Western Michigan University
ScholarWorks at WMU

Dissertations | Graduate College

8-2021

Three Essays on the Relationship Between Policy Uncertainty and Foreign Direct Investment

Chikezie Kenneth Okoli
Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/dissertations

 Part of the International Economics Commons, and the Political Economy Commons

Recommended Citation

Okoli, Chikezie Kenneth, "Three Essays on the Relationship Between Policy Uncertainty and Foreign Direct Investment" (2021). *Dissertations*. 3766.
https://scholarworks.wmich.edu/dissertations/3766

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.

THREE ESSAYS ON THE RELATIONSHIP BETWEEN POLICY UNCERTAINTY AND FOREIGN DIRECT INVESTMENT

by

Chikezie Kenneth Okoli

A dissertation submitted to the faculty of the Graduate College
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
Economics
Western Michigan University
August 2021

Doctoral Committee:

Michael Ryan, PhD, Chair
Debasri Mukherjee, PhD
Kevin Corder, PhD

THREE ESSAYS ON THE RELATIONSHIP BETWEEN POLICY UNCERTAINTY AND FOREIGN DIRECT INVESTMENT

Chikezie Kenneth Okoli, PhD

Western Michigan University, 2021

Foreign direct investment (FDI) occurs when an entity in one country establishes a significant degree of ownership in an enterprise in another country. FDI is a critical component in ensuring the development of any economy. It often aids with the development of an industry or sector within an economy by bringing in capital, new technologies, manufacturing methodologies, and managing expertise to the receiving country. This dissertation examines the relationship between policy uncertainty and foreign direct investment (FDI) in developed economies. The first essay focuses on U.S. policy uncertainty and its effects on U.S. FDI inflows, while the second essay focuses on the cross-border effect of U.S. policy uncertainty on its neighbours FDI inflows. The third essay focuses on how policy uncertainty affects the investment entry mode choices of multinational enterprises.

In the first essay, I add to the discussion surrounding Foreign Direct Investment (FDI) and its relationship with policy uncertainty by employing novel measures of policy uncertainty in the United States. Drawing some conclusions from the Real Options investment theory, I examine the relationship between policy uncertainty and FDI inflows using different measures of policy uncertainty. Overall, I find that an increase in the Partisan Conflict (PC) index increases the flow of FDI into the United States. This finding appears at odds with what has previously been found

in the literature regarding political uncertainty and FDI. Using other measures of policy uncertainty such as the Economic Policy Uncertainty index (EPU) and the categorical EPU (CPU) index the estimated results show policy uncertainty as measured by the EPU index, decreases FDI into manufacturing sectors and decreases FDI into non-manufacturing sectors. This effect varies depending on the sample period being examined. However, when policy uncertainty is measured by the CPU index, policy uncertainty has no impact on FDI inflows to the United States regardless of the type of industry or capital intensity.

The second essay examines how U.S. policy uncertainty spillovers affect its neighbours within the context of FDI inflows. Adopting a common framework employed in the literature, I utilize a Vector Autoregressive (VAR) model to examine the contemporaneous relationships between the endogenous and exogenous variables. The two spillover transmission methods examined in this paper are Direct Transmission and Indirect Transmission. The empirical analysis conducted showed that the significance of U.S. policy uncertainty spillovers varied by country and the method of transmission. Canadian FDI inflows from the United States and from the rest of the world were shown to be more susceptible to the negative effects of U.S. policy uncertainty spillovers via the direct channel. But the results remained mixed when considering the indirect channel. For Mexico, the results showed that only U.S. FDI inflows to Mexico were susceptible to the negative effects of U.S. policy uncertainty via the indirect channel. Furthermore, when policy uncertainty spillovers were defined between Partisan Conflict (PC) index and the Economic Policy Uncertainty (EPU) index, the results showed that only EPU spillovers were significant in affecting FDI across Canada and Mexico.

The third essay examines the mode of entry that Japanese multinational enterprises (MNEs) adopt in the presence of host market policy uncertainty. Employing a two-stage framework, I

examine how Japanese MNEs establish foreign affiliates in 25 countries. In the first stage, the firms decide whether to adopt a direct or an indirect mode of entry in the presence of host market policy uncertainty. A direct entry mode is when the MNE has an ownership share in the affiliate that is greater than 10% while an indirect entry mode is when the MNE has no ownership shares in the affiliate but sets the operational and business goals of the affiliate. The results show that Japanese MNEs preferred an indirect mode of entry when faced with medium levels of policy uncertainty. In the second stage the estimated results show that relatively high levels of policy uncertainty caused Japanese MNEs to prefer minority Joint Ventures over establishing Wholly Owned Subsidiaries. Since 58% of observed investments occur in two countries (China, the United States) it is possible that the results of the analysis are being driven by the concentration of investments in both countries. Therefore, I re-examine the model to focus exclusively on investment activities in China and the United States. These results show that the previously described results were due to the investment activity in these two countries.

© 2021 Chikezie Kenneth Okoli

ACKNOWLEDGMENTS

I would like to thank all my professors in Western Michigan University's Department of Economics, and particularly Dr. Michael Ryan, my committee chair, whose guidance made the completion of this dissertation possible. I would also like to thank my committee members, Dr. Debasri Mukherjee and Dr. Kevin Corder, for their comments and insights. I would like to thank my fellow colleagues, especially Daniel Mengistu, for their input and collaboration throughout the program. Finally, I would like to thank my family for their love, wisdom, and support. This journey would not have been possible without them.

Chikezie Kenneth Okoli

TABLE OF CONTENTS

Table of Contents—Continued

CHAPTER

Table of Contents—Continued

LIST OF TABLES

List of Tables—Continued

LIST OF FIGURES

INTRODUCTION

Foreign direct investment (FDI) occurs when an entity in one country establishes a significant degree of ownership in an enterprise in another country. This degree of ownership is often reflected by the amount of stake or voting shares the foreign entity possesses within the enterprise. An ownership levels of 10% or greater is often used as the standard to delineate between long-term oriented FDI and short-term investment. FDI is a critical component in ensuring the development of any economy. FDI often aids with the development of an industry or sector within an economy. This is because FDI often brings capital, new technologies, manufacturing methodologies, and managing expertise to the receiving country. This transfer of skills and resources is often beneficial for the general economy due to the establishment of new entities, the introduction of new products or the reduction of production costs. This means that consumers in the FDI receiving country gain access to new products as well as newly created jobs. Given these benefits associated with inward FDI, it is often encouraged by economies around the world.

Like all forms of investments FDI is susceptible to various types of economic and political uncertainty. Investors typically prefer investing in predictable climates. This is because predictability or certainty around an investment or project reduces the gap between the expected and actual investment returns. Thus, investors are fully informed when evaluating the costs and benefits of an investment. The more stability or certainty a country provides, the more attractive it becomes for potential foreign investors. Hence, it is important to understand how a country's uncertainty could affect the amount of FDI it receives. It is important to note that uncertainty comes in various forms. It could be political (regime change), economic (recessions), social (civil unrest), or even weather (natural disasters). Depending on the scale of the uncertainty, the investor might

be able to undertake certain actions which could eliminate the uncertainty or drastically reduce possible negative effects.

This dissertation adds to the existing literature on the FDI/uncertainty relationship due to its focus on a novel way of measuring macroeconomic uncertainty. Macroeconomic uncertainty comes in many forms, such as economic downturns or unexpected economic policies. The effects of various types of uncertainty on investments have been examined widely. This is especially true when it comes to the case of political uncertainty and its effect on FDI (Chiu, Chen & Tang, 2005; Desbordes, 2007; Julio & Yook, 2012; Solomon & Ruiz, 2012). However, one area that is relatively new and has not been fully explored is the area of policy uncertainty. Policy uncertainty differs from political uncertainty based on how uncertainty is generated. Political uncertainty can be loosely described as uncertainty arising from unexpected changes from a country's political apparatus. For example, coups, civil wars, or events that lead to unanticipated regime are instances of political uncertainty. These and similar events within a region generate uncertainty because it impedes the potential gains from investing in the region (new regime could seize or destroy foreign assets). Policy uncertainty on the other hand refers to uncertainty arising from a perceived lack of direction by a region's government. For example, political parties within a country disagreeing on the importance of foreign investments in achieving their economic objectives. For potential foreign investors this means that one party may adopt policies that favour investments (i.e., removing caps on foreign earnings remittances) while the other party adopts policies that impede investments (i.e., imposing domestic ownership requirements for foreign investments). These are two examples of macroeconomic uncertainty, and based on the above definitions, policy uncertainty can be thought of as a subset of political uncertainty. In both cases uncertainty revolves around the region's government/political structure.

Policy uncertainty as a category of macroeconomic uncertainty does possess some benefits over political uncertainty. Based on the definition of political uncertainty, it is not going to be a relevant indicator of macroeconomic uncertainty for all countries. One can argue that a significant number of countries have not experienced coups, civil wars, and unanticipated regime changes within the last century. On the other hand, it is not uncommon for governments around the world to lack directional clarity at any given point in time. Thus, focusing on policy uncertainty allows for foreign investment behaviour in a broader list of countries to be analyzed. The type of macroeconomic uncertainty analysed in this dissertation is that of policy uncertainty. By concentrating on the relationship between policy uncertainty and FDI this dissertation's addition is two-fold. First this dissertation further expands the knowledge on how FDI behave in the presence of uncertainty. As was mentioned earlier, FDI can be beneficial for countries. Thus, understanding whether policy uncertainty has negative consequences for FDI will also help us better understand how uncertainty can affect a country's economic growth. Secondly, the research on the effects of policy uncertainty and FDI is relatively scant. As previously mentioned, policy uncertainty (as measured by newspaper indices) is a relatively new way to capture macroeconomic conditions within an economy. Thus, this dissertation provides a basic framework as to how one might go about analyzing the relationship between policy uncertainty and FDI.

The dissertation's first chapter differs from previous literature in that it focuses on FDI inflows into a developed economy. Specifically, I employ established policy uncertainty indices to analyze the relationship between U.S. policy uncertainty and its FDI inflows. The literature on FDI inflows and its relationship with uncertainty is usually analyzed from the perspective of FDI flows from developed nations to developing nations. However developed economies still benefit significantly from receiving FDI. FDI in developed economies can often leads to job growth as

well as technological transfers (i.e., automobile manufacturing firms, pharmaceutical firms). Thus, it is beneficial to know how FDI flowing into developed economies reacts to uncertainty. Using the existing assumptions from the Real Options theory of investment, I propose and test two hypotheses. The first states that given the inverse relationship between uncertainty and investment, policy uncertainty in a country should decrease the amount of FDI it receives. The second hypothesis states the relationship between policy uncertainty and FDI should also be dependent on the type of FDI receiving industry. I use data on foreign investment into 14 U.S. sectors from 36 countries from 1987-2016 as well as a panel regression model to observe the "Within Effects" and "Between Effects" present in panel models. The "Within effect" focuses on changes in the FDI/uncertainty relationship over time, within specific country groups (i.e., Italian FDI to the US over time) while the between effects focuses on changes in the FDI/uncertainty relationship across countries. Using different policy uncertainty measures, I find that an increase in the Partisan Conflict (PC) index increases FDI flows into the United States. However, other measures of policy uncertainty such as the Economic Policy Uncertainty index (EPU) and the categorical EPU (CPU) show that policy uncertainty (EPU), decreases FDI into both manufacturing and non-manufacturing sectors. But other policy measures such as the CPU have no impact on FDI inflows to the United States regardless of the type of industry or capital intensity. This effect varies depending on the sample period being examined.

The second chapter examines whether policy uncertainty in one country can spill over to its neighbours and affect their FDI inflows. Specifically, I focus on FDI flowing into Canada, Mexico, and the United States. Canada, Mexico, and the United States are remarkably close when it comes to geographically. The proximity of these three countries to one another implies that they can take advantage of each country's economic and technological resource. Relatively cheap

labour from Mexico is advantageous for U.S. investors who establish manufacturing firms. Canadian natural resources are also advantageous to US investors due to their relatively low cost. Likewise, U.S. MNEs may provide much needed capital for Canada and Mexico. In the case where these countries are economically linked it is not farfetched to believe that political/policy decisions in one country leads to significant impact on its neighbours. For my analysis, I utilize a Vector Autoregressive (VAR) model to examine the contemporaneous relationships between the endogenous and exogenous variables. I then analyze two ways in which policy uncertainty spillovers are transmitted from one country to another. The first mode of spillover transmission is a direct transmission. For this mode of transmission, policy uncertainty from one country directly affects the FDI inflows of its neighbours. This means that FDI in the receiving country reacts to its neighbour's policy uncertainty shocks. The second mode of spillover transmission is indirect transmission. For the indirect case, policy uncertainty from one country influences the policy uncertainty of its neighbours, which in turn affects the neighbours FDI inflows. In a VAR model, variable order delineates the contemporaneous relationship amongst variables. Leading variables are assumed to have a contemporaneous relationship on preceding variables. For the direct transmission channel, country A's policy uncertainty comes before country B's FDI. In the case of the indirect transmission channel, country A's policy uncertainty comes before country B's policy uncertainty which also comes before country B's FDI. My empirical analysis shows the significance of U.S. policy uncertainty spillovers varies by country and the method of transmission. Canadian FDI inflows from the United States and the rest of the world were shown to be more susceptible to negative effects of U.S. policy uncertainty spillovers via the direct channel. However, the results were inconclusive when assessing the indirect channel. For Mexico, the results showed that only U.S. FDI inflows to Mexico were susceptible to the negative effects

of U.S. policy uncertainty via the indirect channel. Furthermore, when I differentiate policy uncertainty spillovers the between Partisan Conflict (PC) index and the EPU index, my results showed only EPU spillovers were significant in affecting FDI across Canada and Mexico.

My third chapter examines how policy uncertainty affects FDI entry modes. I do this by examining the mode of entry that Japanese MNEs choose to establish their foreign affiliates in 25 countries given the host country's policy uncertainty. The modes of entry that Japanese MNEs employ are indirect ownership (Japanese MNE does not directly own the affiliate but dictates business objectives), minor joint venture (ownership stake is greater than 10% but less than 50%), equal joint venture (ownership stake = 50%), major joint venture (ownership stake is greater than 50% but less than 90%) and wholly owned subsidiary (ownership stake is greater than 90%). Japan represents a unique opportunity for analysis because it is often one of the largest sources of global FDI outflows (UNCTAD, 2020). Furthermore, as a country that invests heavily around the globe Japanese MNEs are likely to pay special attention to the uncertainty climate in the host countries as it plays a major role in their investment outcome. I employ a two-stage framework, where in the first stage the choice facing the Japanese MNE is to enter directly or indirectly (indirect ownership). This stage is then estimated via a logit model. In the second stage the choice facing the Japanese MNEs that chose to enter directly is a choice amongst Minor Joint Ventures (JV) Equal JVs, Major JVs, and a Wholly Owned Subsidiary (WOS). This stage is estimated via a multinomial logit model. It is important to note that Minor JVs represent a Japanese MNEs ownership in a foreign enterprise that is greater than 10% but less than 50%. The Equal JVs refers to ownership levels of 50%; Major JVs represent ownership levels that are greater than 50% but less than 90% and WOS represent ownership levels greater than 90%. My analysis shows Japanese MNEs preferred indirect modes of entry over direct modes of entry when faced with medium levels

of policy uncertainty. In the second stage the estimated results show relatively high levels of policy uncertainty caused Japanese MNEs to prefer minority Joint Ventures over establishing Wholly Owned Subsidiaries.

REFERENCES

Azzimonti, M. (2016, June). Does Partisan Conflict Deter FDI Inflows to the US? In NBER Working Paper No. 22336. http://nber.org/papers/w22336

Chiu, C. L., Chen, C. D., & Tang, W. W. (2005). Political elections and foreign investor trading in South Korea's financial markets. *Applied Economics Letters, 12*(11), 673-677.

Desbordes, R. (2007). The sensitivity of US multinational enterprises to political and macroeconomic uncertainty: A sectoral analysis. *International Business Review, 16*(6), 732-750.

Julio, B., & Yook, Y. (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance, 67*(1), 45-83.

Solomon, B., & Ruiz, I. (2012). Political risk, macroeconomic uncertainty, and the patterns of foreign direct Investment. *The International Trade Journal, 26*(2), 181-198.

UNCTAD. (2020). (publication). World Investment Report 2020. https://unctad.org/webflyer/world-investment-report-2020

CHAPTER 1

POLICY UNCERTAINTY AND FDI INFLOWS INTO THE UNITED STATES

1.1 Introduction

It is well known that foreign direct investment (FDI) is beneficial to the host country, as inward FDI often brings an influx of much needed capital, technology, and job creation. For example, in 2014 the United States was the largest recipient of global FDI, with inward stocks approaching $3 trillion (Telles, 2016). This trend has continued since then with the United States being the largest recipient of global FDI in 2017 and 2018 (UNCATD, 2019) Furthermore, U.S. affiliates of foreign enterprises employed about 6.1 million people, with an average salary that is almost a third more than the national average (Telles, 2016). This means that attracting FDI is an important strategy in promoting economic growth. Even though there are economic benefits associated with FDI, sometimes these benefits may not be properly dispersed within all sectors of the economy. This could lead to an underestimation of the value of FDI for a country's economic growth. Thus, it becomes clear that more understanding of the determinants of FDI is needed.

There are many explanations for the determinants of FDI in different sectors, and one that is commonly used to examine a firm's investment decision is the Real Options approach. The real options approach to investing is essentially a firm's choice framework in an uncertain environment (Fernandes, Cunha & Ferreira, 2011). Though there are several ways to conceptualize real options (Fernandes et al., 2011), the common theme around them is that investment in general has three important characteristics: investments are hard to reverse, uncertainty about future returns exists, and the investor can choose when and where to invest (Desbordes, 2007; Fernandes et al., 2011).

In an FDI context, this means that given the large sunk costs associated with such investments, the ability of investors to wait until new information becomes available, and the

ability of the investor to invest in a different location, one would expect foreign direct investment in capital intensive sectors to be more susceptible to uncertainty than investments in non-capital-intensive sectors. As capital-intensive sectors have large entry barriers (in the form of high fixed costs), the cost of exercising the option to invest is high. Since firms value the option to invest, uncertainty in an investment in a capital-intensive sector will reduce the value of the firm's option more so than uncertainty in an investment in a non-capital-intensive sector. One important source of uncertainty to measure is political policy uncertainty. Political policy uncertainty occurs when there is a perceived lack of clarity regarding the policy direction of a country's governing body. This uncertainty may arise from the different ideologies of a country's legitimate political actors. Political policy uncertainty is different from political uncertainty because political uncertainty often deals with the legitimacy or durability of a country's political institutions. Policy uncertainty focuses more on the policy actions a country's political institutions take.

Given the real options approach, this research aims to examine the impact of U.S. policy uncertainty on U.S. FDI inflows. This study measures policy uncertainty through the Partisan Conflict (PC) index, the Economic Policy Uncertainty (EPU) index and the Categorical Economic Policy Uncertainty (CPU) index. All three indices are employed because they capture the varying ways with which policy uncertainty manifests itself in the United States. For example, the EPU index focuses primarily on economic issues, the PC index focuses primarily on political issues, and the CPU focuses on various other themes such as national security, taxation, monetary policy, etc. The EPU, CPU and the PC index, attempt to capture social perceptions of the government's economic and political activities based on the number of times such activities are discussed in news media and official government documents. A priori, FDI into capital-intensive sectors should be more susceptible to political shocks, because for sectors with high setup costs, uncertainty

represents an additional cost to investors. The results from the analysis are inconclusive when policy uncertainty and FDI inflows are examined within the context of the real options approach. Furthermore, the results remain inconclusive when examined outside the real options approach therefore, the results do not support the broad claims that FDI falls under periods of political policy uncertainty.

1.2 Previous Literature

The long history of studying the effects of studying the effects of political uncertainty on FDI is inconclusive. For example, some authors that examine overall FDI flows to a country find that it decreases with respect to their measure of political uncertainty (Avioutskii & Tensaout, 2016; Azzimonti 2016; Solomon & Ruiz, 2012; Azam, Khan, & Iqbal, 2012). When others look at the impact of political uncertainty on sector-level FDI, differences begin to appear. The literature shows that political uncertainty reduces FDI in sectors such as real estate, finance, machinery, transportation and manufacturing in the countries examined (Chau, 1997; Chiu, Chen, & Tang, 2005; Desbordes, 2007; Shelton & Falk, 2016). However, it also reveals that the food sector, the metal sector, and the electronic component sectors are largely unaffected by political uncertainty (Desbordes, 2007).

This variation in sector behavior has been attributed to varying sector characteristics such as import or export orientation, capital intensity, and vertical integration (Raff & Srinivasan, 1998; Desbordes, 2007). This means that FDI in capital intensive sectors, owing to their high fixed costs, and FDI in vertically integrated sectors, owing to the fragmented nature of production, would slow down in response to increasing political uncertainty. The same can be said for import and export-oriented sectors. FDI into import-oriented sectors could vary more than FDI into export-oriented sectors, depending on whether the domestic government's policies have a strong bias towards

domestic firms. For the United States, Azzimonti (2016) demonstrated that FDI inflows as a percentage of FDI stock decrease by 25% as a response to increasing political uncertainty. But based on the results of previous literature one can see that focusing only on overall FDI ignores the varying effects of policy uncertainty across sectors.

