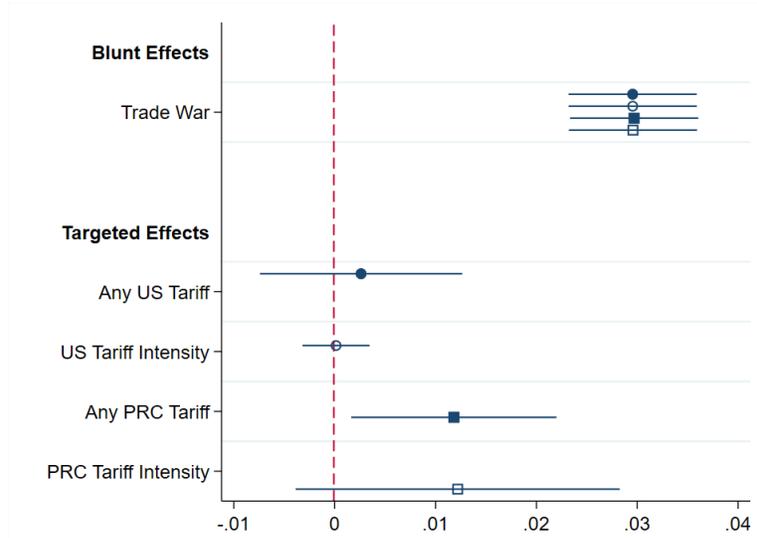
All measures of tariffs interacted with trade war to estimate marginal effects of tariff measures during the trade war. Each targeted effect estimated separately because of colinearity. Full results available in Appendix Table A2. Tariff intensity scaled for visual comparison.

It is possible that while in the US sub-sample the industry classes targeted by US tariffs do not have higher rates of exit, US firms could be exiting at a higher rate compared with other countries. Similarly, not all non-US firms are alike. Firms from countries allied with the US face higher political risks because of the trade war, suggesting the US sub-sample is not the only potential recipient of heightened political risk. If countries place political pressure on their firms and economic actors to align with international diplomacy, governments from US allied-countries could side with the US and shy away from China during the trade war. Similarly, US ally firm business may be more likely to bear the cost of a trade war because it is expected that they trade more with each other.

To test these possibilities, we implement a triple difference model. The triple difference allows us to compare US firms versus US ally firms versus non-US firms, subject to tar-

iffs or not, before and after the trade war. This research design allows us to identify the relative increase of exits by varying degrees of political risks, with US firms with tariffs experiencing the most and non-US, non-US allied firms with no tariffs experiencing the least. Figure 3 presents predicted probabilities for each of these groups. Again, we see the most significant effect is the blunt trade war effect: there are greater differences between the left- and right-hand side of the figure than between the tariffed and non-tariffed firms. All firms have a greater probability of exit during the trade war, regardless of where their financing comes from or whether their industry class experiences added tariffs. Firms in industry classes that received tariffs had a slightly higher probability of exit before the trade war, suggesting that tariffed and non-tariffed firms were not equal before the trade war. There is not a marked effect of tariffs in the post-trade war period, i.e. the targeted effect of the trade war. For non-US firms, non-tariffed firms experienced a larger blunt effect, meaning that before the trade war, they were statistically less likely to exit, but after the trade war, firms in tariffed and non-tariffed industry classes are indistinguishable in the post-trade war period, regardless of their sending country.