There are some important characteristics that makes the United States an interesting country at which to look. In the United States the manufacturing sector receives a much larger percentage of FDI than the other sectors.[1] But the composition of employment has shifted away from manufacturing and into the health services sector.[2] Furthermore, the value of manufacturing as a percentage of GDP has been declining overtime, while the value of other sectors such as finance and housing has been increasing.[3] This means that a lot of foreign investment is going into an sector that may not be as relevant for the country (in terms of value added and population livelihood) as other sectors.

Two reasons for focusing this study on the United States are as follows. First, the literature tends to focus on the effect political uncertainty has on developed country FDI outflows to developing countries (Desbordes 2007; Solomon & Ruiz, 2013). However, questions regarding political uncertainty and FDI into developed countries are scant, making this a unique area of research. The second reason involves how political uncertainty in the US is sometimes represented by examining the timing of elections. The timing of elections may not truly reflect political uncertainty because elections are known well in advance and often contain long campaign periods. This means that potential policy changes have already anticipated long before the elections occur.

[1] http://www.bea.gov/international/di1fdibal.htm
[2] http://www.bls.gov/opub/ted/2014/ted_20140728.htm
[3] https://www.bea.gov/iTable/iTable.cfm?ReqID=51&step=1#reqid=51&step=51&isuri=1&5101=1&5114=a&5113=22r&5112=1&5111=1997&5102=5

Using these new indices provides a different way of assessing political climate especially in the United States.

Despite the previous focus of the literature on political uncertainty there has been new and growing research on the effects of policy uncertainty employing some of the indices used in this paper. For example, Krol (2018) employs the 'Trade EPU index, which is one of the categories with the CPU index, to analyze the impact of policy uncertainty on cross-border flows of goods and services. Others such as Nguyen, et al., (2018) and Cebreros et al., (2019) have employed the methodology used in calculating the EPU index to create similar indices for countries where they don't exist.

U.S. policy uncertainty is unique in the sense that it does not represent a breakdown of political institutions, nor does it represent a lack of trust in government. Rather, it represents an uncertainty regarding government policy direction. To measure policy uncertainty, the literature uses several different measures of political risk. One way that this is often represented in the literature is to examine the timing of elections within a country (Chiu et al, 2005; Julio & Yook, 2012). Researchers that use this method must be aware of the implicit assumptions about the amount of uncertainty elections generate. Another proposed method captures uncertainty based on political disagreements in the news media, and this is the method this paper will focus on.

1.3 Measuring Policy Uncertainty

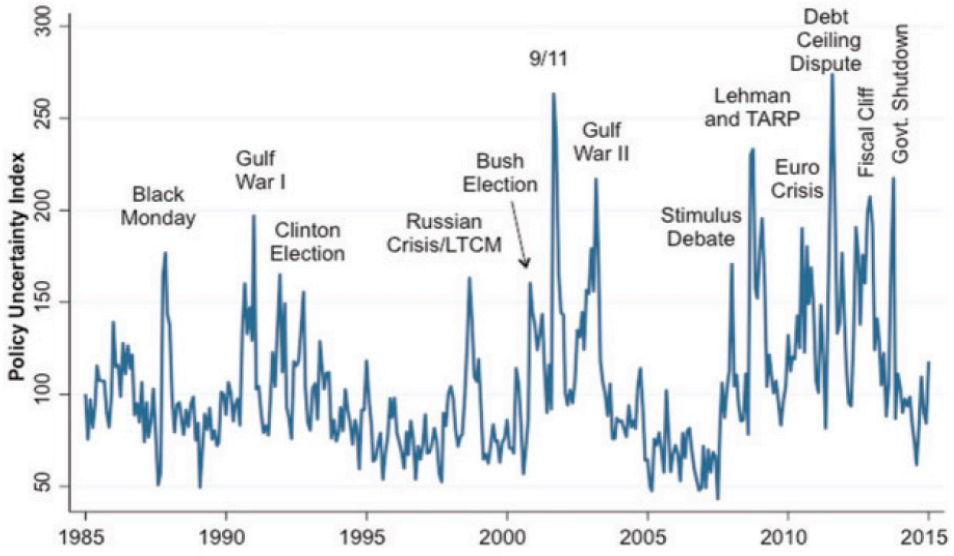
As was mentioned earlier, political uncertainty in places like the United States is sometimes measured by timing of elections at the national and/or state level. However, as Julio and Yook (2012) argue, the timing of national elections is not a direct measure of uncertainty. This means that the researcher must assume uncertainty is higher than average in the period before an election. This is too strong of an assumption to make, as some elections might be more contested than others,

or have an incumbent running uncontested (more so for local level than state). For the EPU and Partisan Conflict indices, the researcher does not need to make prior assumptions about inherent levels political policy uncertainty, rather the existence (or lack thereof) of policy uncertainty is based on societal perceptions.

1.3.1 Economic Policy Uncertainty Index (EPU)

Baker, Bloom, and Davis (2016) measure economic policy uncertainty in the United States via an index that is constructed from three different components. The first component is based on the frequency of news articles from 10 of the nation's leading newspapers: *USA Today*, *Miami Herald*, *Chicago Tribune*, *Washington Post*, *Los Angeles Times*, *Boston Globe*, *San Francisco Chronicle*, *Dallas Morning News*, *New York Times*, and *Wall Street Journal*.

Figure 1.1: U.S. EPU Index



Source: Baker, Bloom, & Davis (2016).

The ordering of the newspaper articles does not play any role in how the indices are calculated. For the news articles to be considered, they must focus on the following trio of terms or phrases:

- “uncertainty”, “uncertain economic” or “economy” and one of the following policy terms: Congress, deficit, Federal Reserve, Legislation, Regulation, or White House’ or variants like ‘‘uncertainties,’’ ‘‘regulatory,’’ or ‘‘the Fed’’ (Baker, Bloom, & Davis, 2016).

The second component of the EPU index utilizes reports published by the Congressional Budget Office that lists temporary federal tax code provisions. And from this they created annual dollar-weighted numbers of tax code provisions that are scheduled to expire over the next 10 years. The third and final component is given by forecast disagreements from Federal Reserve Bank of Philadelphia's “Survey of Professional Forecasters” for the CPI, purchases of goods and services by state and local governments, and purchases of goods and services by the federal government. To construct the overall EPU index they:

> …normalize each component by its own standard deviation prior to January 2012. We then compute the average value of the components, using weights of 1/2 on our broad news-based policy uncertainty index and 1/6 on each of our other three measures (the tax expirations index, the CPI forecast disagreement measure, and the federal/state/local purchases disagreement measure). (policyuncertainty.com, 2020)

Figure 1.1 shows the calculated monthly *economic policy uncertainty* (EPU) index for the United States. To calculate this index, the standard deviation from the newspaper series is normalized, averaged across the 10 papers by month and then the series is normalized to a mean of 100 (Baker, Bloom, & Davis, 2016). As one can see the index captures periods of large economic policy uncertainty from 1985 to 2015. If 100 is taken as the average level of uncertainty during the sample time span, then levels of uncertainty greater than 100 indicate higher periods of uncertainty while levels of uncertainty lower than 100 indicate lower periods of uncertainty.

1.3.2 Categorical Economic Policy Uncertainty Index (CPU)

In addition to the EPU index, Baker Bloom and Davis also develop a narrower version of the EPU called "Categorical Economic Policy Uncertainty Index" (or CPU for the remainder of this paper). The CPU index is similar in design to the EPU index, except that now the index has been split into 9 categories: Monetary Policy, Taxes, Fiscal Policy, Health Care, National Security, Entitlement Programs, General Regulation, Financial Regulation, Trade Policy, and Sovereign Debt[4]. Like the EPU, the articles that fulfill the CPU index criterion also must fulfill the EPU index criterion. The CPU index is then calculated based on the number of times news articles fall within the theme of the categories. Similar to the EPU index, the CPU index is normalized with a mean of 100.

For the specifics of this analysis, implementing the CPU index should provide additional information for policy uncertainty because it is reasonable to assume that different sectors react more to certain themes than others. For example, it is hard to make the argument that the food sector reacts in a similar manner to financial regulation policies as the finance sector. Thus, a way of showing some characteristics of these sectors is needed. A list of some of the words representing the categories can be found in list A5 in the appendix.

1.3.3 Partisan Conflict Index (PC)

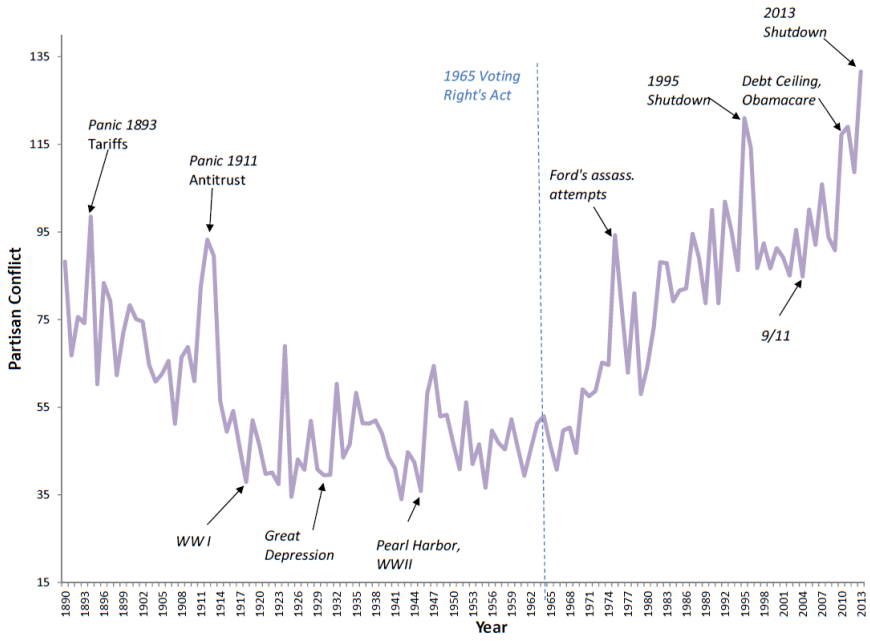
Azzimonti (2014) uses a similar methodology to create an index that, rather than focusing on economic policy, focuses on overall disagreement between political parties, the different branches of government, and other politicians (e.g., political candidates, legislators).

Figure 1.2 shows the calculated monthly historical series of the *partisan conflict* (PC) index beginning in 1890 and ending in 2013. Figure 1.3 shows a plot of the PC and EPU indices together

[4] http://www.policyuncertainty.com/categorical_terms.html

while Figure 4 shows the word combinations used in developing the PC index. For an article to be included in the list it must include at least one word from both circles.

Figure 1.2: U.S. Historical PC Index

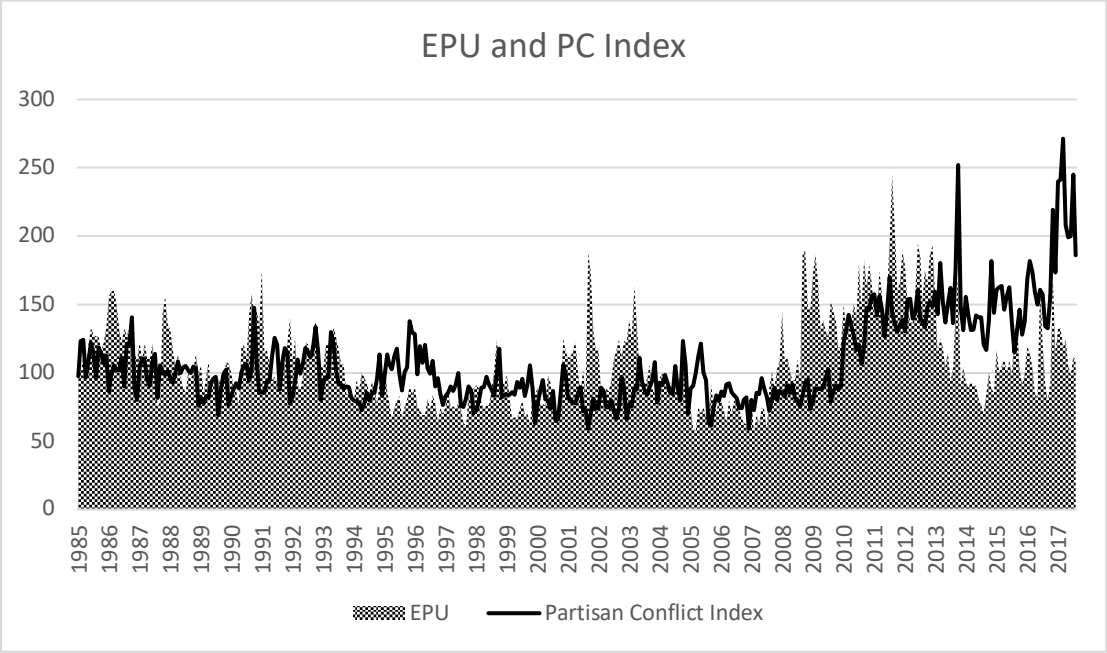


Source: Azzimonti (2014).

As with Figure 1.1, the PC index also shows the periods of high and low policy uncertainty. The main difference between the PC index and the EPU index lies in what both indices look for in the newspaper articles.

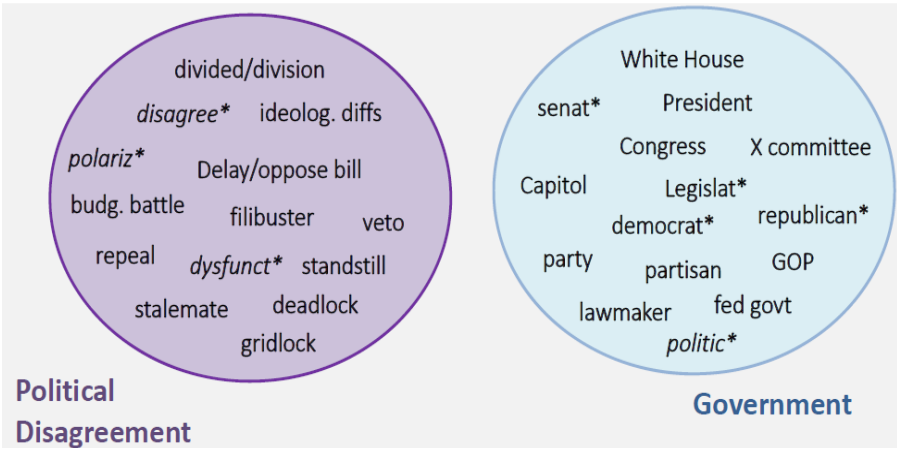
While the EPU index focuses on words relating to economic policy, the PC index focuses on words dealing with general disagreements between the political parties and the branches of government. These words include, but are not limited to congress, filibuster, partisan, gridlock. These differences between the PC index and EPU index can be seen in the way major events are captured. In the case of 9/11 political uncertainty was not very high (the PC index was around 85, below the 100 average) but economic policy uncertainty was relatively higher (the EPU index was around 250, higher than the 100 average).

Figure 1.3: EPU Index and PC Index



Source: Author's calculations.

Figure 1.4: Word Combinations for PC Index



Source: Azzimonti (2014).

In a similar fashion, the plot in Figure 1.3 shows that during the period of the Great Recession economic policy uncertainty was increasing but political uncertainty remained relatively stable. Overall, Figure 1.3 does show some similarities between these two indices, but it

is important to note that the annual correlation of these two series is 0.457. This suggests that while they do move in the same direction, they do not do so strongly. This is not too surprising considering the focus of these two indices.

Caveats exist when measuring uncertainty based on news articles. For one, statements made by political officials to the press or the behavior of political officials observed by the press may not always be a true indicator of the current political climate. Government officials conduct negotiations or reach consensus behind closed doors, which could increase or decrease political uncertainty. Therefore, this paper's contributions to the literature lies in its use of and its focus on different measures of policy uncertainty, i.e., the PC Index, the EPU index and the CPU index and its focus on sector level FDI inflows into a developed country like the U.S. The focus on sector level inflows allows this paper to consider investment behavior under the real options approach to investing. This also forms the main difference between this paper and similar papers.[5]

1.4 Theoretical Foundations

The real options literature came into prominence during the late 1980's and early 1990's. Since then, it has provided some critical insights into firms investing behaviour (Dixit & Pindyck, 1994; Rivoli & Salorio, 1996) and these insights have evolved and are still relevant for today (Desbordes, 2007; Lukas & Welling, 2014; Wong, 2007; Li & Rugman, 2007; Fisch, 2008; Fisch, 2011). At its foundation, the real options approach can be thought of as a modification of the orthodox theory of investment: the net present value approach (NPV).

In the orthodox theory of investment, the firm calculates the present value of the total expected profits of the investment and subtracts the present value of the total expected costs from the investment. The firm would then undertake the investment if the NPV is positive and abandon the

[5] See Azam et al. (2012).

investment if the NPV is negative. That is if the value of the investment is greater than the cost of the investment, the firm invests. However, there are some problems that arise when examining a firm's investment decision under the orthodox theory of investment.

Dixit and Pindyck (1994) argue that the orthodox theory assumes that the decision to invest is either a one-shot scenario or the investment is completely reversible**.** These assumptions are realistic for some types of investment, but not for all. In fact, firms can postpone an investment or abandon it all together. This gives the firm the option to invest, the firm has the right but not the obligation to invest (Dixit & Pindyck, 1994). This option is valuable to the firm, thus the value of the option and the cost of exercising the option should be included in the firms NPV calculations.

This means that there might be some critical value, called P^*, that the investment needs to at least clear before it becomes profitable in the firm's eyes. As Dixit and Pindyck (1994) argue this critical value can be two or three times as large as the investment cost, called I, making the orthodox method of valuating of investments inaccurate.

1.4.1 Real Options Approach Assumptions

To examine the behaviour of U.S. FDI inflows with the real options framework, I adopt a location choice model as employed by Li & Rugman (2007) with the following assumptions: First, this is a two-period model, meaning that while the representative foreign investor can invest every year, the investment time horizon can be categorized into: before the investment and after the investment. At time t = 0 the representative foreign investor would like to pursue an investment opportunity in the U.S. Thus, committing to the investment at time t = 0 opens a real option for the investor's investment to payoff at time t = 1.

Second, when entering the U.S. market, the foreign investor faces various kinds of uncertainty. Some of these are market based while others are non-market based (e.g., political). To

capture the uncertainty in the U.S., one can assume that at t = 0 the uncertainty facing the investor is the United States government's policy stance on various issues (e.g., tax policy, sector regulation, labour policy). Thus, the stance would directly affect the foreign investor's investment cost (which is denoted as I_i), and the amount the investor needs critical value P^*. This is because $P^* = P^*(\sigma)$, meaning that the critical value is also a function of uncertainty (σ), so higher levels of uncertainty increase the investors critical value. At time t = 1 more information on the policy uncertainty is revealed, so the foreign investor decides whether to stay/start its investment or leave the U.S. market.

The Li and Rugman (2007) risk-neutral valuation method can be used to better understand the option value of a location. Since uncertainty is characterised by the range of likely future values, these values can be input into a simple equation to derive appropriate weights, or risk-neutral probabilities. This ensures that the option value of investment does not have opportunity for free arbitrage.

1.4.2 Structure of Uncertainty

In the Li and Rugman (2007) location choice model, P_i (which represents the investment payoff) is a stochastic variable. The investment payoff is assumed to follow a binomial distribution. This creates a scenario where from t = 0 to t = 1, P_i , where i = U.S. or elsewhere, can change from its starting value $P_i(0)$ to one of two future values (i.e., high or low). At t = 1 the following possible outcomes occur:

$$P_i(1) = P_i(0)*h_i \text{ or } P_i(1) = P_i(0)*l_i \qquad (1)$$

Where $h_i = e^{\sigma_i}$, $l_i = e^{-\sigma_i}$, and σ_i is the uncertainty surrounding the investment payoff P_i. The risk neutral probabilities are: $q_i = e^{\sigma_i} - \frac{l_i}{h_i} - l_i$ for $P_i(1) = P_i(0)*h_i$ to occur and $1-q_i$ for $P_i(1) = P_i(0)*l_i$. From this specification, one can then find the real options value of setting up an

investment either in the U.S. or elsewhere through backwards induction. If the investor sets up an investment in location i at t = 0 its payoff in location i at t = 1 will be:

$$V_i = \max\left[(P_i(1) - I_i),0\right] \quad (2)$$

This means that the investor can choose to exercise its option to invest in location i or does not invest at all. If $(P_i(1) - I_i) \geq P^*$ then the investor will invest. If $(P_i(1) - I_i) < P^*$ then investor will not exercise its option. The option value of investing in location i at t = 0 will be:

$$RO_i(0) = \frac{q_i * V_i[P_i(0) * h_i] + (1 - q_i) * V_i[P_i(0) * l_i]}{e^r} \quad (3)$$

Here e^{-r} represents the discount rate and r = risk free rate. Equation (3) shows the outcome of the investment under two possible scenarios (the high state and the low state). This means that at t = 0 the investors objective will be based on:

$$\pi(0) = \max\left[RO_1(0), RO_2(0)\right] \quad (4)$$

1.4.3 Testable Implications

The model discussed in the previous section is a very micro level model, one that looks at the individual level choice framework of firms. Taking this as a reflection of the actions of multiple firms tells us how investments flowing into a country change depending on the level of uncertainty perceived by investors. When it comes to macro level analysis of foreign investments it is usually the case that the data observed and gathered represent actions that have already happened. This analysis is no different. The data used in this paper is of recorded foreign direct investment each year in the United States. Thus, the level of investment observed represents the actions of firms who have considered the uncertainty conditions in the United States and used this information in constructing their optimal investment decision rule via the framework described in the previous section. One way to look at the impact of uncertainty on foreign investment at a macro level, and

in the context of the framework described above involves examining changes in the level of foreign investment on a yearly basis and changes the level of investment going into certain sectors.