Figure 3: Predicted Probability of Exit, Calculated from triple difference models
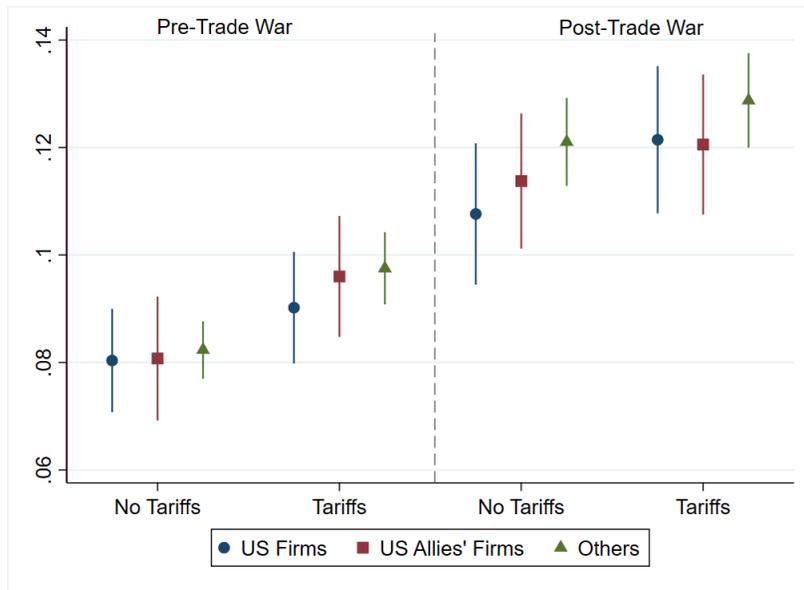
Predicted probability of exit for US, US-Ally, and Non-US/Non-US ally firms, calculated from triple difference models for sending country/tariff/pre- and post-trade war. Tariff measured as tariffs from either the US or China. Results table available in Appendix Table A3.

When looking at US firms specifically, there is a small, statistically significant difference for tariffed US firms during the trade war. US firms subject to tariffs during the trade war do have a slightly higher probability of exiting. This holds for both US and PRC tariffs (Table 2). The magnitude of this effect, however, is small: approximately one fifth the size of the blunt trade war at less than 1 percent increase. US allied firms, compared to other firms, have a slightly higher probability of exit when impacted by PRC tariffs, but not US tariffs. While firms of US allies in tariffed industry classes have higher rates of exit post trade war, firms from non-US, non-US ally sending countries have even higher rates of exit. This comparison provides significant evidence that the broad coalition of US allies decoupling from China is not happening in the short run.

Table 2: Hierarchical logit models of firm exit with triple interaction for trade war, tariffs, and firm origin

VARIABLES	(1) US Tariff	(2) PRC Tariff
US Firms X Tariff X Trade War	0.125***	0.0865***
	(0.0242)	(0.0177)
US Ally X Tariff X Trade War	-0.0111	0.0947***
	(0.0388)	(0.0300)
US Firm X Tariff	-0.0672***	-0.0546
	(0.0191)	(0.0387)
US Ally X Tariff	-0.0138	-0.180***
	(0.0497)	(0.0536)
US Firm X Trade War	-0.105***	-0.0891***
	(0.0215)	(0.0162)
US Ally X Trade War	-0.0472	-0.115***
	(0.0430)	(0.0358)
Tariff X Trade War	-0.114***	-0.0911***
	(0.0141)	(0.0167)
Trade War	0.440***	0.435***
	(0.0160)	(0.0145)
US Firm	-0.0230	-0.0101
	(0.0779)	(0.0836)
US Ally	-0.0156	0.0986
	(0.0888)	(0.0952)
Tariff	0.153***	0.194***
	(0.0184)	(0.0175)
Observations	468,670	468,670
Number of groups	170	170

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Hierarchical logit models of firm exit. Country of origin groups measured by categorical variable of US/US-ally/Other. Column 1 includes measures of US-imposed tariffs. Column 2 includes measures of Chinese tariffs. Models include firm and country of origin variables. Full results available in Appendix Table A3.

In sum, we find significant and consistent evidence that the blunt effect of the trade war does increase firm exit. There is very slight evidence that the targeted trade does influence US firm exit when compared with non-US firms, but not within the US subsample. This increase in US firm exit is relatively small.

5.2   International Institutions: Security and Economic Treaties

The second hypothesis posits that international institutions can reduce political risks. The most likely international institution to reduce MNC exits are investment-based treaties. If this hypothesis holds, firms whose origins are in countries with BITs with China should exit less overall, and in particular during times of high political risk. Table 3 presents hierarchical logit models with interaction terms for two key international institutions—DCAs and BITs—by full sample, non-tariffed firms, firms with US tariffs, and firms with PRC tariffs. Again, we see a large and significant blunt effect of the trade war with a positive and significant coefficient on the trade war indicator. Firms from countries with DCAs with China are more likely to exit both before and after the trade war than those from countries without DCAs, with no mitigation effect during the trade war. These results should be interpreted with caution, however. The DCA sample is significantly smaller than the other samples used in this analysis because non-state regions, such as Hong Kong, are excluded from this measure because they are ineligible for DCAs.

Firms from countries with BIT with China, however, do experience some mitigation effects during the trade war. Before the trade war, firms from BIT countries are no more or less likely to exit. During the trade war, however, firms from countries with BITs are slightly less likely to exit than those without BITs in the full sample, non-tariffed sample, and the US tariffs sample (Table 3, columns 5, 6, and 7). BITs seem to reduce macro political risk and thus decreasing firm exit for both firms in tariff effected industries and non-

Table 3: Hierarchical Logit Models of International Agreements and Firm Exit

Defense Cooperation Agreement				
	(1)	(2)	(3)	(4)
	All	No Tariff	US Tariff	PRC Tariff
Trade War	0.354***	0.408***	0.330***	0.363***
	(0.0329)	(0.0419)	(0.0357)	(0.0365)
DCA	0.154**	0.154**	0.0914	0.132*
	(0.0691)	(0.0752)	(0.0939)	(0.0730)
Trade War X DCA	-0.0421	-0.0387	-0.0645	-0.0513
	(0.0407)	(0.0459)	(0.0596)	(0.0488)
Observations	192,607	99,166	109,986	129,298
Number of groups	155	152	151	154
Bilateral Trade Agreements				
	(5)	(6)	(7)	(8)
	All	No Tariff	US Tariff	PRC Tariff
Trade War	0.392***	0.456***	0.355***	0.363***
	(0.00828)	(0.0104)	(0.00895)	(0.00911)
BIT	0.0547	0.0971	0.0703	0.000856
	(0.0621)	(0.0701)	(0.0618)	(0.0689)
Trade War X BIT	-0.0692***	-0.0829***	-0.0684**	-0.0266
	(0.0256)	(0.0283)	(0.0331)	(0.0315)
Observations	452,020	248,069	245,032	272,606
Number of groups	157	154	153	156

*** $p<0.01$, ** $p<0.05$, * $p<0.1$ Robust standard errors in parentheses. All models include country of origin controls, firm controls, and province fixed effects. Full results available in the Appendix.

tariff effected industries. This makes sense because BITs do not counteract the effects of tariffs or other targeted policies, but they should ease uncertainty for all MNCs from the sender country. This provides some evidence that international economic institutions can provide protection against increasing political risks.

5.3   Firm Entrenchment

As hypothesis three predicts, firms entrenched in the local market are less likely to exit than newly established firms. Firms operating in China for longer periods of time and with greater invested capital have more relation-specific sunk costs as well as greater access to political capital, they should be less likely to exit.

Firm length has a non-linear relationship with exit (Figure 4a). Firms that entered China right before it's ascension to the WTO are the least likely to exit. Older firms have higher variance in their probability of exiting, possibly due to standard business cycles.

Young firms, those only operating for a few years, are significantly more likely to exit. Firms established only one year ahead of the start of the trade war have a 26.6 percent chance of exiting. The non-linear relationship also suggests that firms that established operations in China around 2000, in the lead up and immediate aftermath of China's accession to the WTO are the least likely to exit. Younger firms are more likely to exit because, being less established, they have fewer resources and smaller sunk costs in the Chinese market. Older firms established before the 1990s may be more likely to exit because of the natural business cycle of firms.