Examining the uncertainty investment relationship in this manner leads us toward the following testable propositions:

Proposition 1: *Policy uncertainty reduces FDI inflows into the United States.*

According to Desbordes (2007) the real options approach is based on the idea that FDI has three important characteristics: investments are hard to reverse, uncertainty about future returns exists, and the investor has the possibility to choose when to invest. Any uncertainty surrounding the direction of government policy is bound to affect the future returns of foreign MNE's. One can conclude that policy uncertainty will reduce FDI inflows. By looking at the year-to-year changes of FDI inflows into the United States I can test to see if this proposition holds up.

Proposition 2: *The effect of policy uncertainty may matter differently across sectors.*

From the framework in section 3.2 note that σ_i represents uncertainty regarding investment payoff, thus as uncertainty increases, the bigger the difference between the high payoff scenario, h_i and the low payoff scenario l_i. When uncertainty is small the difference between the expected payoffs between the high and low states should be relatively close, as per h_i and l_i thus if the firm chooses to invest, then the actual payoffs and expected payoffs should be similar. If the sunk costs associated with investing are very low, then the firm should not worry too much about the difference between the high payoff scenario and low payoff scenario because if they get a low payoff scenario, the firm will get unfavourable profits, but its costs would not have been very high. On the other hand, if the sunk costs associated with investments are very large then the firm worries a lot more about the payoff scenario it faces. Therefore, one can summarize that for sectors with very large investment costs, and investment irreversibility, uncertainty will make the investment's

critical value or payoff requirement threshold higher. This makes waiting until additional information becomes available a valuable choice. One can then say that foreign investment in capital intensive sectors should be more susceptible to policy uncertainty than investments in non-capital-intensive sectors. Because capital intensive sectors typically have bigger initial costs than non-capital-intensive sectors. Checking if there are differences between FDI flowing into more capital-intensive sectors versus sectors that are less capital intensive will allow us to test whether this proposition is valid.

1.5 Data and Descriptive Statistics

This paper examines foreign direct investment inflows into 14 U.S. sectors from 36 countries from 1987-2016. Data regarding U.S. FDI inflows is obtained from the Bureau of Economic Analysis. FDI inflows are measured by the funds that the parent MNE sends to its U.S. subsidiaries[6]. It is important to note that during the sample period there was major change in the way U.S. sector level data was classified. The North American Sector Classification System (NAICS), adopted in 1997 by U.S. data collecting agencies, was implemented to replace the old Standard Industrial Classification (SIC) system. Consequently, sector classification is not consistent across the entire sample period. To rectify this the sample period is split into two: 1987-1998 and 1999-2016. The split in the data also reflects the change in the BEA use of sector classification systems (BEA began classifying sectors under the NAICS scheme for their datasets from 1999 and onward).

One of the benefits of having a dataset with multiple dimensions (sector, country, time) is the ability to analyze relationships from multiple dimensions. In this specific case, I will be focusing more on country and time dimensions because they represent the dimensions of most of

[6] Bea.gov. (n.d.). A Guide to BEA's Direct Investment Surveys. [online] Available at: https://www.bea.gov/surveys/pdf/a-guide-to-bea-direct-investment-surveys.pdf [Accessed 27 Nov. 2017].

the non-U.S. control variable. By doing so I can examine how MNE's from different countries change their U.S. investing behavior in response to U.S. policy uncertainty over time, and how the MNE's U.S. investing behavior changes from country to country. When estimating panel models one can employ fixed effects. This is also known as the "Within effect". The "Within effect" or the fixed effect portion essentially focuses on the time series information of the panel data. That is variations over time within specific panel groups (i.e., Italian FDI to the US over time). So, in this case I am essentially checking to see whether a country has been changing its investments into different sectors over time in response to perceived uncertainty in U.S. policies over the period being examined. Another method of estimation for panel data is by employing between effects. The between effect focuses on the cross-sectional information part of the data. Thus, by looking at the between effect case I can examine the composition of countries that continue to invest in the United States and the sectors that they choose to invest in. Doing this can give insights as to whether some countries are much better at handling U.S. policy uncertainty than others. Table 1.1 includes summary statistics of FDI inflows.

Table 1.1: Summary Statistics of FDI inflows for the 1987-1998 Sample

		Mean	Std. Dev.	Min	Max	Observations
FDI (Millions)	Overall	143.1622	1176.027	-5650	60653	N = 3520
	Between		376.6072	-236.583	5170.5	n = 429
	Within		1087.732	-8245.34	55625.66	T-bar = 8.20513
Summary Statistics of FDI inflows for the 1999-2016 Sample						
FDI (Millions)	Overall	374.0267	2592.139	-10643	97611	N = 5608
	Between		1057.491	-1321.88	15320.9	n = 499
	Within		2315.983	-22964.9	82664.13	T-bar = 11.2385

Note. N is # of observations, "n" represents sector and country dimensions, and T-bar/T represent the time dimension.

As was stated earlier, Azzimonti's (2014) PC index measures political uncertainty by recording the number of times newspaper articles report on political disagreements between the

president, congress, and the two main political parties within a given month. The PC index is obtained from the Philadelphia FRED website.[7]

Table 1.2: Policy Uncertainty Indicators for the U.S.

1987-1998 Sample						
		Mean	Std. Dev.	Min	Max	Observations
PC Index	Overall	97.05398	8.191696	84.5633	109.05	N = 5184
	Between		0.411064	94.80547	99.3025	n = 432
	Within		8.181398	82.31479	111.2985	T = 12
EPU Index	Overall	98.72498	15.28047	75.2143	118.672	N = 5184
	Between		1.43042	87.32085	110.1291	n = 432
	Within		15.21351	69.21527	125.6678	T = 12
CPU Index	Overall	107.7398	89.73708	17.0114	653.373	N = 5184
	Between		22.20167	66.2635	168.3984	n = 432
	Within		86.95329	-20.3385	633.6555	T = 12
1999-2016 Sample						
		Mean	Std. Dev.	Min	Max	Observations
PC Index	Overall	109.2052	31.19231	76.8608	163.815	N = 9072
	Between		0	109.2052	109.2052	n = 504
	Within		31.19231	76.8608	163.815	T = 18
EPU Index	Overall	111.6868	30.97839	71.3287	172.247	N = 9072
	Between		0	111.6868	111.6868	n = 504
	Within		30.97839	71.3287	172.247	T = 18
CPU Index	Overall	95.03224	59.4188	28.1373	289.284	N = 9072
	Between		26.04515	54.24076	138.2218	n = 504
	Within		53.4183	4.170169	260.4499	T = 18

Note. N is # of observations, "n" represents sector and country dimensions, and T-bar/T represent the time dimension.

Similarly, the categorical EPU and the EPU, both developed by Baker, Bloom, and Davis (2016) were obtained from their website[8]. Table 1.2 lists the summary statistics for the policy uncertainty variables. From the descriptive statistics one can see that policy uncertainty is higher than average in the later time period as given by the PC index and EPU index (as was stated earlier the average level of uncertainty for these two indices is 100). The same cannot be said for the CPU index, which is likely due to the composition of the CPU index. Furthermore, this discrepancy

[7] https://www.philadelphiafed.org/research-and-data/real-time-center/partisan-conflict-index
[8] www.policyuncertainty.com

between time periods is due to the base year used to calculate the index. Table 1.3 lists the summary statics for U.S. variables, country variables and sector variables.

Table 1.3: U.S. Specific, Country Specific, and Sector Specific Variables

1987-1998 Sample						
		Mean	Std. Dev.	Min	Max	Observations
U.S. GDP (Billions)	Overall	6,843,574	1,282,910	4,870,217	9,089,160	N = 5184
	Between		125,742.5	5,773,864	7,913,284	n = 432
	Within		1,276,746	4,123,801	9,835,576	T = 12
U.S. GDP Deflator	Overall	70.62308	6.058974	59.879	78.855	N = 5184
	Between		0.600937	65.56867	75.6775	n = 432
	Within		6.029163	56.26592	82.46809	T = 12
Canadian GDP %	Overall	2.458333	1.942891	-2.1	4.5	N = 5184
	Between		0.112906	1.616667	3.3	n = 432
	Within		1.939615	-2.30833	5.241667	T = 12
Mexican GDP %	Overall	3.399024	3.133059	-5.75868	6.962889	N = 5184
	Between		0.130525	2.496775	4.301273	n = 432
	Within		3.130345	-6.47231	7.865138	T = 12
Foreign GDP (Billions)	Overall	588,162.7	958,809.8	1173	5,277,000	N = 5112
	Between		950,912.6	1611.083	4,797,333	n = 432
	Within		90,762.24	-280171	1,067,829	T-bar = 11.8333
Net Exports (millions)	Overall	-2480.97	9,938.521	-65,668.2	12,534	N = 4944
	Between		9,476.986	-53,594.9	8,391.742	n = 432
	Within		2,265.978	-15,491.4	10,009.41	T-bar = 11.4444
C.I. Index	Overall	55.63081	15.77285	23.072	86.29	N = 5184
	Between		14.14872	38.2675	81.53842	n = 432
	Within		7.001513	13.73456	95.93664	T = 12
Labour Cost (Millions)	Overall	190.7131	287.7441	10.35817	1,407.558	N = 5184
	Between		278.9897	10.87103	1,084.767	n = 432
	Within		71.60053	-444.285	1,366.439	T = 12
1999-2016 Sample						
		Mean	Std. Dev.	Min	Max	Observations
U.S. GDP (Billions)	Overall	14,100,000	2,679,750	9,660,622	18,600,000	N = 9072
	Between		0	14,100,000	14,100,000	n = 504
	Within		2,679,750	9,660,622	18,600,000	T = 18
U.S. GDP Deflator	Overall	96.49172	9.948403	80.061	111.412	N = 9072
	Between		0	96.49172	96.49172	n = 504
	Within		9.948403	80.061	111.412	T = 18
Can/ U.S. FX (%)	Overall	-0.90169	6.744927	-12.0913	13.61657	N = 8568
	Between		0	-0.90169	-0.90169	n = 504
	Within		6.744927	-12.0913	13.61657	T = 17

Table 1.3—Continued

		Mean	Std. Dev.	Min	Max	Observations
Mexico/U.S. FX (%)	Overall	4.322371	7.845594	-6.47503	21.13434	N = 9072
	Between		0	4.322371	4.322371	n = 504
	Within		7.845594	-6.47503	21.13434	T = 18
Foreign GDP (Billions)	Overall	984,453.2	1,417,206	4,524.376	9,505,160	N = 8974
	Between		1,349,375	5,491.928	5,660,011	n = 504
	Within		422,738.3	-2,105,291	5,337,879	T = 17.8056
Net Exports (Millions)	Overall	-12569.7	43,222.06	-367,257	36,678.14	N = 9072
	Between		39,681.28	-226,442	16,809.1	n = 504
	Within		17,218.98	-153,384	145,195.6	T = 18
C.I. Index	Overall	86.59226	15.31781	44.128	124.389	N = 8568
	Between		3.715431	78.71829	94.26747	n = 504
	Within		14.86124	43.17726	122.6443	T = 17
Labour Cost (Millions)	Overall	231.2609	173.3455	31.62095	629.0965	N = 8568
	Between		172.1673	35.22181	599.0775	n = 504
	Within		21.50447	151.532	341.8981	T = 17

Note. N is # of observations, "n" represents sector and country dimensions, and T-bar/T represent the time dimension.

It is interesting to note that for the earlier sample period there are differences between the "Overall", "Between" and "Within" specification for the Canada, Mexico and U.S variables. However, I do not have a clear explanation for this phenomenon. Data on other control variables such as U.S. GDP, U.S. GDP Deflator, Canada/U.S. exchange rate and Mexico/U.S. exchange rate are obtained from the St Louis FRED. Foreign country GDP is obtained from the World Bank development indicators (except Taiwan which was obtained from the Taiwanese central bank), Canadian GDP growth and Mexican GDP growth are obtained from Statistics Canada, and the World Bank development indicators. The capital intensity index (C.I.), bilateral net exports and the measure of labour cost were obtained from the BLS.

The U.S. GDP and U.S. GDP deflator capture the domestic economic climate. A good economic climate (high GDP and low inflation) would attract foreign investors. Canadian GDP growth, Mexican GDP growth, Canada/U.S. FX and Mexico/U.S. FX are used to proxy for the

other option that a foreign investor has, namely investing in neighboring countries. Bilateral net exports are included to control for the strong relationship between trade and investment, and Labour Cost represents sector level characteristics that may influence the MNE's decision to invest a certain sector.

The other county measures were included to allow for the effects of location arbitrage to be taken into consideration. If for example one country has an absolute advantage in terms of FDI then this relationship would be highlighted by the significance of the other country measures.

Table 1.4 shows the sectors used in this analysis, and their corresponding 2 and 3-digit NACIS classification code. In some cases, a few sectors had to be combined to match with the corresponding sector that FDI flows into. When the sector classification system shifted from SIC to NAICS some sectors were merged under a new NAICS code while others were further subdivided into multiple NAICS codes. The sectors that have been combined are in bold.

To highlight some of the testable implications of the real options approach a capital intensity (C.I.) index, with year = 2009 as the base year, is included. This index as defined by the BLS is the capital to hours ratio and measures ratio of capital services to hours worked. It is interesting to note that the capital intensity index has been increasing over time. This would seem to suggest that more and more capital is being used in the production process. Thus, to prevent any measurement errors the capital intensity index can vary over time and over sectors. The idea being that sectors with relatively higher levels of capital intensity would be more susceptible to policy uncertainty as stipulated in the previous section.

Table 1.4: Sectors and Corresponding NAICS Code

NAICS Sector Code	Sector Title
325	Chemical Products [b, c]
334	Computer and Electronic Products [c]
335	Electrical Equipment, Appliances, and Components [c]
521,522,524	**Finance and Insurance (Banking and Depository Institutions)** [a, b, c]
311,312	Food and Beverage and Tobacco Products [b, c]
51	Information [c]
333	Machinery [b, c]
523	Non-Bank Finance [b]
324	Petroleum [b]
5412-5414,5416-5419	Professional, Scientific, and Technical Services [b, c]
331,332	**Primary and Fabricated Metals** [b, c]
531,532,533	**Real Estate and Rental and Leasing** [b, c, d]
44,45	Retail Trade [b, c]
336	Transportation Equipment [c]
42	Wholesale Trade [b, c]

Note. [a] with the exception of 524 in 87-98 sample; [b] represents 87-98 sample, [c] represents 99-16 sample; [d] with the exception of 532, 533 in 87-98 sample.

1.6 Empirical Model

The earlier framework that was used to illustrate how uncertainty impacts investment decisions via the real options assumptions is very firm-level in nature; that is, it illustrates the decision-making framework from the firm's point of view. In this section I adopt a macro level approach to testing the two propositions. I also reduce the variations caused by differences in the units of measurement of the variables by taking logs and percentages when applicable. The first proposition stated in the theoretical foundations section states that policy uncertainty should reduce uncertainty. To test this proposition, I estimate a baseline model which regresses the policy uncertainty measures on FDI via a fixed effects model and a between effects model. I also partition this regression to see if the effect changes when looking at manufacturing versus non-manufacturing sectors. The baseline specification without testing the implications of the real options approach is given by equation 1a & 1b:

$$LnFDI_{it} = \alpha_0 + \alpha_1 LnPolicyUncertainty_{t-1} + \boldsymbol{X}'\theta + \varepsilon_{it} \qquad (1a)$$

$$LnFDI_{ci} = \alpha_0 + \alpha_1 LnPolicyUncertainty \quad + \boldsymbol{X}'\theta + \varepsilon_{ci} \qquad (1b)$$

Equation 1a models the within effect approach, and equation 1b represents the between effect approach. FDI_{it} represents annual FDI inflows to sector *i* at time *t* and FDI_{ci} represents annual FDI inflows from country *c* into sector *i*. **X** represents a vector of control variables, such as GDP, inflation, Canada/U.S. exchange rate, Canadian GDP, Mexico/U.S. exchange rate, Mexican GDP, foreign country GDP, Bilateral net exports, and the cost of labour for each sector. The policy uncertainty variables enter this model with a one period lag to represent the idea that investors base their investment decision on available information and current uncertainty levels may not be realized or fully understood when the investment decision is being made. In keeping with the implications of the location choice framework in *section 3.2*, the Canadian and Mexican variables were included to capture the economic climate of an alternative market available to investors should they choose to invest elsewhere.

Proposition 2 represents the focus on the real options theory. In proposition 2 I assert that policy uncertainty should have different impacts on different sectors because of the different investment costs in each sector. The differences in investment costs are represented by the level of capital intensity with more capital-intensive sectors being assumed to have higher investment costs. To test the implications of the real options theory, I modify equation (1) to reflect the importance of capital intensity by interacting the policy uncertainty indices with a capital intensity variable:

$$LnFDI_{it} = \beta_0 + \beta_1 LnPolicyUncertainty_{t-1} + \beta_2 C.I.GrowthRate_{it} + \beta_3 LnPolicyUncertainty_{t-1} * C.I.GrowthRate_{it} + \boldsymbol{X}'\theta + \varepsilon_{it} \qquad (2a)$$

$$LnFDI_{ci} = \beta_0 + \beta_1 LnPolicyUncertainty \quad + \beta_2 C.I.GrowthRate_{i} + \beta_3 LnPolicyUncertainty_{t-1} * C.I.GrowthRate_{i} + \boldsymbol{X}'\theta + \varepsilon_{ci} \qquad (2b)$$

The significance, sign, and size of the coefficient are examined to determine whether this theory explains FDI inflows to the U.S. As was stated earlier, the sign of the policy uncertainty index is expected to be negative and significant for capital intensive sectors because the large capital cost associated with these sectors makes them more susceptible to risk. The sign of GDP should be positive, because when the economy is doing well, investors see a much higher return for capital intensive projects and are therefore more likely to invest. The opposite occurs for the GDP deflator. As inflation increases, foreign investors will find the value of their investment has eroded. This will weaken their incentive to invest in the United States, thus its sign should be negative.

The signs on the Canada/U.S. and Mexico/U.S. exchange rates should be positive because an increase in the amount of Canadian dollar/Mexican peso needed to buy U.S. dollars means that the U.S. dollar is appreciating. This will act as a signal to foreign investors about the strength of the U.S. economy relative to its neighbors. Essentially this means that investment towards these two countries might be diverted to the U.S.

The sign on Canadian GDP, Mexican GDP and Foreign GDP should be positive. Growth in the neighboring and foreign economy means more available income for foreign investors, thus one can expect that this increases FDI inflows. Given the size and global position of the United Sates economy, changes in domestic GDP will have an impact on the GDP of other countries. So, to avoid any potential issues of collinearity Canadian, Mexican and Foreign GDP enters the model with a one period lag.

Bilateral net exports should have a positive relationship with U.S. FDI inflows. As net exports increase it means that the United States is exporting more goods to the countries in this analysis. Countries that are willing to import U.S. goods might have good rapport with the United

States, which means that U.S. policy makers would be unwilling to enact policies that adversely affect these nations. This may make those countries more willing to invest in the United States as opposed to another country.

As was stated earlier, with the within effect I am essentially checking to see whether a country has been changing its investments over time in response to perceived uncertainty in U.S. policies over the period being examined. This corresponds with what was stated in proposition 1. For the between effect, if significance is found then it means that U.S. policy uncertainty has local rather than global effects. In addition to the within and between effects, I also examine the relationship between Manufacturing sectors and Non-Manufacturing sectors to see if MNE's investing behavior differs based on the type of sector. This specification corresponds with what was stated in proposition 2, where sector differences are what causes policy uncertainty to have relevant changes in FDI. The following section examines and discusses the estimated results from the 1987-1998 sample and the 1999-2016 sample respectively.

1.7 Empirical Results

1.7.1 Partisan Conflict Index (PC)

The results from the empirical estimation are presented below. Table 1.5 contains the results from the baseline specification and real options specification in equations 1 & 2 for the '87-98 sample period. This specification tests the implications of proposition 1 and 2. For the within effect estimation, the results show that policy uncertainty has no impact on FDI inflows regardless of capital intensity. The opposite holds true for non-manufacturing firms. One can see that policy uncertainty increases FDI inflows in the United States. But capital intensity does not have a significant impact on FDI inflows.