Figure 4: Firm Entrenchment and Probability of Exit

(a) Predicted Probability of Exit, by establishment year

(b) Predicted Probability of Exit by Registered Capital
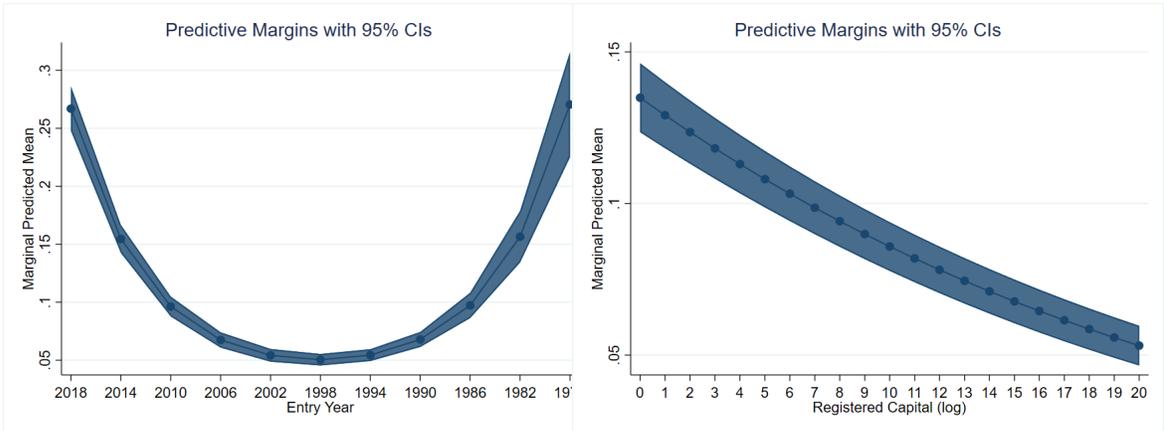
Predicted from hierarchical logit model with non-linear effect of firm length. Model includes international institutions and trade war variables, country of origin controls, firm controls, and province fixed effects.

Registered capital operates in a similar pattern. The more registered capital, the higher the sunk costs, and the less likely firms are to exit. Unlike age, the relationship between registered capital and exit percent is linear (Figure 4b). Both of these are pull factors, increasing the incentives for enterprises to remain in China, regardless of trade war variables. In other words, larger and older firms are less likely to exit both before and after the outbreak of the trade war and do not interact with tariffs.

6 Discussion

This article is a first attempt to observe the impact of political risk associated with an escalating trade war on foreign MNCs in China. Political risk, heightened by the trade war, did lead to greater firm exit, but followed an economic rather than a political logic. The broad impact of the trade war is the largest. After tariffs and counter-tariffs were announced, MNCs exited China at a higher rate across the board, regardless of where their country of origin. The specific and targeted effects of the trade war, contrary to political expectations, only had a marginal increase in probability of exiting China for small sub-groups of firms. International institutions mitigated the effects of rising political risks, but this is limited to financial agreements (BITs) rather than security-oriented agreements (DCAs). Finally, firm entrenchment in the local market provided resources that helped firms weather the storm of political crises.

The 2019 'year in a word' was decoupling, according to the *Financial Times*. Yet the definition and measurement of, as well as the evidence for systematic decoupling remain elusive in the US-China relationship (Nye Jr, 2020). Our results also show that the degree of decoupling, measured by foreign direct investment, has been greater in the minds of politicians and pundits than the reality of firms in China. MNC exits accelerated after the trade war but the complex political economy of multinational firms in China belies the nationalist narratives of economic decoupling favored by politicians. We find little evidence that US MNCs are playing their part in the great power rivalry by patriotically abandoning China. We find no evidence of Secretary Pompeo's 'alliance of democracies,' where MNCs from like-minded countries such as Japan and Germany are joining in on the US side. Instead, the pattern of MNC exits deviates from business as usual only in so much that they seem to follow a 'last in, first out' pattern which reinforces existing inequalities by advantaging wealthier and politically connected firms. The determinants of MNC exit

also differ significantly from those prevailing in policy discussions. Even though the trade war was sold to American voters as bringing manufacturing jobs back home, the data suggests that the older firms which engaged in outsourced production to China in the heady years around WTO accession are the most likely to remain there.

According to two 2019 surveys conducted by the American Chamber of Commerce in China and the European Union Chamber of Commerce in China, only 9 percent of US firms and 11 percent of EU firms considered shifting current or planned investment from China to other markets (Kennedy & Tan, 2020). Even though some of the initial conditions that attracted FDI to China—primarily cheap labor costs—declined in recent years, FDI inflows increased because of the promise of its vast domestic market. These survey results reflect the continuing appeal of China as a destination for foreign investors despite elevated political risks resulting from the US-China Trade War. A VP of Government Affairs for GM China put it this way, "if an American company is not in China, it cannot be a global leader and cannot benefit from economy of scale."[16] So while tariffs of 25 percent or more pose a significant challenge for some China-based exporters, others are loathed to abandon the China market to their global competitors. These cross-cutting factors make it difficult to predict, ex-ante, whether the trade war will push MNCs to exit China or will be insufficient to overcome the pull of the China market.

One important caveat to make on these results is the issue of timing. Our primary panel explores the impact of international and domestic, push and pull factors in the year immediately following the initiation of the trade war. Businesses, especially those with significant fixed asset investment, may not react immediately to tariffs or a souring business climate in the short-run. These longer term effects are not captured in this article and are

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[16]US Heartland China Association on December 15, 2020

an important element for future research.

The silver-lining in these results is that the degree of decoupling is not as dramatic as headlines suggest. The vast majority of MNCs, particularly the large ones, are waiting for the trade war to blow over and for business as usual to resume. The discrepancy between the anecdotal evidence of firm exit versus business as usual cited above is likely a function of firm size and experience in their respective samples. As the President of AmCham China said when survey results on the impact of the trade war were released, "in contrast to some global narratives, our China-based data suggests that the majority of our members will not be packing up and leaving China anytime soon."

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A   Online Appendix

B   Data Sources

Firm-level and Sector level Variables: The Foreign-Invested Enterprise Dataset (FIE Dataset) complies information available from the Chinese Ministry of Commerce website based on the foreign-invested firm registry system. Foreign-invested firms are required to report annually to the Ministry of Commerce, registering the activities of firms with foreign funding. Firms submit these reports at various times during the year, with the majority (90%) reporting by June of the specified report year. Detailed firm data, such as country of origin of investing firm, is available for report years after 2017.

- A firm is defined as exiting if they report in on year but do not report in subsequent years.

- Missing reports is a concern. While firms are requited to report every year, it is possible that firms miss a year. Using the available data from 2016 through 2019, we completed a missing report analysis, identifying firms that skipped years in reporting. This process returned less than one percent of firms missing reports. While it is possible that the dependent variable, firm exit, is inflated because a firm does not report in 2019, this is likely a minor occurrence and one that will be explored in detail when more data becomes available.

One concern is if the baseline year, exits between 2017 and 2018, is unusually low, our results may be upwardly biased. We compared exit rates between 2016 to 2017, 2017 to 2018, and 2018 to 2019 to see if the pre-panel used in this analysis (2017 to 2018) was uncharacteristically low. We find that the exits between 2016 and 2017 mark the low point the available panel dataset and are statistically lower than exits in 2017 to 2018. When

comparing exits in our pre-trade war panel (2017-2018) to the previous years (2014-2017), we find that exits are slightly higher in our pre-trade war panel (7.7 percent) than in the previous three years (7.1 percent). While we cannot make claims about long-term trends in exit rates because of data limitations, this alleviates some concern that our pre-trade war panel is biased downward.

Estimating Tariff Intensity: The 10-digit HS codes in the tariff lists are first matched to 6-digit NAICS industry codes and 4-digit ISIC industry codes. Concordance tables were then used to match the NAICS and ISIC codes to 4-digit GB industry codes. Where the two concordances sets of codes disagreed or failed to find a match, a coder manually verified and entered the GB industry code. The number of product-level tariff lines were then counted and attributed to the 2-digit GB industry class. The resulting tariff count variable ranges from 0 to 5620 (textiles manufacturing) for PRC tariffs and from 0 to 11447 (Chemical and raw materials) for USA tariffs. Because not all tariff classes contain the same number of industries, the tariff count measure is divided by the total number of industries per class to generate the tariff intensity measure. For example, there are 25 industries in the textiles manufacturing industry class (C17) and so the tariff intensity for that industry class is 225. The tariff intensity measures yield a relative measure of how many products within the industry class are hit covered by tariffs.

This industry-class (2-digit) level variable is an admittedly crude measure for a firm's exposure to tariffs. But it is the best that we can do given the lack of detail about how much and from where each FIE imports or exports. We only know the self-reported industry of the firm and have not yet processed the string text from the description of business practices. Information is also lost when converting HS to NAICS/ISIC and then to GB. We cannot currently assign tariffs with high confidence to anything more specific than the industry-class.[17]

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[17]Very few of the ISIC and NAICS codes match to the same GB code and there are quite a lot of er-

C Sector variation

Table A1: Average increase in exits from pre- to post-trade war, by sector and ownership