Table 1.5: PC Index for 1987-1998 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log PC $Index_{t-1}$	0.744	0.468	-32.577***	-28.721***	3.104*	3.439**	-8.222	-6.935
	(2.232)	(2.190)	(10.346)	(10.619)	(1.636)	(1.721)	(6.875)	(7.027)
C.I. %	-	-0.458	-	2.897	-	0.108	-	3.309
		(0.778)		(2.950)		(0.859)		(3.364)
Log PC*C.I.	-	0.099	-	-0.614	-	-0.020	-	-0.713
		(0.169)		(0.644)		(0.187)		(0.734)
Log GDP	4.392	4.742	4.033	7.759	2.827	2.322	13.161	14.955
	(5.579)	(5.570)	(19.115)	(19.280)	(4.165)	(4.241)	(12.755)	(12.798)
Log Inflation	-8.768	-9.319	-1.349	-11.069	-4.950	-3.746	-29.971	-32.614
	(12.177)	(12.102)	(42.427)	(42.975)	(9.074)	(9.326)	(28.334)	(28.368)
Canadian GDP $Growth_{t-1}$	0.185*	0.181*	-0.819**	-0.762*	0.105	0.117	-0.446*	-0.457*
	(0.102)	(0.101)	(0.414)	(0.414)	(0.076)	(0.077)	(0.268)	(0.269)
Mexican GDP $Growth_{t-1}$	-0.048	-0.047	-0.407**	-0.374*	0.024	0.029	-0.050	-0.069
	(0.047)	(0.048)	(0.187)	(0.196)	(0.037)	(0.038)	(0.178)	(0.178)
Log Foreign GDP_{t-1}	-0.312	-0.453	0.472***	0.466***	-0.894	-0.824	0.232***	0.231***
	(1.170)	(1.223)	(0.101)	(0.101)	(0.923)	(0.896)	(0.067)	(0.067)
Log NX	-0.041	-0.042	0.006	0.004	0.009	0.009	-0.003	-0.004
	(0.033)	(0.033)	(0.023)	(0.023)	(0.023)	(0.023)	(0.016)	(0.016)
Log Cost of $Labour_{t-1}$	0.319	0.342	0.479	0.852	0.637	0.636	0.017	0.001
	(0.420)	(0.420)	(0.701)	(0.732)	(0.457)	(0.464)	(0.087)	(0.088)
Observations	998	998	998	998	2074	2074	2074	2074

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

These results suggest that the within specification does not support the conclusions from proposition 1 & 2. For the between effect estimation, one can see that policy uncertainty has a significant and negative impact on FDI inflows to manufacturing sectors in the United States. Since the dependent variable and the policy uncertainty variable are both in logs, for the between effects case, a 1% increase in the policy uncertainty index will lead to a 38% decrease in FDI between the other country and the United States in the baseline case and a 33% decrease in FDI in the real options case.

This supports the conclusions of proposition 1 but not proposition 2 for between country variation since the capital intensity variables are not significant. The same cannot be said for the non-manufacturing sectors in the between effect estimation. For the other variables, only Canadian GDP, Mexican GDP and foreign GDP tend to be significant. The Canadian and Mexican GDP growth rates reduce FDI suggesting that there is some diversion effect caused by these two countries.

Table 1.6 contains the results from the baseline and real options specification for the '99-16 sample below. The results show that for manufacturing sectors and with respect to variations over time (the within effect estimation) policy uncertainty increases FDI inflows into the United States. But the capital intensity variable and the interaction between capital intensity and policy uncertainty are not significant which suggests that proposition 2 does not hold for manufacturing sectors. For non-manufacturing sectors the results do not lend any support for proposition 1 and 2. This suggests that policy uncertainty has no impact on non-manufacturing sectors, regardless of their capital intensity.

Table 1.6: PC Index for 1999-2016 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log PC $Index_{t-1}$	1.465**	1.534**	-2.191	-3.274	0.360	0.659	-1.533	-3.238
	(0.614)	(0.633)	(3.062)	(2.988)	(0.649)	(0.745)	(3.090)	(3.136)
C.I. %	-	0.924	-	-0.084	-	0.480	-	-4.475**
		(0.590)		(1.429)		(0.780)		(2.089)
Log PC*C.I.	-	-0.203	-	-0.005	-	-0.106	-	0.980**
		(0.131)		(0.316)		(0.173)		(0.461)
Log GDP	6.210	11.324*	5.094	-10.684	12.211*	14.481**	-0.161	-10.639
	(5.167)	(6.475)	(23.771)	(24.554)	(6.244)	(6.713)	(23.506)	(22.924)
Log Inflation	-10.366	-19.758	-4.463	21.213	-18.017	-20.946	-3.087	13.841
	(10.209)	(12.533)	(42.906)	(44.312)	(12.463)	(13.232)	(41.982)	(41.145)
Can/U.S. FX %	-0.006	0.000	0.068	0.137	-0.014	-0.019	0.119	0.162*
	(0.017)	(0.018)	(0.091)	(0.089)	(0.019)	(0.021)	(0.095)	(0.096)
Mexico/U.S. FX %	-0.003	-0.010	0.072	0.052	-0.013	-0.007	-0.016	-0.046
	(0.013)	(0.015)	(0.062)	(0.065)	(0.015)	(0.016)	(0.077)	(0.079)
Log Foreign GDP_{t-1}	-0.456	-0.681	0.441***	0.451***	-1.126	-1.674	0.544***	0.520***
	(0.804)	(0.838)	(0.077)	(0.074)	(1.031)	(1.164)	(0.089)	(0.090)
Log NX	-0.005	0.003	0.010	0.012	-0.038	-0.023	0.015	0.014
	(0.026)	(0.032)	(0.014)	(0.014)	(0.034)	(0.033)	(0.017)	(0.017)
Log Cost of $Labour_{t-1}$	-1.127	-2.408	0.173	0.262	-0.689	-1.358	0.066	0.205
	(1.426)	(1.864)	(0.228)	(0.227)	(1.531)	(1.654)	(0.248)	(0.262)
Observations	2664	2530	2664	2530	2602	2457	2602	2457

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

For the between effect estimation, the results show that policy uncertainty has no impact on manufacturing firms. However, it does have a significant impact on non-manufacturing firms. The results show that after controlling for policy uncertainty, FDI inflows into non-manufacturing sectors with higher capital intensity falls. But when interacted with policy uncertainty the results show the opposite, FDI into non-manufacturing sectors increases as policy uncertainty and capital intensity increase. The results also show that foreign GDP, U.S. GDP an increase in the growth rate of the Cam/U.S. FX all increase FDI inflows into the United States.

1.7.2 Economic Policy Uncertainty Index (EPU)

Given the results in section 1.7.1, it is possible that the PC index does not fully capture the mood of MNEs when making investment decisions. It's possible that investors may also pay attention to economic uncertainty. Thus, in this section I use the EPU index. The EPU index was developed by Baker et al. (2016). In its present form, the U.S. EPU index is:

> …construct[ed]…from three types of underlying components: One component quantifies newspaper coverage of policy-related economic uncertainty. A second component reflects the number of federal tax code provisions set to expire in future years. The third component uses disagreement among economic forecasters as a proxy for uncertainty. (Economic Policy Uncertainty, 2012, U.S. Monthly Index)

Table 1.7 lists the estimation results for the model specification with the EPU index. One can see that in the within effects estimation, policy uncertainty has no impact on FDI inflows for both manufacturing and non-manufacturing sectors. This effect persists regardless of whether the sector is capital intensive or not. This suggests that economic policy uncertainty is not relevant in determining U.S. FDI inflows when considering foreign MNE behavior over time.

Table 1.7: EPU Index for 1987-1998 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log EPU $Index_{t-1}$	1.444	1.418	-1.185	4.623	0.752	0.799	1.196	3.856
	(1.805)	(1.783)	(8.121)	(8.765)	(1.363)	(1.362)	(6.336)	(6.348)
C.I. %	-	0.103	-	-4.480**	-	0.053	-	5.030***
		(0.507)		(2.129)		(0.497)		(1.621)
Log EPU*C.I.	-	-0.023	-	1.028**	-	-0.009	-	-1.081***
		(0.110)		(0.475)		(0.107)		(0.351)
Log GDP	9.107	8.651	0.046	31.763	6.742	6.581	15.226	18.776
	(7.236)	(7.586)	(34.986)	(37.323)	(5.908)	(5.893)	(23.709)	(23.393)
Log Inflation	-17.176	-16.214	7.301	-53.846	-12.546	-12.128	-32.526	-40.533
	(14.098)	(14.917)	(67.972)	(71.459)	(11.349)	(11.360)	(44.931)	(44.386)
Canadian GDP $Growth_{t-1}$	0.171*	0.170*	0.016	0.043	0.018	0.020	-0.219	-0.230
	(0.089)	(0.089)	(0.330)	(0.325)	(0.058)	(0.059)	(0.198)	(0.196)
Mexican GDP $Growth_{t-1}$	-0.070*	-0.069*	0.060	-0.015	-0.032	-0.031	0.085	0.105
	(0.037)	(0.037)	(0.157)	(0.166)	(0.028)	(0.028)	(0.141)	(0.139)
Log Foreign GDP_{t-1}	-0.128	-0.161	0.495***	0.445***	-0.913	-0.861	0.230***	0.229***
	(1.145)	(1.143)	(0.105)	(0.104)	(0.917)	(0.931)	(0.067)	(0.066)
Log NX	-0.041	-0.041	0.012	0.013	0.010	0.009	-0.004	-0.005
	(0.033)	(0.033)	(0.024)	(0.023)	(0.023)	(0.023)	(0.016)	(0.016)
Log Cost of $Labour_{t-1}$	0.347	0.335	0.189	1.065	0.641	0.640	0.022	-0.051
	(0.434)	(0.424)	(0.731)	(0.768)	(0.460)	(0.463)	(0.088)	(0.089)
Observations	998	998	998	998	2074	2074	2074	2074

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

However, when the between effect estimation is examined some interesting results are found. Here one can see that for both manufacturing and non-manufacturing sectors capital intensity increases FDI inflows whereas the interaction between policy uncertainty and capital intensity reduces FDI inflows. The latter result would seem to lend support for the implications of proposition 2.

Table 1.8 lists the results from the 1999-2016 sample. Like the previous sample policy uncertainty has no impact on FDI inflows into manufacturing and non-manufacturing sectors in the within effect estimation. But for the between effect estimation one can see that policy uncertainty reduces FDI inflows in both manufacturing and non-manufacturing sectors. When capital intensity is controlled for the results do not lend any support that capital intensive firms are more susceptible to policy uncertainty, regardless of the type of sector.

1.7.3 Categorical Economics Policy Uncertainty Index (CPU) Robustness Check

As was mentioned earlier in the paper, more depth can be added to this analysis by considering another method of measuring policy uncertainty. One of the arguments that can be made against the PC index and the EPU index is based on their coverage. One could reasonably argue that based on the words used to generate them, the scope of the two indices is too general. It is possible that MNE's may not care much about party infighting per se but rather they care more about the specific policy changes that arise from party infighting. As a result, I re-examine the relationship between policy uncertainty and FDI using the Categorical EPU (CPU) index. To use this index, I examine the correlation between the 9 categories and the different sectors. For the respective sectors, the CPU category with the highest correlation was used as the policy uncertainty measure for that sector. Table A3 and A4 in the appendix show the correlation coefficients between the CPU index categories and the sectors covered in this analysis.

Table 1.9 shows the results from the 1987-1998 sample when the CPU index is used to measure policy uncertainty. Though the CPU index contains policy uncertainty measures with a narrower focus, there is no significant relationship between policy uncertainty and FDI inflows regardless of the extent of capital intensity, or the type of sector. The lack of significant relationship holds even after looking at time variations within a country and variations between countries. The only significant predictors in during this time period are Canadian and Mexican GDP growth rate and foreign GDP.

Table 1.10 shows the results for the 1999-2016 sample. Once again, there is a mostly similar pattern. Policy uncertainty has no significant impact on FDI inflows regardless of capital intensity and type of sector for the within effect estimation.

For the between effect estimation the results are similar with the exception of the non-manufacturing sectors. Here one can see that an increase in policy uncertainty as measured by the CPU index decreases FDI inflows to the united states. However, the previous results do not hold when capital intensity is controlled for. In this specification U.S. GDP, U.S. inflation and foreign GDP, with expected signs, are the only significant predictors in this specification. Although U.S. GDP and inflation are more pertinent for non-manufacturing sectors than for manufacturing sectors.

Table 1.8: EPU Index for 1999-2016 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log EPU $Index_{t-1}$	0.135	-0.008	-5.046**	-4.681**	-0.148	0.381	-4.459*	-5.349
	(0.473)	(0.508)	(2.080)	(2.183)	(0.547)	(0.785)	(2.605)	(3.440)
C.I. %	-	0.022	-	0.520	-	0.641	-	-0.141
		(0.439)		(1.358)		(0.609)		(2.167)
Log EPU*C.I.	-	-0.008	-	-0.134	-	-0.141	-	0.018
		(0.091)		(0.290)		(0.129)		(0.457)
Log GDP	7.645	4.037	-49.338*	-62.419**	12.620	15.403	-54.859	-65.918*
	(6.845)	(8.911)	(29.500)	(31.166)	(8.411)	(10.316)	(33.773)	(37.688)
Log Inflation	-9.262	-2.913	108.020**	127.114**	-19.246	-23.359	107.814	125.833*
	(13.063)	(16.640)	(57.737)	(59.707)	(16.620)	(19.233)	(66.727)	(72.442)
Can/U.S. FX %	0.669	0.557	4.681	4.298	-0.714	-0.461	3.794	2.569
	(0.803)	(0.904)	(3.947)	(4.401)	(0.845)	(0.949)	(3.824)	(4.049)
Mexico/U.S. FX %	-0.015	-0.009	0.041	0.075	-0.012	-0.004	-0.013	-0.018
	(0.012)	(0.015)	(0.068)	(0.073)	(0.015)	(0.017)	(0.073)	(0.076)
Log Foreign GDP_{t-1}	-0.418	-0.646	0.442***	0.451***	-1.145	-1.744	0.545***	0.537***
	(0.814)	(0.844)	(0.076)	(0.073)	(1.034)	(1.175)	(0.089)	(0.090)
Log NX	-0.007	-0.001	0.009	0.011	-0.039	-0.025	0.016	0.015
	(0.026)	(0.032)	(0.014)	(0.014)	(0.034)	(0.033)	(0.017)	(0.017)
Log Cost of $Labour_{t-1}$	-1.366	-1.535	0.127	0.203	-0.561	-1.115	0.029	0.052
	(1.334)	(1.860)	(0.226)	(0.230)	(1.547)	(1.638)	(0.248)	(0.262)
Observations	2664	2530	2664	2530	2602	2457	2602	2457

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

Table 1.9: CPU Index for 1987-1998 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log CPU $Index_{t-1}$	-0.243	-0.260	-1.223	-0.738	0.327	0.320	0.106	-0.026
	(0.224)	(0.228)	(0.859)	(0.883)	(0.212)	(0.205)	(0.469)	(0.4940
C.I. %	-	-0.028	-	0.531	-	-0.142	-	-0.244
		(0.059)		(0.323)		(0.109)		(0.291)
CPU*C.I.	-	0.005	-	-0.085	-	0.034	-	0.061
		(0.012)		(0.064)		(0.024)		(0.062)
Log GDP	3.261	3.259	-2.477	4.050	6.109	6.246	11.926	13.039
	(5.550)	(5.569)	(20.230)	(20.483)	(4.245)	(4.262)	(12.882)	(12.906)
Log Inflation	-6.680	-6.578	12.345	-3.135	-11.718	-11.644	-26.848	-28.482
	(11.901)	(11.959)	(44.545)	(45.309)	(9.141)	(9.179)	(28.497)	(28.500)
Canadian GDP $Growth_{t-1}$	0.192**	0.191**	0.250	0.076	0.023	0.038	-0.229	-0.245
	(0.090)	(0.090)	(0.366)	(0.372)	(0.0560	(0.0570	(0.196)	(0.196)
Mexican GDP $Growth_{t-1}$	-0.067*	-0.069**	0.051	0.073	-0.022	-0.018	0.099	0.083
	(0.034)	(0.034)	(0.123)	(0.123)	(0.027)	(0.027)	(0.130)	(0.131)
Log Foreign GDP_{t-1}	-0.325	-0.356	0.472***	0.455***	-0.989	-0.982	0.230***	0.234***
	(1.155)	(1.209)	(0.105)	(0.104)	(0.927)	(0.898)	(0.067)	(0.067)
Log NX	-0.042	-0.042	0.012	0.014	0.009	0.009	-0.004	-0.003
	(0.033)	(0.033)	(0.024)	(0.024)	(0.023)	(0.023)	(0.0160	(0.016)
Log Cost of $Labour_{t-1}$	0.222	0.208	0.306	0.820	0.652	0.516	0.023	-0.003
	(0.432)	(0.436)	(0.719)	(0.749)	(0.463)	(0.435)	(0.088)	(0.091)
Observations	998	998	998	998	2074	2074	2074	2074

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

Table 1.10: CPU Index for 1999-2016 Sample

	Manufacturing				Non-Manufacturing			
	Within		Between		Within		Between	
Log FDI_{cit}	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log CPU $Index_{t-1}$	-0.014	-0.102	0.104	0.126	0.058	0.087	-0.719**	-0.544
	(0.202)	(0.232)	(0.496)	(0.576)	(0.246)	(0.310)	(0.364)	(0.480)
C.I. %	-	-0.133	-	0.351	-	0.044	-	0.438
		(0.167)		(0.507)		(0.225)		(0.692)
EPU*C.I.	-	0.025	-	-0.101	-	-0.012	-	-0.094
		(0.036)		(0.115)		(0.051)		(0.148)
Log GDP	6.128	3.038	-2.006	-18.379	15.002**	15.198**	-27.492	-31.117
	(5.3310)	(6.787)	(23.387)	(24.741)	(6.877)	(7.615)	(24.791)	(24.166)
Log Inflation	-6.327	-0.945	11.080	36.835	-23.892*	-23.134*	50.784	57.129
	(9.9420)	(12.401)	(43.847)	(44.639)	(13.284)	(13.979)	(48.132)	(46.341)
Can/U.S. FX %	0.706	0.625	3.764	2.958	-0.731	-0.540	2.969	2.096
	(0.835)	(0.902)	(4.007)	(4.431)	(0.824)	(0.947)	(3.763)	(4.017)
Mexico/U.S. FX %	-0.015	-0.012	0.053	0.090	-0.012	-0.011	0.033	0.037
	(0.013)	(0.015)	(0.070)	(0.071)	(0.014)	(0.015)	(0.070)	(0.070)
Log Foreign GDP_{t-1}	-0.430	-0.630	0.438***	0.445***	-1.119	-1.711	0.543***	0.540***
	(0.815)	(0.850)	(0.077)	(0.074)	(1.030)	(1.169)	(0.089)	(0.090)
Log NX	-0.008	-0.001	0.008	0.008	-0.038	-0.024	0.016	0.016
	(0.026)	(0.032)	(0.014)	(0.014)	(0.034)	(0.034)	(0.017)	(0.017)
Log Cost of $Labour_{t-1}$	-1.539	-1.135	0.151	0.251	-0.595	-1.026	-0.013	0.022
	(1.331)	(1.951)	(0.301)	(0.326)	(1.527)	(1.686)	(0.249)	(0.268)
Observations	2664	2530	2664	2530	2602	2457	2602	2457

Note. Std Errors are in parenthesis; *, **, *** denote significance at the 10%, 5%, and 1% level.

Furthermore, differing lag lengths for the policy uncertainty variables were also used. It is possible that MNE's may be using past trends in U.S. policy uncertainty as another way assess the returns to their investment, thus there may be lingering effects of previous bouts of policy uncertainty. This means that if there were previous bouts of high policy uncertainty then even though policy uncertainty may be low in the current period MNE's may still decide to adjust their investment behaviour. Tables A6-A11 in the appendix list the results for all three measures of policy uncertainty across the sample period with 2 lags. For the 1987-1998 and 1999-2016 sample periods the results do not show any consistent and significant relationship between policy uncertainty, capital intensity and FDI. The analysis was also conducted using third and fourth order lags (not listed in the paper) but the results remained unchanged. This implies that MNE's that choose to invest in the United States are not worried with previous periods of policy uncertainty.

1.8 Discussion

The benefits of looking at any type of investment through the lens of the real options approach is that it allows us to consider the different options that a firm might take with respect to its investment. In the above analysis the conclusions drawn from the real options approach have support, but only under certain conditions. The results from the between effect estimation suggests that the MNE's country of origin can sometimes factor into the MNE's decision to reduce its investment. Given the difference in the size of FDI coming into the United States from each country, certain factors might be at play. MNE's from countries that are not heavily invested in the United States might be easily spooked given the capital requirements in each sector and adverse policy decisions.

The within effect estimation did not really convey any adverse relationship between policy uncertainty and FDI. This suggests that MNE's in countries that have already invested in the

United States might view U.S. policy uncertainty as something that naturally fluctuates due to the cyclical nature of U.S. politics. So, while a certain regime might pursue policies that can discourage foreign investors, said policy will not last in the long run. Foreign MNE's might choose to maintain their investing behavior and ride it out.

A noteworthy point of discussion stems from the level of significance of the CPU index. In theory the CPU index represents an ideal measure of policy uncertainty because of the acknowledgement that policy decisions do not affect all sectors in the same manner. In practice this proved not to be the case. One possible reason for this is that there may not be enough variation in policy uncertainty within the categories that the CPU index covers. For example, in the government spending category politicians might complain about government spending to their electorates. But if they choose to pursue spending cuts in one area this is may be offset by an increase in government spending in another area (e.g., reducing federal funding for a social program but increasing government spending on an environmental program). Overall government spending would not change.

Another point of note stems from the significance of the Canadian and Mexican GDP variables in the EPU and CPU fixed effects manufacturing regression of 1987-1998 sample. Increases in Canadian GDP increase FDI flowing into the United States, where as an increase in Mexican GDP reduces FDI flowing into the United States. This suggests the existence of some cross-border effects during that time period. The sign of these cross-border effects varies by country, but it does persist, more so for manufacturing firms than for non-manufacturing firms. The results seem to suggest that MNE's looking to invest in manufacturing divert their manufacturing investments to Mexico as opposed to the United States. In the case of Canada, the

response varies, depending on whether one is looking at variations between countries or variations over time.

One important aspect to consider is the average level of uncertainty for the two different sample periods. For the 1987-99 sample the PC index and the EPU index are 97.05 and 98.72 respectively, where as the CUP index is 107.74. With 100 being the threshold for "normal" level of uncertainty, this means that PC and EPU indices reported below average policy uncertainty during that time period, while the CPU reported above average policy uncertainty during that time period. For the 1999-2016 sample period the average level of uncertainty for the 3 measures have been flipped. The PC and EPU index have an average uncertainty level of 109.21 and 111.69 respectively, while CPU has an average uncertainty value of 95.03. This might explain why the CPU and EPU indices do not have consistent effects on US FDI inflows.

1.9 Conclusion

This paper examines the impact of U.S. policy uncertainty on FDI from 36 countries into 14 sectors from 1987-2016. Under the framework of the real options approach two propositions were developed. The first proposition suggests that policy uncertainty was a relevant factor in determining U.S. FDI inflows, that is policy uncertainty is significant and reduces FDI inflows. The second proposition suggests that in addition to determining FDI inflows, sectors that are relatively more capital intensive would be more susceptible to the detrimental effects of policy uncertainty. I examined the effect of policy uncertainty using three different indices (the PC index, the EPU and the CPU). For the CPU index I examined the correlation coefficient between the categories and the sector level FDI and assigned the specific category index to the sector with the highest correlation coefficient. The first two indices offer mixed support for proposition 1 and 2.

However, the third index does not provide support for either proposition across both sample periods.

Interestingly the narrow CPU was not able to explain FDI inflows even after considering capital intensity. This might just imply that the uncertainty differences between these categories are not enough to affect US FDI inflows. As for measuring policy uncertainty this paper's results are very contingent on the measure used and how the model is specified for example political policy uncertainty increased FDI inflows for non-manufacturing sectors in the within case and manufacturing sectors in the between case in the 1987-98 sample but not for the later sample. From this research one can conclude that to better understand how foreign investors react to uncertainty in the domestic market, one should not only consider market conditions, and the domestic political climate, but also where the investment comes from, and the type of sector. A future extension in this area of research would be to examine how U.S. policy uncertainty has affected the types of investment that enter the country, and whether U.S. policy uncertainty has spillover effects to its neighbours.

REFERENCES

Avioutskii, V., & Tensaout, M. (2016). Does politics matter? partisan FDI in central and eastern europe. *Multinational Business Review, 24*(4), 375-398. doi:http://dx.doi.org.libproxy.library.wmich.edu/10.1108/MBR-07-2015-0028

Azam, M., Khan, M. A., & Iqbal, N. (2012). Impact of political risk and uncertainty on FDI in South Asia. *Transition Studies Review, 19*(1), 59-77.

Azzimonti, M. (2014, June 23). Partisan Conflict. https://ssrn.com/abstract=2457406

Azzimonti, M. (2016, June). Does Partisan Conflict Deter FDI Inflows to the US? In *NBER Working Paper No. 22336*. Retrieved from http://nber.org/papers/w22336

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics, 131*(4), 1593-1636.

Bea.gov. (n.d.). A Guide to BEA's Direct Investment Surveys. [online] Available at: https://www.bea.gov/surveys/pdf/a-guide-to-bea-direct-investment-surveys.pdf [Accessed 27 Nov. 2017].

Chau, K. W. (1997). Political uncertainty and the real estate risk premiums in Hong Kong. *Journal of Real Estate Research*, *13*(3), 297-316.

Chiu, C. L., Chen, C. D., & Tang, W. W. (2005). Political elections and foreign investor trading in South Korea's financial markets. *Applied Economics Letters*, *12*(11), 673-677.

Desbordes, R. (2007). The sensitivity of US multinational enterprises to political and macroeconomic uncertainty: A sectoral analysis. *International Business Review*, *16*(6), 732-750.

Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton University Press.

Fernandes, B., Cunha, J., & Ferreira, P. (2011). The use of real options approach in energy sector investments. *Renewable and Sustainable Energy Reviews, 15*(9), 4491-4497.

Fisch, J. H. (2008). Internalization and internationalization under competing real options. *Journal of International Management, 14*(2), 108-123.

Fisch, J. H. (2011). Real call options to enlarge foreign subsidiaries–The moderating effect of irreversibility on the influence of economic volatility and political instability on subsequent FDI. *Journal of World Business, 46*(4), 517-526.

Julio, B., & Yook, Y. (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance*, *67*(1), 45-83.

Li, J., & Rugman, A. M. (2007). Real options and the theory of foreign direct investment. *International Business Review, 16*(6), 687-712.

Lukas, E., & Welling, A. (2014). On the investment–uncertainty relationship: A game theoretic real option approach. *Finance Research Letters, 11*(1), 25-35.

Raff, H., & Srinivasan, K. (1998). Tax incentives for import-substituting foreign investment: Does signaling play a role? *Journal of Public Economics*, *67*(2), 167-193.

Rivoli, P., & Salorio, E. (1996). Foreign direct investment and investment under uncertainty. *Journal of International Business Studies*, 335-357.

Shelton, C. A., & Falk, N. (2016). *Policy Uncertainty and Manufacturing Investment: Evidence from US State Elections* (No. 5846). CESifo Group Munich.

Solomon, B., & Ruiz, I. (2012). Political Risk, Macroeconomic Uncertainty, and the Patterns of Foreign Direct Investment. *The International Trade Journal*, *26*(2), 181-198.

Telles, R. (2016). Foreign Direct Investment in the United States: Update to 2013 Report. *Foreign Direct Investment in the United States*. [online] U.S. Department of Commerce, Economics and Statistics Administration, Office of the Chief Economist, p.1. http://www.esa.doc.gov/sites/default/files/foreign-direct-investment-in-the-united-states-update-2016.pdf [Accessed 29 Nov. 2017].

UNCATD. (2019). World Investment Report 2019. https://unctad.org/en/PublicationsLibrary/wir2019_en.pdf

U.S. Department of Commerce. (2016). Foreign Direct Investment in the U.S.: Balance of Payments and Direct Investment Position Data. In *Bureau of Economic Analysis*. http://www.bea.gov/international/di1fdibal.htm

U.S. Department of Commerce. (2016). Gross-Domestic-Product-(GDP)-by-Industry Data. In *Bureau of Economic Analysis*. https://www.bea.gov/iTable/iTable.cfm?ReqID=51&step=1#reqid=51&step=51&isuri=1&5101=1&5114=a&5113=22r&5112=1&5111=1997&5102=5

U.S. Department of Labour. (2014, July 28). The Economics Daily: Largest industries by state, 1990–2013. In *Bureau of Labour Statistics*. http://www.bls.gov/opub/ted/2014/ted_20140728.htm

Term Sets by Category of EPU. (2012). In *Economic Policy Uncertainty*. http://www.policyuncertainty.com/categorical_terms.html

Wong, K. P. (2007). The effect of uncertainty on investment timing in a real options model. *Journal of Economic Dynamics and Control, 31*(7), 2152-2167.

APPENDIX

A1: **FDI source country ranked by FDI inflows (millions): 1987-1998**								
1	United Kingdom	160906	13	Bahamas	2314	25	Venezuela	339
2	Japan	109412	14	Spain	2123	26	Malaysia	293
3	Germany	56936	15	Bermuda	1633	27	Denmark	203
4	Netherlands	54610	16	Italy	1550	28	New Zealand	157
5	France	43193	17	Singapore	1412	29	Philippines	38
6	Switzerland	30753	18	Israel	1382	30	United Arab Emirates	-3
7	Sweden	10355	19	Hong Kong	1347	31	Liechtenstein	-8
8	Ireland	6929	20	Norway	1235	32	Lebanon	-27
9	Belgium	4567	21	Kuwait	1163	33	South Africa	-45
10	Luxembourg	4218	22	Finland	868	34	Korea, Republic of	-55
11	Taiwan	2721	23	Austria	603	35	Panama	-59
12	Australia	2389	24	Brazil	541	36	Saudi Arabia	-62

A2: FDI source country ranked by FDI inflows (millions): 1999-2016								
1	United Kingdom	460615	13	Italy	11354	25	South Africa	340
2	Japan	272132	14	Denmark	10154	26	Kuwait	238
3	Germany	251906	15	Singapore	7998	27	Panama	183
4	Switzerland	240291	16	India	5766	28	Malaysia	113
5	France	223334	17	Norway	5162	29	United Arab Emirates	80
6	Netherlands	212114	18	China	5128	30	Lebanon	29
7	Luxembourg	208578	19	Israel	2794	31	Australia	-20
8	Ireland	54613	20	Brazil	2625	32	Saudi Arabia	-34
9	Belgium	33367	21	Hong Kong	2404	33	New Zealand	-100
10	Korea, Republic of	29840	22	Finland	2308	34	Bahamas	-111
11	Spain	28268	23	Taiwan	2220	35	Bermuda	-585
12	Sweden	24227	24	Austria	1182	36	Venezuela	-971

A3: Correlation Coefficient between industries and indices: 1987-1998

Industry	PC	EPU	3	4	5	6	7	8	9	10	11	12	13
Banking	-0.33	-0.50	-0.27	-0.53	-0.49	-0.51	-0.21	-0.46	0.07	-0.50	-0.40	-0.11	0.37
Chemicals	-0.67	-0.58	-0.68	-0.72	-0.74	-0.58	-0.51	-0.57	-0.43	-0.58	-0.35	-0.24	0.09
Food	0.38	-0.11	-0.16	0.02	-0.07	0.19	-0.09	-0.06	-0.04	0.16	0.10	-0.09	-0.50
Insurance	-0.31	-0.65	-0.60	-0.59	-0.56	-0.53	-0.35	-0.38	-0.03	-0.49	-0.33	-0.44	0.02
Machinery	-0.48	-0.30	-0.03	-0.51	-0.46	-0.52	-0.44	-0.50	-0.19	-0.70	-0.32	-0.38	0.87
Non-Bank Finance	-0.20	-0.06	-0.27	-0.02	0.14	-0.28	0.46	-0.19	0.34	0.08	-0.19	0.44	0.01
Petroleum	-0.30	-0.21	0.10	-0.31	-0.25	-0.38	-0.22	-0.35	0.11	-0.50	-0.30	-0.25	0.93
Primary and Fabricated Metals	-0.04	-0.38	-0.45	-0.32	-0.36	-0.16	-0.23	-0.35	-0.24	-0.33	-0.24	-0.22	-0.33
Real Estate	-0.25	0.22	-0.06	0.00	-0.14	0.22	-0.67	0.04	-0.74	-0.08	0.39	-0.50	-0.03
Retail Trade	-0.17	-0.64	-0.46	-0.49	-0.43	-0.48	-0.13	-0.69	0.21	-0.63	-0.64	-0.17	0.45
Services	-0.12	0.50	0.48	0.14	0.00	0.34	-0.65	0.44	-0.57	0.12	0.78	-0.60	0.04
Wholesale Trade	-0.46	-0.53	-0.49	-0.58	-0.57	-0.49	-0.45	-0.53	-0.16	-0.61	-0.35	-0.39	0.32

Note. CPU (3) - (13) components are: monetary policy, fiscal policy, taxes, government spending, healthcare, national security, entitlement programs, regulation, financial regulation, trade policy, sovereign debt currency crises

A4: Correlation Coefficient between industries and indices: 1999-2016

Industry	PC	EPU	3	4	5	6	7	8	9	10	11	12	13
Chemicals	0.72	0.05	-0.46	-0.19	-0.21	-0.10	-0.08	-0.40	-0.20	-0.04	-0.24	0.07	0.72
Computers and Electronic Products	-0.14	-0.42	-0.39	-0.43	-0.44	-0.31	-0.35	-0.42	-0.28	-0.39	-0.45	0.38	-0.14
Depository Institutions	-0.09	0.33	0.13	0.25	0.22	0.28	0.27	-0.26	0.19	0.40	0.46	-0.05	-0.09
Electrical Equipment, Appliances and Components	0.32	-0.23	-0.32	-0.33	-0.36	-0.21	-0.22	-0.47	-0.29	-0.23	-0.40	0.49	0.32
Finance and Insurance	0.12	0.11	0.08	-0.11	-0.08	-0.24	-0.11	-0.11	-0.26	0.14	0.18	0.48	0.12
Food	0.25	0.29	-0.16	0.30	0.31	0.23	0.48	-0.14	0.29	0.44	0.28	-0.09	0.25
Information	-0.20	-0.40	0.02	-0.32	-0.31	-0.27	-0.38	-0.06	-0.23	-0.42	-0.40	0.33	-0.20
Machinery	0.23	0.18	-0.18	0.09	0.01	0.29	0.18	-0.41	0.16	0.20	0.13	0.10	0.23
Primary and Fabricated Metals	-0.10	-0.27	-0.30	-0.37	-0.39	-0.28	-0.27	-0.37	-0.36	-0.12	-0.13	-0.06	-0.10
Professional Scientific and Technological	0.05	-0.17	0.00	-0.18	-0.18	-0.15	-0.10	-0.27	-0.10	0.01	-0.18	0.55	0.05
Real Estate and Rental and Leasing	0.38	-0.24	-0.55	-0.50	-0.52	-0.39	-0.37	-0.54	-0.45	-0.45	-0.56	0.10	0.38
Retail Trade	0.15	-0.32	-0.34	-0.45	-0.48	-0.34	-0.46	-0.26	-0.46	-0.49	-0.42	-0.18	0.15
Transportation Equipment	0.28	0.10	-0.30	-0.14	-0.12	-0.18	-0.07	-0.30	-0.21	0.07	0.03	-0.04	0.28
Wholesale Trade	-0.01	-0.17	-0.26	-0.26	-0.29	-0.17	-0.10	-0.42	-0.17	-0.12	-0.21	0.05	-0.01

Note. CPU (3) - (13) components are: monetary policy, fiscal policy, taxes, government spending, healthcare, national security, entitlement programs, regulation, financial regulation, trade policy, sovereign debt currency crises

A5: Categorical EPU Index Sample words:

Monetary policy - federal reserve, the fed, money supply, open market operations, quantitative easing, monetary policy, fed funds rate, overnight lending rate, Bernanke, Volcker, Greenspan, central bank, interest rates, fed chairman, fed chair, lender of last resort, discount window, European Central Bank, ECB, Bank of England, Bank of Japan, BOJ, Bank of China, Bundesbank, Bank of France, Bank of Italy

Taxes - taxes, tax, taxation, taxed

Fiscal Policy and Government spending - government spending, federal budget, budget battle, balanced budget, defense spending, military spending, entitlement spending, fiscal stimulus, budget deficit, federal debt, national debt, Gramm-Rudman, debt ceiling, fiscal footing, government deficits, balance the budget

Health care - health care, Medicaid, Medicare, health insurance, malpractice tort reform, malpractice reform, prescription drugs, drug policy, food and drug administration, FDA, medical malpractice, prescription drug act, medical insurance reform, medical liability, part d, affordable care act, Obamacare

National security - national security, war, military conflict, terrorism, terror, 9/11, defense spending, military spending, police action, armed forces, base closure, military procurement, saber rattling, naval blockade, military embargo, no-fly zone, military invasion

Entitlement programs - entitlement program, entitlement spending, government entitlements, social security, Medicaid, Medicare, government welfare, welfare reform, unemployment insurance, unemployment benefits, food stamps, afdc, tanf, wic program, disability insurance, part d, oasdi, Supplemental Nutrition Assistance Program, Earned Income Tax Credit, EITC, head start program, public assistance, government subsidized housing

Regulation - regulation, banking supervision, fdic, fslic, ots, occ, firrea, truth in lending, union rights, card check, collective bargaining law, national labor relations board, nlrb, minimum wage, living wage, right to work, affirmative, tort reform, offshore drilling, pollution controls, environmental restrictions, clean air act, clean water act, environmental protection agency, epa, immigration policy

Financial Regulation - banking supervision, glass-steagall, tarp, bank supervision, thrift supervision, dodd-frank, financial reform, commodity futures trading commission, cftc, house financial services committee, basel, capital requirement, Volcker rule, bank stress test, securities and exchange commission, sec, deposit insurance, fdic, fslic, ots, occ, firrea, truth in lending

Trade policy - import tariffs, import duty, import barrier, government subsidies, government subsidy, wto, world trade organization, trade treaty, trade agreement, trade policy, trade act, doha round, uruguay round, gatt, dumping

Sovereign debt, currency crises - sovereign debt, currency crisis, currency crash, currency devaluation, currency revaluation, currency manipulation, euro crisis, Eurozone crisis, european financial crisis, european debt, Asian financial crisis, Asian crisis, Russian financial crisis, Russian crisis, exchange rate

A6: 87-98	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log PC_{t-2}	-1.872	-2.418	-2.661	-2.836	0.467	1.593	-3.774	-6.795
	(1.691)	(1.765)	(5.610)	(5.629)	(1.088)	(1.380)	(5.239)	(5.714)
Capital Intensity (CI)		-0.691		-5.050**		1.702		-3.795
		(0.627)		(2.040)		(1.056)		(3.637)
Log PC_{t-2}*CI		0.151		1.125**		-0.371		0.837
		(0.137)		(0.446)		(0.230)		(0.791)
Log GDP	15.22***	14.98***	12.25	9.673	4.490	5.138	14.50	13.69
	(4.745)	(4.694)	(14.41)	(14.45)	(3.683)	(3.776)	(10.23)	(10.23)
Log Inflation	-31.96***	-30.79***	-19.67	-14.25	-8.480	-10.01	-34.32	-30.57
	(10.25)	(10.09)	(33.50)	(34.06)	(8.213)	(8.574)	(24.21)	(24.27)
Log Foreign GDP_{t-1}	-1.380	-1.667	0.459***	0.434***	-1.174	-1.245	0.193***	0.198***
	(1.325)	(1.437)	(0.103)	(0.101)	(1.116)	(1.091)	(0.0681)	(0.0681)
Log Bilateral Net Exports	-0.0417	-0.0437	0.0102	0.0138	0.0141	0.0150	-0.00839	-0.00726
	(0.0366)	(0.0364)	(0.0240)	(0.0235)	(0.0247)	(0.0248)	(0.0163)	(0.0162)
Log Cost of $Labour_{t-1}$	0.297	0.249	0.233	0.608	0.728	0.786	-0.00125	-0.0146
	(0.449)	(0.466)	(0.712)	(0.725)	(0.468)	(0.508)	(0.0884)	(0.0885)
Constant	-77.44***	-72.34***	-102.5	-85.69	-24.55	-32.80	-65.69	-55.18
	(24.87)	(24.26)	(86.66)	(86.57)	(20.58)	(21.57)	(58.75)	(60.16)
Observations	919	919	919	919	1,915	1,915	1,915	1,915
R-squared	0.015	0.016	0.154	0.209	0.004	0.006	0.052	0.064

A7: 87-98	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log EPU_{t-2}	1.397	1.387	1.106	5.785	0.965	1.414	1.818	3.428
	(1.506)	(1.494)	(6.032)	(6.520)	(1.012)	(1.125)	(4.701)	(4.854)
Capital Intensity (CI)		0.00555		-3.209**		0.654		3.638**
		(0.425)		(1.311)		(0.484)		(1.669)
Log EPU_{t-2}*CI		-0.00162		0.733**		-0.142		-0.769**
		(0.0902)		(0.291)		(0.104)		(0.358)
Log GDP	18.10***	18.04***	15.63	39.92	7.625*	8.102*	19.89	23.09
	(6.372)	(6.581)	(29.31)	(30.59)	(4.537)	(4.529)	(20.88)	(21.12)
Log Inflation	-37.56***	-37.38***	-26.43	-73.67	-14.46	-16.00*	-45.49	-52.12
	(12.57)	(12.57)	(61.38)	(62.90)	(9.587)	(9.625)	(44.14)	(44.79)
Log Foreign GDP_{t-1}	-0.818	-0.853	0.463***	0.431***	-1.042	-0.844	0.203***	0.193***
	(1.314)	(1.413)	(0.104)	(0.102)	(1.106)	(1.106)	(0.0678)	(0.0673)
Log Bilateral Net Exports	-0.0371	-0.0370	0.0101	0.0157	0.0140	0.0134	-0.00961	-0.0104
	(0.0354)	(0.0356)	(0.0241)	(0.0235)	(0.0245)	(0.0246)	(0.0163)	(0.0162)
Log Cost of $Labour_{t-1}$	0.378	0.376	0.233	0.939	0.750	0.768	-0.00375	-0.0752
	(0.378)	(0.367)	(0.714)	(0.737)	(0.467)	(0.486)	(0.0886)	(0.0925)
Constant	-121.3**	-120.6**	-144.1	-349.7	-52.46	-57.96	-128.8	-158.1
	(52.64)	(53.38)	(228.8)	(245.9)	(34.85)	(35.87)	(163.0)	(164.6)
Observations	919	919	919	919	1,915	1,915	1,915	1,915
R-squared	0.015	0.015	0.153	0.209	0.004	0.005	0.051	0.074