Sector	Total firms in 2018	Exit Increase in TW	US firm Exit Increase in TW
J Finance	7,126	7.58***	-0.10
O Resident services	2,391	7.06***	8.28**
P Education	431	7.02***	7.88
L Leasing and business services	32,027	5.15***	5.08***
F Wholesale and Retail	66,704	5.14***	4.39***
Q Health and social work	332	4.86**	21.74**
M Scientific research	13,075	4.38***	2.89***
R Culture, sports and entertainment	2,115	3.83***	2.66
I Information technology	12,625	3.56***	3.82***
H Accommodation and Catering	4,786	3.25***	4.14
B Mining	734	2.75**	16.29**
E Construction	2,792	2.72***	10.90**
G Transportation, storage and postal	6,450	2.64***	-3.92*
N Environmental protection	809	2.50*	0.33
K Real Estate	10,551	2.47***	0.19
A Agriculture	4,898	2.37***	2.94
C Manufacturing	116,068	2.14***	2.41***
D Utilities	3,049	1.54***	2.96
S Public administration	14	-19.05	0

Statistical significance, determined by two-sample t-tests with unequal variance assumption, indicates increase (decrease) in exits before and after the trade war. Column 3 presents the average change in exits for all firms, Column 4 presents the average change in exits for US firms.

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rors at the product level in the concordance tables (ex. Disproportionate number of items are classified as "other" of something, which is suspicious. For example a bunch of different kinds of wood sheets are miss-classified as GB2029 rather than GB2013. So we stay at the GB20 level.) With more complicated manufacturing processes these kinds of mistakes are more difficult to spot.

D Full results tables

Table A2: Logit models of firm exit, US-funded firms only

VARIABLES	(1)	(2)	(3)	(4)	(5)
Trade War	0.403***	0.339***	0.361***	0.354***	0.352***
	(0.0532)	(0.0593)	(0.0414)	(0.0579)	(0.0416)
Tariff (any)	0.181***				
	(0.0624)				
Tariff (any) X Trade War	-0.115				
	(0.0767)				
Tariff (US any)		0.0124			
		(0.0619)			
Tariff (US any) X Trade War		0.0147			
		(0.0776)			
Tariff (US intensity)			0.000230		
			(0.000198)		
Tariff (US intensity) X Trade War			-0.000216		
			(0.000259)		
Tariff (PRC any)				0.131**	
				(0.0625)	
Tariff (PRC any) X Trade War				-0.00816	
				(0.0772)	
Tariff (PRC intensity)					0.00152*
					(0.000882)
Tariff (PRC intensity) X Trade War					-0.000259
					(0.00118)
Joint venture	0.308***	0.316***	0.314***	0.314***	0.313***
	(0.0425)	(0.0425)	(0.0425)	(0.0424)	(0.0424)
Firm length	-0.0724***	-0.0698***	-0.0698***	-0.0728***	-0.0710***
	(0.00363)	(0.00351)	(0.00347)	(0.00365)	(0.00353)
Registered capital (log)	-0.0468***	-0.0434***	-0.0440***	-0.0447***	-0.0442***
	(0.00962)	(0.00953)	(0.00959)	(0.00958)	(0.00954)
Exporter	-0.298***	-0.294***	-0.298***	-0.338***	-0.297***
	(0.0424)	(0.0439)	(0.0424)	(0.0449)	(0.0424)
Constant	-1.600***	-1.588***	-1.590***	-1.574***	-1.574***
	(0.0906)	(0.0918)	(0.0881)	(0.0920)	(0.0882)
Observations	32,732	32,729	32,725	32,729	32,732

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A3: Hierarchical logit models of firm exit with triple interaction term