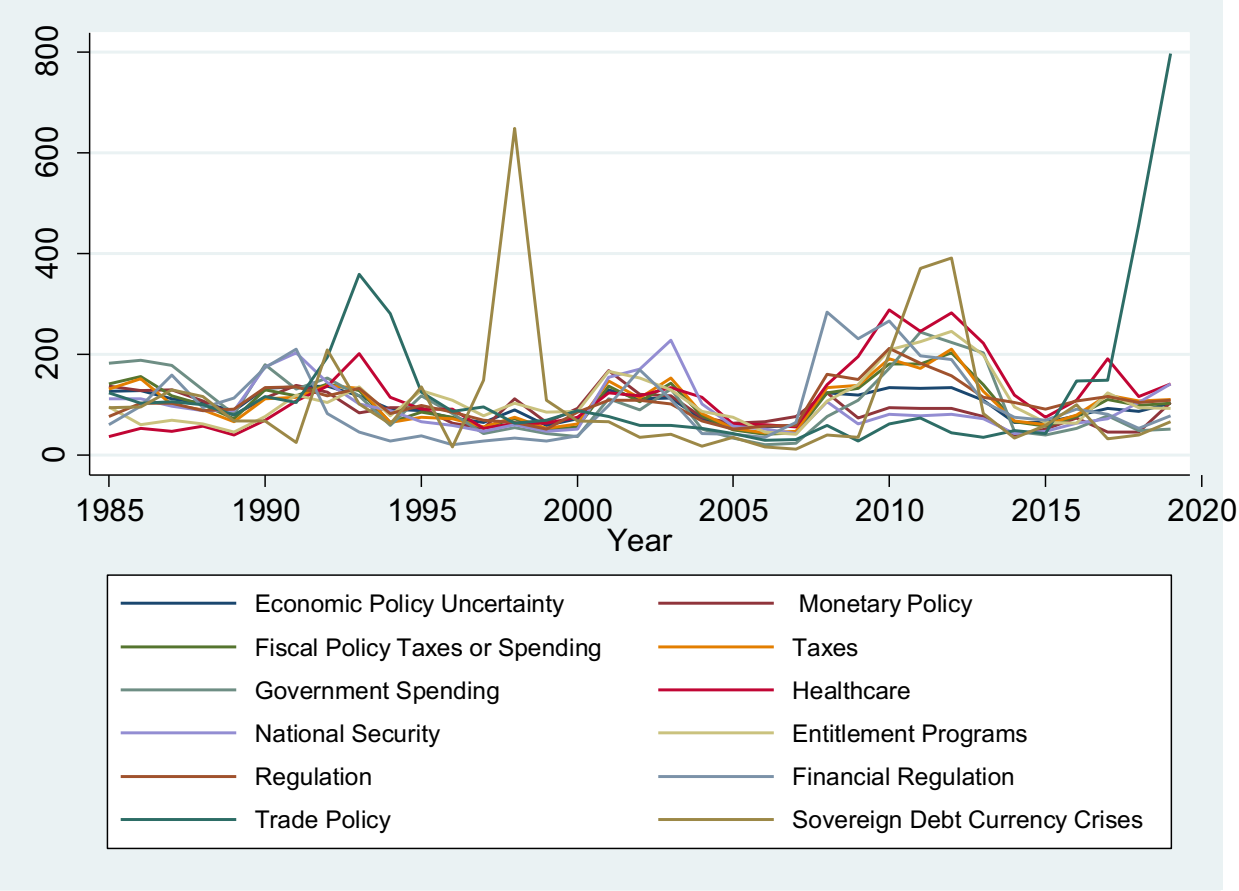
A8: 87-98	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log CPU_{t-2}	0.435*	0.393	0.143	0.000408	0.364	0.376	0.664	0.457
	(0.252)	(0.264)	(0.666)	(0.686)	(0.246)	(0.253)	(0.425)	(0.463)
Capital Intensity (CI)		-0.0855		-0.791		0.0215		-0.249
		(0.163)		(0.557)		(0.148)		(0.385)
Log CPU_{t-2}*CI		0.0189		0.192		-0.00469		0.0624
		(0.0355)		(0.120)		(0.0325)		(0.0817)
Log GDP	14.89***	15.29***	11.96	20.56	6.447*	6.444*	14.79	12.67
	(4.512)	(4.535)	(14.95)	(15.22)	(3.604)	(3.623)	(9.999)	(10.25)
Log Inflation	-31.17***	-31.94***	-18.77	-41.37	-12.50	-12.49	-35.63	-30.17
	(9.687)	(9.592)	(34.11)	(35.08)	(8.161)	(8.257)	(23.89)	(24.35)
Log Foreign GDP_{t-1}	-0.775	-0.742	0.462***	0.425***	-1.150	-1.150	0.202***	0.204***
	(1.303)	(1.288)	(0.103)	(0.102)	(1.109)	(1.102)	(0.0671)	(0.0671)
Log Bilateral Net Exports	-0.0338	-0.0345	0.0106	0.0108	0.0143	0.0143	-0.00803	-0.00815
	(0.0362)	(0.0361)	(0.0241)	(0.0238)	(0.0245)	(0.0245)	(0.0162)	(0.0162)
Log Cost of $Labour_{t-1}$	0.388	0.397	0.172	0.306	0.742	0.745	-0.0195	-0.0246
	(0.447)	(0.448)	(0.749)	(0.773)	(0.478)	(0.484)	(0.0888)	(0.0891)
Constant	-94.15***	-97.40***	-114.3	-152.9	-38.06*	-38.13*	-85.13	-74.23
	(26.78)	(26.24)	(96.24)	(96.49)	(21.70)	(21.72)	(59.05)	(61.46)
Observations	919	919	919	919	1,915	1,915	1,915	1,915
R-squared	0.018	0.018	0.153	0.188	0.006	0.006	0.058	0.067

A9: 99-16	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log PC_{t-2}	0.543	0.546	-4.284	-5.190*	-0.743	-0.488	-0.0698	-2.344
	(0.787)	(0.778)	(3.186)	(3.082)	(0.858)	(0.961)	(3.927)	(3.917)
Capital Intensity (CI)		1.504*		-0.562		0.526		-4.934**
		(0.775)		(1.981)		(0.889)		(2.110)
Log PC_{t-2}*CI		-0.336*		0.104		-0.121		1.083**
		(0.172)		(0.441)		(0.198)		(0.468)
Log GDP	5.581	10.69*	21.98	11.67	15.34**	17.61***	0.234	4.057
	(5.339)	(6.475)	(24.89)	(24.65)	(6.552)	(6.725)	(29.34)	(29.69)
Log Inflation	-5.736	-15.26	-31.38	-16.95	-20.74	-24.17*	-3.227	-11.31
	(10.31)	(12.18)	(43.66)	(43.06)	(12.58)	(13.13)	(50.47)	(51.15)
Canada U.S. FX growth	-0.00971	0.00651	0.117	0.189*	-0.00718	-0.0105	0.0378	0.0913
	(0.0219)	(0.0234)	(0.102)	(0.100)	(0.0248)	(0.0283)	(0.114)	(0.118)
U.S. Mexico FX growth	-0.00394	-0.0150	0.0574	0.0427	-0.0143	-0.00795	0.0314	0.0358
	(0.0126)	(0.0164)	(0.0577)	(0.0612)	(0.0162)	(0.0175)	(0.0683)	(0.0701)
Log Foreign GDP_{t-1}	-0.716	-0.980	0.433***	0.442***	-1.127	-1.657	0.534***	0.512***
	(0.827)	(0.868)	(0.0775)	(0.0748)	(1.049)	(1.196)	(0.0924)	(0.0926)
Log Bilateral Net Exports	-0.0185	-0.0125	0.0101	0.0121	-0.0375	-0.0177	0.0125	0.0111
	(0.0287)	(0.0350)	(0.0141)	(0.0137)	(0.0389)	(0.0386)	(0.0172)	(0.0172)
Log Cost of $Labour_{t-1}$	-1.487	-2.830	0.208	0.285	-0.00626	-0.520	-0.00311	0.149
	(1.533)	(2.040)	(0.229)	(0.231)	(1.513)	(1.646)	(0.259)	(0.274)
Constant	-50.96	-81.89*	-204.5	-96.65	-138.1***	-151.0***	5.474	-10.29
	(41.27)	(49.57)	(204.9)	(205.9)	(52.92)	(55.05)	(242.3)	(245.1)
Observations	2,495	2,361	2,495	2,361	2,462	2,317	2,462	2,317
R-squared	0.016	0.017	0.180	0.189	0.012	0.014	0.141	0.158

A10: 99-16	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log EPU_{t-2}	0.555	1.093**	-2.771*	-1.713	0.192	0.364	-0.149	-2.775
	(0.380)	(0.448)	(1.621)	(1.685)	(0.408)	(0.732)	(1.888)	(2.366)
Capital Intensity (CI)		0.762		0.813		0.449		-3.380
		(0.513)		(0.937)		(0.743)		(2.132)
Log EPU_{t-2}*CI		-0.164		-0.199		-0.0996		0.712
		(0.113)		(0.204)		(0.158)		(0.456)
Log GDP	8.871	16.11**	-2.132	-1.848	13.49**	16.91**	-0.170	-15.52
	(5.485)	(6.884)	(22.16)	(23.94)	(6.682)	(7.643)	(22.07)	(23.73)
Log Inflation	-11.54	-25.96*	12.64	5.911	-18.94	-23.90	-2.348	25.27
	(10.97)	(13.21)	(41.72)	(43.90)	(13.48)	(14.98)	(40.72)	(42.94)
Canada U.S. FX growth	0.00116	0.00185	0.00103	0.0463	-0.0207	-0.0302	0.0354	0.0869
	(0.0162)	(0.0174)	(0.0659)	(0.0646)	(0.0176)	(0.0209)	(0.0768)	(0.0798)
U.S. Mexico FX growth	-0.00229	-0.00485	0.0689	0.0756	-0.00834	0.00272	0.0312	-0.0197
	(0.0123)	(0.0146)	(0.0556)	(0.0570)	(0.0152)	(0.0168)	(0.0654)	(0.0682)
Log Foreign GDP_{t-1}	-0.700	-0.954	0.432***	0.443***	-1.081	-1.621	0.534***	0.513***
	(0.825)	(0.863)	(0.0772)	(0.0747)	(1.056)	(1.200)	(0.0925)	(0.0934)
Log Bilateral Net Exports	-0.0149	-0.0114	0.0104	0.0122	-0.0330	-0.0149	0.0126	0.0108
	(0.0289)	(0.0349)	(0.0141)	(0.0137)	(0.0386)	(0.0379)	(0.0172)	(0.0173)
Log Cost of $Labour_{t-1}$	-0.881	-2.578	0.196	0.267	-0.109	-0.622	-0.00423	0.0192
	(1.543)	(2.028)	(0.229)	(0.227)	(1.513)	(1.618)	(0.258)	(0.270)
Constant	-81.68*	-126.4**	-15.76	5.238	-120.2**	-144.6**	8.489	148.1
	(42.42)	(51.63)	(177.7)	(197.8)	(53.20)	(63.92)	(179.9)	(198.6)
Observations	2,495	2,361	2,495	2,361	2,462	2,317	2,462	2,317
R-squared	0.016	0.017	0.184	0.191	0.011	0.013	0.141	0.148

A11: 99-16	Manufacturing				Non-Manufacturing			
2 Lags	Within		Between		Within		Between	
VARIABLES	Baseline	RO	Baseline	RO	Baseline	RO	Baseline	RO
Log CPU_{t-2}	0.221	0.278	-0.000600	-0.127	0.0790	0.180	-0.427	-0.527
	(0.189)	(0.219)	(0.498)	(0.579)	(0.211)	(0.240)	(0.378)	(0.475)
Capital Intensity (CI)		0.0787		-0.0183		0.181		-0.405
		(0.134)		(0.317)		(0.230)		(0.884)
Log CPU_{t-2}*CI		-0.0178		-0.0164		-0.0457		0.0802
		(0.0332)		(0.0754)		(0.0543)		(0.194)
Log GDP	7.446	8.155	5.679	-2.770	13.04**	16.13**	-0.561	-6.554
	(5.146)	(6.277)	(21.82)	(22.91)	(6.429)	(6.715)	(22.01)	(22.95)
Log Inflation	-8.273	-10.26	-7.958	3.123	-17.90	-22.75*	-1.490	8.247
	(10.21)	(12.02)	(40.21)	(41.26)	(12.81)	(13.39)	(40.40)	(41.44)
Canada U.S. FX growth	0.00329	0.00887	0.0132	0.0566	-0.0198	-0.0241	0.0332	0.0530
	(0.0166)	(0.0179)	(0.0667)	(0.0651)	(0.0182)	(0.0193)	(0.0758)	(0.0781)
U.S. Mexico FX growth	-0.00581	-0.00940	0.0793	0.0735	-0.00958	-0.000445	0.0314	0.00756
	(0.0116)	(0.0147)	(0.0557)	(0.0584)	(0.0146)	(0.0152)	(0.0647)	(0.0666)
Log Foreign GDP_{t-1}	-0.711	-0.971	0.426***	0.435***	-1.099	-1.634	0.534***	0.524***
	(0.826)	(0.860)	(0.0777)	(0.0751)	(1.046)	(1.194)	(0.0921)	(0.0933)
Log Bilateral Net Exports	-0.0166	-0.0118	0.00834	0.00993	-0.0340	-0.0149	0.0129	0.0109
	(0.0287)	(0.0345)	(0.0141)	(0.0137)	(0.0382)	(0.0379)	(0.0171)	(0.0173)
Log Cost of $Labour_{t-1}$	-1.001	-2.274	0.210	0.327	-0.0523	-0.288	-0.0442	-0.0619
	(1.469)	(1.976)	(0.310)	(0.362)	(1.520)	(1.604)	(0.260)	(0.297)
Constant	-70.82*	-64.43	-63.09	25.60	-117.2**	-137.9**	12.40	67.49
	(39.75)	(47.18)	(176.6)	(190.3)	(51.35)	(55.73)	(179.4)	(191.4)
Observations	2,495	2,361	2,495	2,361	2,462	2,317	2,462	2,317
R-squared	0.016	0.016	0.174	0.180	0.011	0.013	0.145	0.143

A12: Categorical EPU Index Plot



CHAPTER 2

POLICY UNCERTAINTY SPILLOVERS AND FDI IN NORTH AMERICA

2.1 Introduction

Foreign direct investment is often the source of major economic development for many countries. The ability of multinational enterprises (MNEs) to gain access to global markets means that policy changes or disruptions in one country may have consequences for its neighbours. When MNEs set up an affiliate in a country they may choose to serve that country's market entirely, or they may choose to expand their activities to a neighbouring country's market. There are several reasons why an MNE would want to do this. First, the MNE might want to take advantage of the benefits both markets have to offer (for example, an auto manufacturer might establish an assembly plant in one country, and then establish an auto parts manufacturing plant in a neighbouring country to take advantage of wage or tax differences that exists between the two countries). Second, if both countries trade amongst themselves then the MNE could set up an affiliate in one country and use it as an export platform to its neighbouring countries. In a scenario like this the MNE would be very mindful of the political/policy climate in both countries, whether one country's policy climate influences the other, and how this affects the MNE's overall profit goal. This is especially relevant when examining the trade and investment relationships between neighbouring countries. As neighbours, Canada, Mexico, and the United States are three countries with different economies and as such, FDI plays different roles in these economies. The United States is a large, developed economy, however, Canada is a small, developed economy while Mexico is a relatively large developing economy.

One could conceivable ask what makes a country attractive for FDI? Some argue that there are 3 factors that affect a country's attractiveness for FDI: market, efficiency, and resources (The

Conference Board of Canada, 2011). Canada is a small open economy, so it does not have a large market compared, however it is close to a large developed market. Furthermore, Canada has a trade agreement between the US and Mexico and this agreement makes it easy for capital to flow between these countries. This means that investors in Canada also gain access to the U.S. market. Canada's second attractive feature for foreign investment is its natural resource stock. Canada is a very resource rich country, with a large stock of energy and mineral resources and this is seen by the sector in which foreign investment flows into. The Mining and oil and gas extraction industry is the second largest destination for foreign investment in Canada (Bhushan, 2019). A similar conclusion can be reached as to Mexico's attractiveness for foreign direct investment. Mexico is the bridge between North America and Central and South America so investments in Mexico give investors access to both continents. The labour force in Mexico is relatively cheap compared to Canada and the United States, allowing for cheaper costs of production.

The nature of these three countries implies a difference in the level of FDI they receive from each other. For example, in 2017 and 2018 the United States accounted for 46.32% ($384 billion) and 46.15% ($417.5 billion) of the share of total FDI flowing into Canada (Global Affairs Canada, 2019). While in Mexico, the United States accounted for 38.8% ($13.5 billion) of FDI inflows in 2018 (Santander, 2020). From the U.S. perspective Canadian FDI inflows in the same period accounted for about 12.6% ($479 billion) and 12.9% ($534 billion), while Mexican FDI inflows accounted for about 1.03% ($43 billion) (U.S. Bureau of Economic Analysis, 2021). These numbers may appear small; however, it is likely a reflection of the market size between these two countries as opposed to the importance of FDI from these countries. Indeed in 2019 Canada was the second largest source of FDI flowing into the United States (SelectUSA, 2020), though the same cannot be said for Mexico. This suggests that there may exist a bidirectional FDI relationship

between Canada and the US, and a Unidirectional FDI relationship between the US and Mexico. The FDI flows from Canada to Mexico and vice versa also reveals an interesting relationship dynamic between the two countries. Canada is one of Mexico's top 5 FDI source countries, whereas Mexico ranks 25th for Canada's foreign investment inflows (Gonzalez, 2019; Global Affairs Canada, 2021). From this one may conclude that Canadian and U.S. FDI have a significant impact on the Mexican economy while Mexican FDI has relatively little impact on both economies. This could lead one to surmise that, FDI to Canada and Mexico are more susceptible to US economic or policy shocks, and FDI to Mexico is more susceptible to economic and policy shocks from Canada and the United States

The aim of this paper is to examine whether there exist spillover effects from U.S. policy uncertainty onto its neighbours with respect to inward FDI. As was mentioned earlier, FDI is an important aspect of an economy and can have an impact beyond the establishment of new enterprises. However, this paper will focus on the relationship between policy uncertainty and FDI as opposed to policy uncertainty and the overall economy. This is because FDI brings with it benefits such as technological transfers and job growth. As such understanding how FDI reacts to uncertainty is paramount to understand how uncertainty affects the broader economy. To measure policy uncertainty this paper employs the Economic Policy Uncertainty Index (EPU) developed by Baker, Bloom and Davis (2013)[9] and the Partisan Conflict Index (PC) developed by Azzimonti (2014).[10] These uncertainty measures are newspaper-based indices that count the number of articles in a country's top newspaper outlets that cover economic and politically related uncertainty

[9] EPU is constructed from 3 different components. The first component is based on the frequency of news articles with terms relating to "uncertainty", "economy", "government" etc... The second component includes reports from the CBO regarding temporary federal tax code provisions. The final component includes forecasted disagreements from Federal Reserve Bank of Philadelphia's Economists.

[10] PC Index is calculated similarly to the newspaper component of the EPU index except it focuses on terms like: "government" and political disagreements".

themes. This is a good proxy because it allows one to capture the general social anxiety that is accompanied by an unanticipated policy direction.

As was alluded to earlier, the relationship between these three countries presents a unique avenue for analysis because for Canada, and Mexico, the United States is their largest trading partner[11,12]. Furthermore, all three countries are NAFTA (USMCA) signatories. The implementation of NAFTA in 1994 signaled a major step forward in terms of regional trade integration and, by extension, investment between these three countries. While NAFTA signaled tariff reductions for the vast majority of goods traded between these three countries, it also had implications for investments between the countries. Specifically, the agreement stipulates that the member countries have to show the same level of treatment to foreign investors from member states as they would towards their own domestic investors. This is known as the "National Treatment" and "Most-Favoured-Nation Treatment" clause.

Given the reduction of investment barriers for these three countries and the proximity of Canada and Mexico to the world's largest economy, it is no surprise that the largest source of FDI inflows for Canada and Mexico is the United States. So, it stands to reason that uncertainty regarding US policies could affect US MNE's looking to invest abroad. This in turn could then have an impact on the amount of FDI flowing into Canada and Mexico.

2.2 Literature Review

The literature regarding policy uncertainty spillovers tends to favour their existence. For example, Balli, Uddin, Mudassar, and Yoon (2017) examine the impact of cross-country characteristics on policy uncertainty spillovers from one country to the level of policy uncertainty

[11] According to Global Affairs Canada, U.S. share of Canadian merchandise exports was between 74.9% - 76.8% from 2014-2019.
[12] According to the Office of the United States Trade Representative, Mexico was the United States 2nd largest importer and exporter in 2018.

in another.[13] Of the 16 countries they examine, policy uncertainty in the United States, Australia, and Canada accounted for most spillovers into other countries. Furthermore, policy uncertainty spillovers were more likely depending on the share of bilateral trade between countries, and the existence of a common language (Balli et al., 2017). In a similar vein, Klößner and Sekkel (2014) analyze policy uncertainty spillovers across 6 developed economies and find that a little over 25% of domestic economic policy uncertainty shocks originated from another country. They further argue that EPU shocks have been countercyclical since the great recession and the UK and the United States have been net exporters of policy uncertainty spillovers while Canada, Germany and Italy are net importers of spillovers. Essentially, they mean that policy uncertainty in the UK and the United States plays a significant role in determining the policy uncertainty of Canada, Germany, and Italy. It is interesting to note that Klößner and Sekkel (2014), and Balli et al. (2017) come to a similar conclusion in terms of the magnitude of policy spillovers and the main countries leading these spillovers. Both research papers are relatively similar in their research design, with the work of Balli et al. (2017) extending the analysis to more countries. The main take away from both articles is that policy uncertainty spillovers are sizeable and country dynamics play a significant role. This is further illustrated by the work of Caggiano, Castelnuovo, and Figueres (2018) who examine the impact of U.S. economic policy uncertainty on the Canadian unemployment rate during boom-and-bust periods. Their findings show that U.S. policy uncertainty spillovers are indeed present during periods of Canadian business cycles. Moreover, they argue that the transmission mechanism for US policy uncertainty spillovers is through an 'economic policy uncertainty spillover channel' (Caggiano et al., 2018). This would mean that an increase in the U.S. EPU index should lead to a direct increase in the Canadian EPU index as well.