VARIABLES	(1) Any Tariff	(2) Any Tariff	(3) US Tariff	(4) US Tariff	(5) PRC Tariff	(6) PRC Tariff
Trade War	0.451***	0.470***	0.428***	0.440***	0.408***	0.435***
	(0.0224)	(0.0136)	(0.0205)	(0.0160)	(0.0280)	(0.0145)
US Firm	-0.0406	-0.0471	-0.00818	-0.0230	-0.0221	-0.0101
	(0.0791)	(0.0838)	(0.0688)	(0.0779)	(0.0877)	(0.0836)
Tariff	0.241***	0.272***	0.151***	0.153***	0.151***	0.194***
	(0.0344)	(0.0188)	(0.0181)	(0.0184)	(0.0373)	(0.0175)
US Ally		0.0206		-0.0156		0.0986
		(0.0930)		(0.0888)		(0.0952)
US Firm X Tariff	-0.0157	-0.0484	-0.0647***	-0.0672***	-0.0107	-0.0546
	(0.0526)	(0.0359)	(0.0205)	(0.0191)	(0.0612)	(0.0387)
US Firm X Trade War	-0.0549**	-0.0737***	-0.0937***	-0.105***	-0.0626**	-0.0891***
	(0.0226)	(0.0162)	(0.0218)	(0.0215)	(0.0276)	(0.0162)
Tariff X Trade War	-0.201***	-0.215***	-0.119***	-0.114***	-0.0698***	-0.0911***
	(0.0159)	(0.0143)	(0.0158)	(0.0141)	(0.0245)	(0.0167)
US Firms X Tariff X Trade War	0.0857***	0.0999***	0.131***	0.125***	0.0651***	0.0865***
	(0.0179)	(0.0192)	(0.0244)	(0.0242)	(0.0241)	(0.0177)
US Ally X Trade War		-0.0725*		-0.0472		-0.115***
		(0.0417)		(0.0430)		(0.0358)
US Ally X Tariff		-0.118*		-0.0138		-0.180***
		(0.0637)		(0.0497)		(0.0536)
US Ally X Tariff X Trade War		0.0548		-0.0111		0.0947***
		(0.0363)		(0.0388)		(0.0300)
Joint Venture	0.347***	0.348***	0.351***	0.351***	0.352***	0.353***
	(0.0378)	(0.0378)	(0.0365)	(0.0366)	(0.0373)	(0.0374)
Firm Length	-0.0815***	-0.0814***	-0.0799***	-0.0799***	-0.0805***	-0.0806***
	(0.00188)	(0.00186)	(0.00193)	(0.00190)	(0.00181)	(0.00182)
Sending GDP (log)	0.00854	0.00862	0.00888	0.00883	0.00745	0.00736
	(0.0114)	(0.0112)	(0.0113)	(0.0112)	(0.0114)	(0.0113)
Registered capital (log)	-0.0538***	-0.0534***	-0.0518***	-0.0516***	-0.0514***	-0.0505***
	(0.00348)	(0.00350)	(0.00356)	(0.00359)	(0.00370)	(0.00362)
Tax Haven	-0.516***	-0.514***	-0.515***	-0.513***	-0.515***	-0.519***
	(0.195)	(0.194)	(0.193)	(0.192)	(0.199)	(0.198)
Democracy	-0.233***	-0.203***	-0.234***	-0.205***	-0.222***	-0.192***
	(0.0571)	(0.0690)	(0.0569)	(0.0685)	(0.0557)	(0.0674)
Exporter	-0.191***	-0.193***	-0.178***	-0.178***	-0.231***	-0.232***
	(0.0429)	(0.0434)	(0.0444)	(0.0444)	(0.0376)	(0.0381)
Constant	-1.361***	-1.379***	-1.385***	-1.391***	-1.348***	-1.385***
	(0.198)	(0.191)	(0.196)	(0.191)	(0.200)	(0.192)
Variation due to Country	0.0483***	0.0478***	0.0481***	0.0476***	0.0459***	0.0456***
	(0.0146)	(0.0142)	(0.0143)	(0.0141)	(0.0144)	(0.0143)
Observations	468,820	468,820	468,670	468,670	468,670	468,670
Number of groups	170	170	170	170	170	170

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Hierarchical logit models of firm exit. Columns 1 and 2 include measures of either US or PRC tariffs. Columns 3 and 4 include measures of US-imposed tariffs. Columns 5 and 6 include measures of Chinese tariffs.