[13] They measured policy uncertainty via the EPU index.

Other authors have also examined the existence of a policy uncertainty spillover channel different from the economic policy uncertainty spillover channel. Gauvin, McLoughlin, and Reinhardt (2014) examine the impact of policy uncertainty spillovers to emerging markets. They find that increases in U.S. policy uncertainty reduces portfolio bond and equity flows to emerging markets while increases to European Union policy uncertainty increases portfolio bonds and equity flows to emerging markets. This would seem to seem to suggest the existence of a capital flow channel for policy uncertainty spillovers. Furthermore, this illustrates the importance of foreign policy uncertainty spillovers in explaining domestic economic variables. One interesting aspect that their paper highlights is how policy uncertainty spillovers affect short term investment vehicles. Portfolio bond and equity flows essentially reflect the availability of funds or credit in an economy. These funds can then be used by domestic enterprises to establish new plants or expand existing production capacity. One could think of these portfolio bond and equity flows as short-term investment vehicles because they require less commitment on the part of an investor when compared to traditional FDI. For traditional FDI, the investment comes with relatively large, fixed costs, thus the returns from such investments are spread out over a longer time frame. Therefore, the way in which FDI reacts to foreign policy uncertainty spillovers might differ from bond, equity, and other short-term financial flows.

While the previous literature demonstrates the existence of policy uncertainty spillovers few have examined how these policy uncertainty spillovers affect FDI. Nguyen, Kim, and Papanastassiou (2018) approach the issue of policy uncertainty spillovers and FDI by looking at the impact of the relative difference between home and host country EPU measures. They do find a significant relationship between policy spillovers and FDI amongst their sample of eight east Asian economies.

This aim of this paper shares some similarities with the work by Nguyen et al. (2018) in terms of the policy uncertainty spillover/ FDI relationship. However, the major contributions to the literature of this paper the FDI policy uncertainty spillover relationship is assessed. The policy uncertainty spillover relationship is examined within the context of a very large open economy (the United States) and two small open economies (Canada and Mexico) that share a contiguous border, strong bilateral trade, and some cultural characteristics.

Given the existence of policy uncertainty spillovers in the literature, it is reasonable to ask how this policy uncertainty spillover plays out within economies. The works of Klößner and Sekkel (2014) and Balli et al. (2017) seems to suggest that policy uncertainty spillovers only affect the economy through the "policy uncertainty channel". This means that policy uncertainty in one country leads to policy uncertainty in another country. On the other hand, the works of Caggiano et al., (2018) show that policy uncertainty in one country can directly affect macroeconomic indicators in another country. Since FDI differs from the other flows mentioned in the literature, this paper differs in its analysis from these others. Thus, the aim of this paper is to examine how U.S. policy uncertainty spillovers affect the economies of Canada and Mexico via their FDI inflows.

2.3 Data

To conduct an analysis of the effect of U.S. policy uncertainty on the other NAFTA signatory countries this paper employs data from the following sources: IMF: International Financial Statistics, Bureau of Economic Analysis, the St. Louis FRED, policyuncertainty.org, Statistics Canada, ceicdata.com, and the Philadelphia Federal Reserve Bank website. The variables such as Canadian GDP, Mexican GDP, were obtained from IMF International Financial Statistics Database. Data on global FDI inflows to Canada was obtained from Statistics Canada, while data

on global FDI inflows to Mexico, and data on the real effective exchange rate for Canada and Mexico CEIC economic database. U.S. FDI into Canada and Mexico were obtained from the Bureau of Economic Analysis. Canadian EPU, Mexican EPU and U.S. EPU indices were obtained from policyuncertainty.org,[14] while U.S. partisan conflict (U.S. PC) index was obtained from the Philadelphia Federal Reserve Bank. Due to the availability of country specific EPU indices, the frequency is quarterly and covers the period from 1985Q1 to 2019Q2 for Canada and 1996 to 2019Q3 for Mexico. The nominal GDP and FDI variables were converted to into real terms using each country's CPI with 2015 as the base year. The time frame used in this analysis is similar to previous works in the literature with the major differences being the frequency of the data.

As was stated earlier, the Canadian, Mexican and U.S. EPU were developed by the economists Scott R. Baker, Nick Bloom and Steven J. Davis, and they are all newspaper-based indices. The US EPU index was created using three components[15]: A news coverage component, a tax expiration component, and an economic forecasting disagreement component. The newspaper component is an index of search results from 10 large newspapers ("USA Today", "The Miami Herald", "The Chicago Tribune", "The Washington Post", "The Los Angeles Times", "The Boston Globe", "The San Francisco Chronicle", "The Dallas Morning News", "The New York Times", and "The Wall Street Journal") for the United States, 5 large newspapers ("The Gazette", "The Vancouver Sun", "The Toronto Star", "The Ottawa Citizen", and "The Globe and Mail") for Canada, and 3 large newspapers ("El Norte", "Reforma", and "Mural") for Mexico. From these papers, they construct a normalized index of the volume of news articles discussing economic policy uncertainty and then record the number of articles that center around any combination of

[14] Canadian EPU Index and Mexican EPU Index were both developed by Scott R. Baker, Nick Bloom and Steven J. Davis.
[15] The Canadian and Mexican EPU indices were only based on the newspaper component.

the words “economic”, “policy” and “uncertainty”. However, the second component of the United States EPU index also draws on reports by the Congressional Budget Office (CBO) that focuses on lists of temporary federal tax code provisions. Finally, the third component of the United States EPU index draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters. To create the overall EPU index, they normalize each component by its own standard deviation prior to January 2012 and then compute the weighted average of all three components with the following weighting structure: 1/2 for news-based policy uncertainty index and 1/6 for each of the other components. The U.S. PC index variable was developed by Azzimonti (2014) and is measured in the same way as the EPU. So far, the PC index has only been calculated for the United States, thus it is only included in the models pertaining strictly to the United States. Figure 1 in the appendix shows a plot of the model variables. A glance at figures 1A and 1B seems to suggest a clear trend in some of the variables (Canadian GDP, Mexican FDI, US PC Index). This means that they may not be stationary. This can be a problem for the analysis if not addressed. The next section discusses how this was addressed.

2.4 Model

It is important to note that this paper employs the use of the U.S. EPU index and the U.S. PC index as measures of U.S. policy uncertainty spillovers because the method with which these indices were calculated does not include terms, phrases, or policies that are specifically targeted towards Canada and Mexico. As such these indices are wholly American in the sense that they pertain to the economic and political climate of the United States. If these indices have an impact on any country other than the United States, then the uncertainty that these indices capture has ‘spilled’ over into another country. This makes using the EPU index and the PC index in this form a valid way to measure uncertainty spillovers in another country.

To test whether the aforementioned spillovers affect Canadian and Mexican economies, I employ a vector autoregressive (VAR) model to examine the contemporaneous relationships between the policy uncertainty measures and FDI. The application of VAR models in this area of research is a common practice in the literature. This is because using the VAR allows one to highlight the linear interdependencies that exist amongst multiple time series equations. This is especially relevant in the case of FDI inflows because FDI can be affected by things like a country's GDP but at the same time also affect said country's GDP. Furthermore, past values of FDI may also provide information in terms of predicting future its value, thus the past values ought to be accounted for in these types of economic analysis. The basic setup of the VAR model estimated for the FDI flowing into Canada and Mexico is as follows:

$$y_t = \alpha_{t-1} y_{t-1} + \cdots + \alpha_{t-p} y_{t-p} + e_t \quad (1)$$

Or more compactly:

$$Y_t = A_p Y_{t-p} + \varepsilon_t \quad (2)$$

Here Y_t represents an n x 1 vector containing the variables in the model (GDP, CPI, PCI, EPU, REER), A_p represents the n x p coefficient matrix that emphasizes the relationships between the variables.

2.4.1 Stationarity and Cointegration

There are several issues to be aware off when employing economic analysis via a VAR model, with the first being of stationarity. Nonstationary time series implies that the statistical properties of the data are not constant over time. Ignoring this issue could lead to erroneous results. A cautionary glance at figure 1A & 1B seems to suggest that some of the variables may indeed be non-stationary, however a more definitive approach needs to be employed. For this, I employ the

augmented dickey fuller (ADF) test for unit roots. For this test, the null hypothesis is that unit roots are present (i.e., the data is not stationary). Table 2.1 shows the results of the ADF test.

Table 2.1: Augmented Dickey Fuller Test Results

Variables	Test Statistic	Critical Value: 5%	Variables	Test Statistic	Critical Value: 5%
CAN FDI	-7.76	-3.43	MEX FDI	-5.55	-3.43
U.S. CAN FDI	-6.95	-3.43	U.S. MEX FDI	-6.69	-3.45
CAN RGDP	-2.34	-3.43	MEX RGDP	-4.11	-3.43
CAN REER	-1.87	-3.43	MEX REER	-2.41	-3.43
U.S. PCI	-2.66	-3.43	U.S. PCI	-3.03	-3.43
U.S. EPU	-3.23	-3.43	U.S. EPU	-3.29	-3.43
CAN EPU	-3.71	-3.43	MEX EPU	-3.60	-3.45

From this it can be seen that the computed test statistic for Canadian Real GDP, Canadian REER, Mexican REER, U.S. PC index, and U.S. EPU index fall below the computed critical value, suggesting the existence of unit roots. Differencing these variables is the most straightforward solution, and subsequent ADF tests of the differenced variables show test statistics higher than the critical values, meaning that all variables are now stationary. Since the frequency of the data is quarterly, the existence of seasonal trends may lead to spurious results, if not properly dealt with. Seasonality tests were conducted for all variables and the results (not reported) showed that Canadian GDP, Mexican FDI inflows, Mexican GDP and the US PC had seasonal components, thus their seasonally adjusted versions are employed.

Another issue to consider when performing a VAR analysis is the issue of cointegration and not accounting for this can also lead to spurious regression results. To check for this, I employ the Johansen test for cointegration. The test results show that cointegration is indeed present, thus a vector error correction model (VECM) needs to be employed.

2.4.2 Lag Length and Variable Ordering

One crucial aspect of a VAR analysis involves the appropriate number of lags to use. Longer lags allow for more in-depth analysis of the dynamic relationships that may exist; however longer lags have significant implication for degrees of freedom. Equation 1 shows that α_{t-p} (for $p > 0$) number of parameters have to be estimated for each of the model variable, thus the more lags and variables in the model the greater the number of parameters estimated. A lag selection criterion is often used to determine the optimal lag length. The Akaike information criterion (AIC) was used to determine the optimal lag length. However, the AIC gave inconsistent lag lengths (between 1- 3 lags with 1 lag being the most common), thus a lag length of 2 was chosen. This lag length falls in line with the optimal lag lengths chosen by other similar works (Azzimonti, 2014; Klößner & Sekkel, 2014; Cai & Menegaki, 2019).

Note that in equations 1 and 2, there are no explicitly stated contemporaneous values. This is because in a VAR analysis the resulting contemporaneous relationships are given by the variance covariance matrix, which contains the variance of the endogenous variables as diagonal elements and the covariances of the endogenous variables as the off-diagonal elements. The off-diagonal elements of the variance co-variance matrix can be used to obtain information about contemporaneous relationships amongst the variables. This can be done via the Cholesky decomposition method. The Cholesky decomposition method implies that the way the variables are ordered describes the contemporaneous relationships between them; in other words, the variable that enters the model first affects all subsequent variables contemporaneously.

With respect to the policy uncertainty indices, it is important to note that the indices used in this paper are primarily newspaper based, so they are thought to represent societies view on the state of economic and political policies. These policy uncertainty indices are not policy tools and

they do not come from official policy channels. This thus one can conclude that the indices are a reactive measure rather than a proactive measure. Based on this fact the implication on the variable ordering is as follows: GDP/GDP growth, consumer price index/inflation, FDI, and the PC index/EPU index. This variable ordering suggests that shocks to GDP have an immediate impact on all variables in the model. This variable ordering differs from others in the literature with some choosing to order FDI and other macro variables before the policy uncertainty measure (Alam & Istiak,2019; Cai & Menegaki, 2019) and others choosing to order the policy uncertainty measure before FDI (Krol, 2018). However, this paper's variable ordering scheme is not an implausible assumption to make. This is because changes in GDP can initiate changes in other macroeconomic variables. Furthermore, the position of CPI in the model suggests that shocks to CPI have a contemporaneous impact on FDI and the policy uncertainty indices but have a lagged impact on GDP. The third position of FDI suggests that shocks to FDI have a contemporaneous effect on the policy uncertainty indices but a lagged effect on GDP and CPI. This assumption of the FDI relationship is justifiable when one considers how firms make their investment decisions. Firms often make their investment decisions based on existing macroeconomic information and can adjust their investments to account for observed macroeconomic shocks. As was mentioned earlier, the fourth position of the policy uncertainty index suggests that they immediately respond to shocks from all the other variables in the model but only affect other variables with a lag. One criticism that can be levied on the Cholesky decomposition method is that the ordering is subject to the assumptions of the researcher. While this criticism has merit, I believe that the characteristic of these variables supports the proposed ordering scheme.

To check for the existence of policy uncertainty spillovers, the results of the analysis will focus on the impulse response functions generated by the model. The above VAR specification

will be used to examine whether U.S. policy uncertainty shocks affects FDI flowing from the rest of the world into Canada and Mexico, and whether U.S. policy uncertainty shocks affect FDI flowing from the United States into these two countries. Performing the analysis in this manner allows me to examine the channel with which these spillovers occur, the direct channel or the policy uncertainty channel.

2.4.3 Spillover Transmission Channels: Direct and Indirect Channels

The first transmission channel this paper examines is the direct channel. In the direct channel, U.S. policy uncertainty directly affects macroeconomic variables, like FDI, in other countries. There are several reasons to believe a direct channel between US policy uncertainty and the other countries macroeconomic variables exists with the first reason being proximity. The only two countries that the United States shares a contiguous land border is with Canada and Mexico, thus these three countries are always in constant contact and communication regarding many aspects of life. The proximity of the three countries is further highlighted when one examines the high-level of cooperation when dealing with issues such as trade/investment (NAFTA/USMCA), national security (NORAD[16], Merida Initiative[17]), environment (GLWQA[18]), travel (NEXUS program[19]) and education (i.e., no visa requirement for Canadian and American students). Thus, it is not difficult to imagine that a policy change in one country will have a noteworthy impact on the other.

The second reason which closely relates to the first is the economy, or more specifically, the level of economic integration between Canada, Mexico, and the United States. Canada,

[16] North American Aerospace Defence Command is a partnership between the U.S. and Canada to provide aerospace warning, air sovereignty, and protection for Northern America.
[17] The Merida Initiative is a security cooperation agreement between the United States, Mexico, and other Central America countries, that aims to combat drug trafficking, transnational organized crime, and money laundering.
[18] The Great Lakes Water Quality Agreement is a commitment between the United States and Canada to restore and protect the Great Lakes.
[19] The NEXUS program allows pre-screened travelers fast border processing when entering Canada and the U.S.

Mexico, and the United States first entered into a formal trade agreement (NAFTA) in 1994 and then recently entered into a new one USMCA (United States-Mexico-Canada Agreement) from 2018 till present. The USMCA as well as NAFTA have had major implications for the economies of all three nations and this can be observed based on the stated objective of the agreement. For example, Article 102 of the NAFTA documentation and Chapter 2 of the USMCA text show that these agreements primarily focus on trade barriers, cross-border movement of goods and services, fair competition, investment opportunities, and the enforcement of intellectual property rights (Global Affairs Canada, 2016; Office of the United States Trade Representative, 2019). As these trade agreements aim to standardize interactions across its areas of focus, this has resulted in some level of integration and synchronization amongst the three economies. Some might argue that the existence of NAFTA and USMCA should eliminate any economic fluctuations arising from political actions, because of the standardized practices set forth within them. However, it is important to note that the trade agreements do not entirely constrain each country's ability to act in its own self interest. Indeed, one could argue that the termination of NAFTA and the creation of the USMCA highlights this fact. Thus, it is possible for political actions from the United States to still affect the economies of Canada and Mexico post-NAFTA/USMCA.

The second transmission channel this paper examines is via the indirect channel. For the indirect channel, U.S. policy uncertainty can affect FDI outcomes in other countries by affecting the level of policy uncertainty in Canada and Mexico which in turn affects FDI and other macroeconomic variables in those countries. One reason to believe that there exists a relationship between US policy uncertainty and the level of policy uncertainty in Canada and Mexico comes from the literature. As was mentioned earlier, the works of Klößner & Sekkel (2014), and Balli et al., (2017) established that US policy uncertainty influences policy uncertainty in other developed

countries such as Canada. The same can be said for the US-Mexican relationship from the works of Cebreros, Chiquiar, Heffner, and Salcedo (2018) and Alam and Istiak (2019). When they factor in US uncertainty, they find that it has an impact on Mexican policy uncertainty. Thus, it stands to reason those changes in Canadian and Mexican FDI may be caused by changes in Canadian and Mexican policy uncertainty, which were led by US policy uncertainty.

2.5 Results

Since this paper is interested in analyzing the impact of policy uncertainty on FDI inflows, only the impulse response functions (IRF) pertaining to FDI and policy uncertainty variables are reported below. The presented IRF's are 10 period ahead forecasts that have been bootstrapped and calculated with 10,000 iterations and a 95-percentile confidence band[20]. The confidence intervals are computed via the bootstrap procedure described in Efron & Tibshirani (1993). Specifically, this involves bootstrapping the confidence intervals based on the bias corrected and accelerated version of the percentile method. The percentile method essentially involves bootstrapping confidence intervals based on percentiles of the bootstrap distribution of a statistic. In this case, the statistical distribution comes from the orthogonalized impulse response coefficients. For the vars package, the percentile interval is defined as: CIs = $[s*\alpha/2, s*1-\alpha/2]$, with $s*\alpha/2$ and $s*1-\alpha/2$ being the $\alpha/2$ and $1 - \alpha/2$ quantiles of the bootstrap distribution of $\Psi*$. Here $\Psi*$ represents the estimated orthogonalized coefficient matrices of the moving average representation.

Figures 2 and 3 show the response of Canadian rest of the world (ROW) FDI Inflows, Canadian REER and Canadian Real GDP to policy uncertainty (as represented by U.S. partisan

[20] The IRFs were computed using the vars package for R.

conflict index and U.S. EPU). From these IRF in Figure 2 one can see that the zero line is contained within the confidence bands, thus we can conclude that the Canadian macroeconomic variables employed do not respond to U.S. partisan conflict shocks. On the other hand, Figure 3 shows the response of the Canadian macro variables to U.S. EPU shocks. The first IRF shows that Canadian ROW FDI inflows responds negatively to U.S. EPU shocks from periods 4 to 6 and from again from period 8 onward. The second IRF of Figure 3 shows that Canadian REER responds positively to U.S. EPU shocks from period 3 to period 4 and again from period 6 onwards. The third IRF of Figure 3 shows that Canadian real GDP responds negatively to U.S. EPU shocks from period 2 to 4. The IRF results from Figure 3 would seem to provide support for the existence of a direct channel for policy uncertainty spillovers.

Figures 4 and 5 shows the results when examining the existence of an indirect channel for Canadian macroeconomic variables. Under this model speciation the variables were reorder in the following manner to produce the IRFs: U.S. policy uncertainty, Canadian policy uncertainty, Canadian FDI, Canadian REER and Canadian real GDP. This ordering suggests the following: U.S. policy uncertainty affects Canadian policy uncertainty in the short term, and Canadian policy uncertainty affects the Canadian macroeconomic variables in the short term as well. The results from Figure 4 does not show significant responses from Canadian EPU and Canadian macroeconomic variables to U.S. partisan conflict. However, the first IRF's in Figure 5 shows that Canadian EPU index responds positive and significantly to U.S. EPU shocks. The second IRF in Figure 5 also shows that Canadian ROW FDI inflows responds negatively to U.S. EPU shocks but only after 9 periods. The third IRF from Figure 5 shows that Canadian REER responds positively to U.S. EPU shocks from period 3 and 4 and again from period 6 onwards. The last IRF from Figure 5 shows that Canadian real GDP responds negatively to U.S. policy uncertainty shocks but

only from period 3 to 4. Taking these results at face value would seem to suggest that there exists evidence supporting and indirect channel for policy uncertainty spillover with respect to Canadian ROW FDI inflows and other Canadian economic variables.

Figures 6 through 9 contain the IRFs examining the effect of U.S. policy uncertainty shocks on U.S. FDI flows to Canada and other Canadian macroeconomic variables. Under this model the variables follow the same ordering used when calculating the IRF's from Figure 2-5. The IRF from Figure 6 show the response of U.S. FDI to Canada to a U.S. partisan conflict shock. Similar to Figure 2 there is no significant impact of U.S. policy uncertainty on U.S. FDI to Canada and other Canadian macroeconomic variables. The IRF's from Figure 7 are similar to the IRFs from Figure 3. Here it can be seen from the first IRF in Figure 7 that U.S. FDI to Canada responds negatively to U.S. EPU shocks, and this negative response persist from period 5 and onwards. The second IRF from Figure 7 once again shows that Canadian REER responds positively to U.S. EPU shocks from period 5 and onwards. The last IRF from Figure 7 also shows that Canadian Real GDP responds significantly to U.S. policy uncertainty shocks from period 5 to period 10. These IRFs once again lend support for the existence of a direct policy uncertainty spillover channel when it comes to U.S. EPU, Canadian FDI inflows and other Canadian macroeconomic variables.