Table A4: Hierarchical logit models of firm exit with DCA-Trade War interaction, by tariff sub-sample

VARIABLES	(1) All	(2) No Tariff	(3) US Tariff	(4) PRC Tariff
Trade War	0.354***	0.408***	0.330***	0.363***
	(0.0330)	(0.0419)	(0.0357)	(0.0365)
DCA	0.155**	0.154**	0.0914	0.132*
	(0.0692)	(0.0752)	(0.0939)	(0.0730)
DCA X Trade War	-0.0421	-0.0387	-0.0645	-0.0513
	(0.0409)	(0.0459)	(0.0596)	(0.0488)
BIT	-0.0124	0.00910	0.000860	-0.0284
	(0.0649)	(0.0708)	(0.0615)	(0.0720)
US Ally	-0.0624	-0.120	0.0551	-0.0346
	(0.0684)	(0.0816)	(0.0707)	(0.0805)
Democracy	-0.196***	-0.152*	-0.269***	-0.179**
	(0.0695)	(0.0815)	(0.0678)	(0.0794)
Joint venture	0.272***	0.217***	0.328***	0.297***
	(0.0305)	(0.0492)	(0.0264)	(0.0317)
Firm length	-0.0813***	-0.103***	-0.0646***	-0.0810***
	(0.00474)	(0.00833)	(0.00358)	(0.00414)
Sending GDP (log)	0.0221***	0.0200**	0.0285***	0.0156**
	(0.00788)	(0.00848)	(0.00955)	(0.00789)
Registered capital (log)	-0.0508***	-0.0433***	-0.0571***	-0.0521***
	(0.00760)	(0.0119)	(0.00781)	(0.00723)
Tax haven	-0.233***	-0.180*	-0.246**	-0.347***
	(0.0901)	(0.103)	(0.111)	(0.123)
Exporter	-0.291***	-0.280***	-0.284***	-0.361***
	(0.0213)	(0.0246)	(0.0284)	(0.0190)
Tariff (any)	0.0679***			
	(0.0258)			
Constant	-1.475***	-1.358***	-1.708***	-1.132***
	(0.159)	(0.152)	(0.205)	(0.184)
Variation due to country	0.0375***	0.0387***	0.0241**	0.0414***
	(0.00981)	(0.00945)	(0.00975)	(0.0135)
Observations	192,607	99,166	109,986	129,298
Number of groups	155	152	151	154

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A5: Hierarchical logit models of firm exit with BIT-Trade War interaction, by tariff sub-sample

VARIABLES	(1) All	(2) No Tariff	(3) US Tariff	(4) PRC Tariff
Trade War	0.393***	0.456***	0.355***	0.363***
	(0.00822)	(0.0104)	(0.00895)	(0.00911)
BIT	0.0504	0.0971	0.0703	0.000856
	(0.0630)	(0.0701)	(0.0618)	(0.0689)
BIT X Trade War	-0.0707***	-0.0829***	-0.0684**	-0.0266
	(0.0255)	(0.0283)	(0.0331)	(0.0315)
US Ally	-0.0846	-0.145*	0.0526	-0.0607
	(0.0673)	(0.0812)	(0.0639)	(0.0799)
Democracy	-0.200***	-0.140*	-0.267***	-0.196**
	(0.0682)	(0.0801)	(0.0658)	(0.0796)
Joint venture	0.352***	0.320***	0.392***	0.381***
	(0.0376)	(0.0446)	(0.0324)	(0.0413)
Firm length	-0.0814***	-0.0994***	-0.0658***	-0.0754***
	(0.00190)	(0.00318)	(0.00164)	(0.00283)
Sending GDP (log)	0.0271***	0.0242***	0.0338***	0.0212***
	(0.00804)	(0.00866)	(0.0103)	(0.00814)
Registered capital (log)	-0.0530***	-0.0434***	-0.0539***	-0.0556***
	(0.00305)	(0.00440)	(0.00435)	(0.00341)
Tax haven	-0.232**	-0.179*	-0.218**	-0.350***
	(0.0922)	(0.102)	(0.111)	(0.124)
Exporter	-0.193***	-0.151***	-0.213***	-0.255***
	(0.0455)	(0.0580)	(0.0359)	(0.0492)
Tariff (any)	0.121***			
	(0.0259)			
Constant	-1.631***	-1.570***	-1.929***	-1.313***
	(0.153)	(0.162)	(0.200)	(0.181)
Variation due to country	0.0416***	0.0427***	0.0252***	0.0455***
	(0.0107)	(0.0101)	(0.00908)	(0.0146)
Observations	452,020	248,069	245,032	272,606
Number of groups	157	154	153	156

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1