The IRF's from Figure 8 and 9 tests for the existence of an indirect spillover channel. Interestingly, the responses contained in Figure 8 mirror the responses from Figure 4 in terms of their lack of significance, but the responses from Figure 9 differ significantly from its counterpart in Figure 5. Only the first IRF in Figure 9 shows any significance, which suggests that U.S. economic policy uncertainty affects Canadian economic policy uncertainty, but it does affect U.S. FDI to Canada and other Canadian macroeconomic variables. These results would seem to

conclude that there is no indirect policy uncertainty spillover channel when examining U.S. FDI to Canada.

Figures 10 through 17 replicate the previous analysis with the focus now being on the Mexican economy. Figures 10 and 11 examine the existence of a direct policy spillover channel and show the IRF concerning the response of Mexican ROW FDI inflows and other Mexican macroeconomic variables to U.S. policy uncertainty shocks. The IRFs do not show any significant response to either U.S. partisan conflict shocks or U.S. Economic policy uncertainty shocks. The same can be sand when examining Figure 12 and 13. Here the IRFs show that U.S. policy uncertainty shocks have a brief but significant impact on Mexican EPU (lasting for about 1 period). However, the same can not be said for Mexican ROW FDI inflows and the other Mexican macroeconomic variables. This suggests that there exists no direct or indirect policy uncertainty spillover channel between the U.S. and Mexico.

Figures 14 through 17 re-examine the previous scenario within the context of U.S. FDI to Mexico. The results are somewhat similar to those from Figure 10-13 but with some small differences. The first IRF of Figure 14 shows brief periods of a significant and negative response from U.S. Mexican FDI inflows to a U.S. partisan conflict shock. From Figure 15 only the third IRF has any significance suggesting that Mexican real GDP has a negative but significant response to a U.S. EPU shock. The IRF's in Figure 16 do not show any significant response to a U.S. partisan conflict shock when considering Mexican EPU and U.S. FDI to Mexico. However, the first IRF from Figure 17 shows that there is a significant, albeit brief response of Mexican EPU to a U.S. EPU shock. The second IRF of Figure 17 does show that U.S. FDI to Mexico responds negatively to a U.S. EPU shock from period 1 to 3 and then from period 6 onwards. The third IRF in Figure 17 shows that Mexican REER responds positively to a U.S. EPU shock in period 3 and then from

period 6 onwards. The same can not be said for the last IRF of Figure 17 which does not show any significant relationship between U.S. EPU shocks and Mexican real GDP. From these results it can be conclude that the likelihood of an indirect policy uncertainty channel is much stronger than that of a direct policy uncertainty channel when looking at it within the context of U.S. FDI to Mexico and U.S. EPU index.

2.6 Discussion

In the previous section I analyzed the impact of U.S. policy uncertainty spillovers on FDI flowing into Canada and Mexico as well as the impact of U.S. policy uncertainty on policy uncertainty in those two countries. The presented IRF's appear to lend support for the existence of a direct and indirect relationship between U.S. policy uncertainty and FDI flowing into Canada and an indirect relationship for only for U.S. FDI flowing to Mexico. These results are interesting given that the United States is amongst the top sources of FDI for Canada and Mexico. On the one hand one could argue that as signatories of USMCA (NAFTA) there should not be significant impact of U.S. policy uncertainty in terms of FDI given the scope of the agreement. So, if policy makers in the United States adopted an unpredictable policy stance, the rules of the agreement are still binding thus providing some measure of certainty for investment flowing into the two countries. But it is important to note that while NAFTA does have provisions on how each country treats investment coming from the USMCA members it does provide room for countries to act in their best interest.

From the IRF's it was shown that U.S. policy uncertainty spillovers are more prevalent for Canadian FDI than they were for the Mexican FDI. This could be due to the geographic location of the countries. The United States is the only country that Canada has a land border, and the world largest economy this means that the United States plays a significant role on Canada's economic

plans, thus it should not be too surprising that U.S. economic policy plays such a role on the Canadian economy. Mexico on the other hand shares a border two countries in its southeastern border, furthermore Mexico also acts as a bridge of sorts connecting the rest of Central and Southern American with the North. Thus, one could argue that this gives Mexico more economic partners that are closer in proximity than Canada. This means that the Mexican economy may be less dependent on the United States than the Canadian economy. In turn this may lead to the Mexican economy being less affected by direct U.S. policy uncertainty. The findings of this paper also differ from the findings of other similar works. There are several reasons for these differences. The first being the country relationship being examined. Krol (2018) and Cai and Menegaki (2019) focus specifically on the U.S., while this paper focuses more on US interactions with Canada and Mexico. However, the most likely reason for this difference from the literature lies in the variables and ordering employed in this paper.

2.7 Conclusion

The aim of the paper was to see if U.S. policy uncertainty spillovers had any impact on FDI flowing into its neighbours. The results from this analysis showed that these spillovers did indeed exist but depended on how they interacted with the economy. Canadian FDI and other Canadian macroeconomic variables were affected directly and indirectly by U.S. policy uncertainty spillovers. In the case of Mexico, it was only affected indirectly and only with respect to U.S. FDI flowing into Mexico. It is interesting to note that the method with which policy uncertainty was being measured also played a role in how Canadian and Mexican FDI/ macroeconomic variables were affected. When policy uncertainty was measured via the partisan conflict index, which tends to focus on more political terms, there was no significant impact of U.S. policy uncertainty. But when policy uncertainty is measured via economic terms then

significant relationships appeared. At the very least this seems to suggest that the United States neighbours are less concerned about its political climate, at least in terms of their economies. This provides an interesting avenue for further economic research because it seems to suggest that all uncertainties are not created equally. Thus, it is imperative for researchers to understand the nature of the uncertainty if they are to better understand how it plays into a country's economic growth.

REFERENCES

Ahir, H., Bloom, N., & Furceri, D. (2018). The world uncertainty index. Available at SSRN 3275033.

Alam, M. R., & Istiak, K. (2019). Impact of US policy uncertainty on Mexico: Evidence from linear and nonlinear tests. *The Quarterly Review of Economics and Finance.*

Arbatli, E. C., Davis, S. J., Ito, A., & Miake, N. (2017). Policy uncertainty in Japan (No. w23411). *National Bureau of Economic Research*.

Azzimonti, M. (2014, June 23). Partisan Conflict.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. The *Quarterly Journal of Economics, 131*(4), 1593-1636.

Balli, F., Uddin, G. S., Mudassar, H., & Yoon, S. M. (2017). Cross-country determinants of economic policy uncertainty spillovers. *Economics Letters, 156,* 179-183.

Bhushan, A. (2019). Canadian FDI by Sector. CIDP. https://cidpnsi.ca/canadian-fdi-by-sector/.

Caggiano, G., Castelnuovo, E., & Figueres, J. M. (2018). Economic policy uncertainty spillovers in booms and busts. *Oxford Bulletin of Economics and Statistics.*

Cai, Y., & Menegaki, A. (2019). FDI, growth and trade partisan conflict in the US: TVP-BVAR approach. *Empirical Economics,* 1-28.

Canada, G. A. (2021). Foreign Direct Investment Statistics - Outward and Inward Stocks. GAC. https://www.international.gc.ca/economist-economiste/statistics-statistiques/outward_inward-actifs_passif.aspx?lang=eng.

Cebreros, A., Chiquiar, D., Heffner, A., & Salcedo, A. (2019). Trade policy uncertainty and its effect on foreign direct investment and export participation: Evidence from Mexico. Mimeo, Banco de México.

Gauvin, L., McLoughlin, C., & Reinhardt, D. (2014). Policy uncertainty spillovers to emerging markets–evidence from capital flows. *Bank of England Working Paper No*. 512. Available at SSRN: https://ssrn.com/abstract=2502029 or http://dx.doi.org/10.2139/ssrn.2502029

Global Affairs Canada. (2016, November 30). North American Free Trade Agreement (NAFTA). https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/nafta-alena/fta-ale/01.aspx?lang=eng

Global Affairs Canada. (2019, June 11). Stock of Foreign Direct Investment (FDI) in Canada, 2018. https://www.international.gc.ca/economist-economiste/statistics-statistiques/fdi-ide-2018.aspx?lang=eng

Gonzalez, E. (2019). Chart: A Breakdown of Foreign Direct Investment in Mexico. AS/COA. https://www.as-coa.org/articles/chart-breakdown-foreign-direct-investment-mexico.

International Market Fact Sheets. International Market Fact Sheets | SelectUSA.gov. (2020, November). https://www.selectusa.gov/FDI-global-market/international-markets.

Klößner, S., & Sekkel, R. (2014). International spillovers of policy uncertainty. *Economics Letters, 124*(3), 508-512.

Krol, R. (2018). Does uncertainty over economic policy harm trade, foreign investment, and prosperity? *Foreign Investment, and Prosperity*.

North American Free Trade Agreement. (n.d.). https://www.nafta-sec-alena.org/Home/Texts-of-the-Agreement/North-American-Free-Trade-Agreement?mvid=1&secid=539c50ef-51c1-489b-808b-9e20c9872d25#A1101

Nguyen, Q., Kim, T., & Papanastassiou, M. (2018). Policy uncertainty, derivatives use, and firm-level FDI. *Journal of International Business Studies, 49*(1), 96-126.

Office of the United States Trade Representative. (2019). Agreement between the United States of America, the United Mexican States, and Canada 12/13/19 Text. https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between

Santander. (2020, February). Mexico: Foreign investment. https://santandertrade.com/en/portal/establish-overseas/mexico/foreign-investment

The Conference Board of Canada. (2011). Inward FDI Attraction. The Conference Board of Canada. https://www.conferenceboard.ca/hcp/hot-topics/inwardFDI.aspx#:~:text=Canada%27s%20most%20attractive%20features%20as,2nd%20overall%20in%20this%20category.

U.S. Bureau of Economic Analysis, "Balance of Payments and Direct Investment Position Data," [https://apps.bea.gov/iTable/iTable.cfm?reqid=2&step=10&isuri=1&step1prompt1=2&step2prompt3=1&step1prompt2=1&step8prompt10a=2,3,25&step4prompt5=21&step3prompt4=22&step5prompt6=1&step7prompt8=60,58,56,55,52,49,48,43,42,41,40,39&step8prompt9a=1] (May 2021)

APPENDIX

Figure 1A: Canadian Variables Time Series Plot

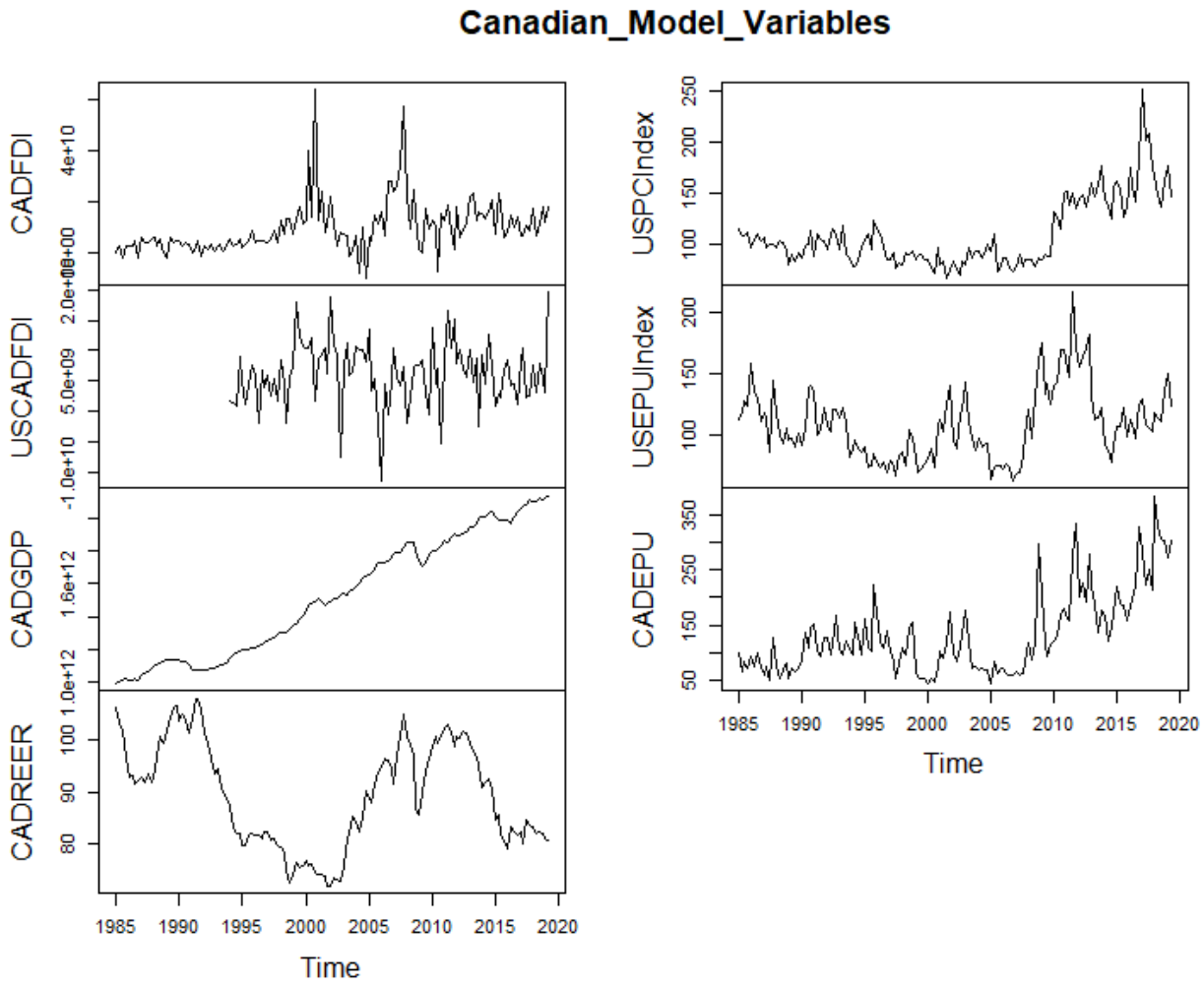


Figure 1B: Mexican Variables Time Series Plot

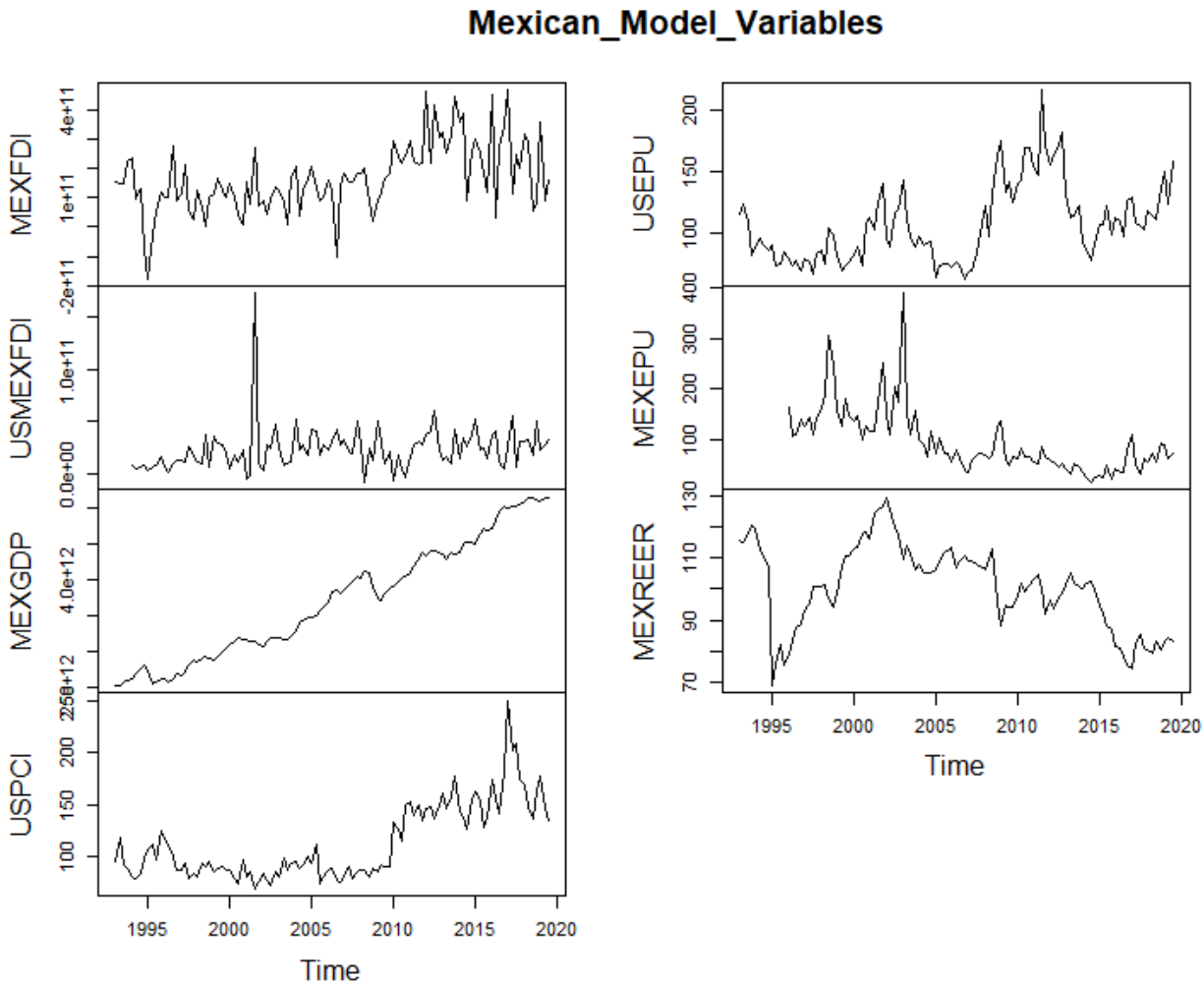


Figure 2: Response of Canadian ROW FDI Inflows, Canadian REER and Canadian Real GDP to US Partisan Conflict Shock

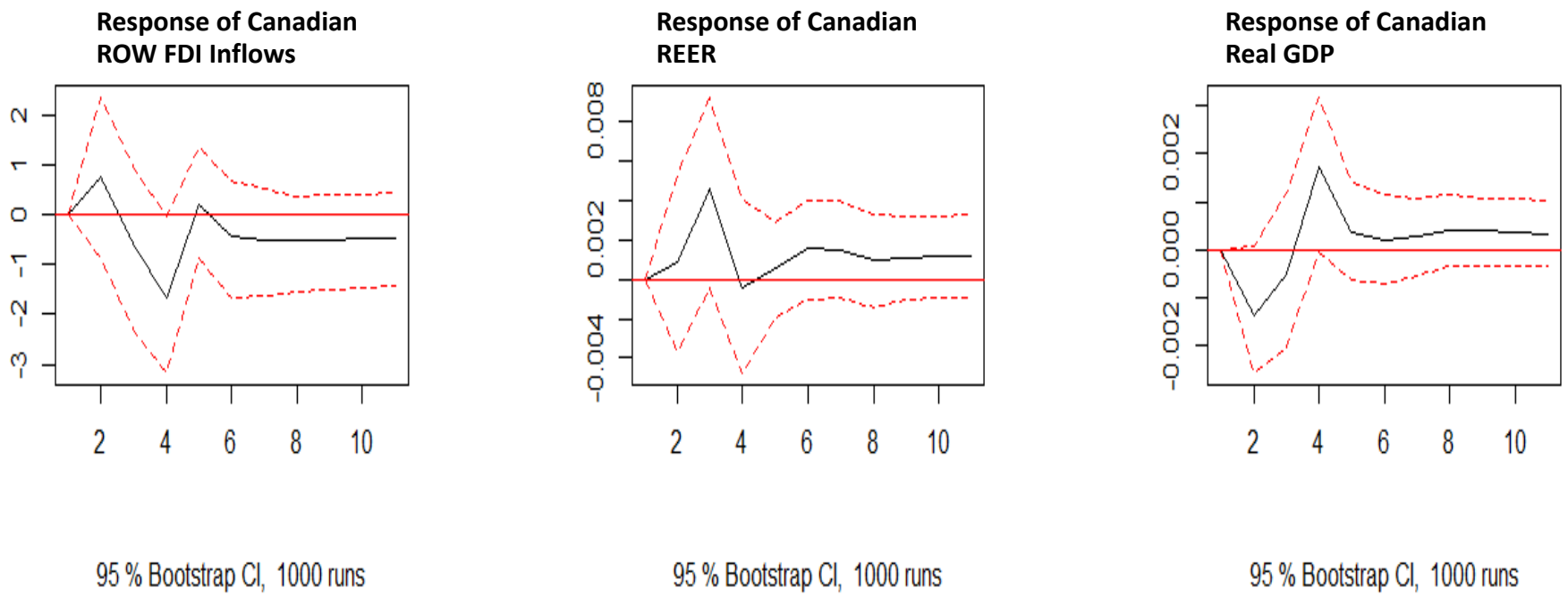


Figure 3: Response of Canadian ROW FDI Inflows, Canadian REER and Canadian Real GDP to US Economic Policy Uncertainty Shock

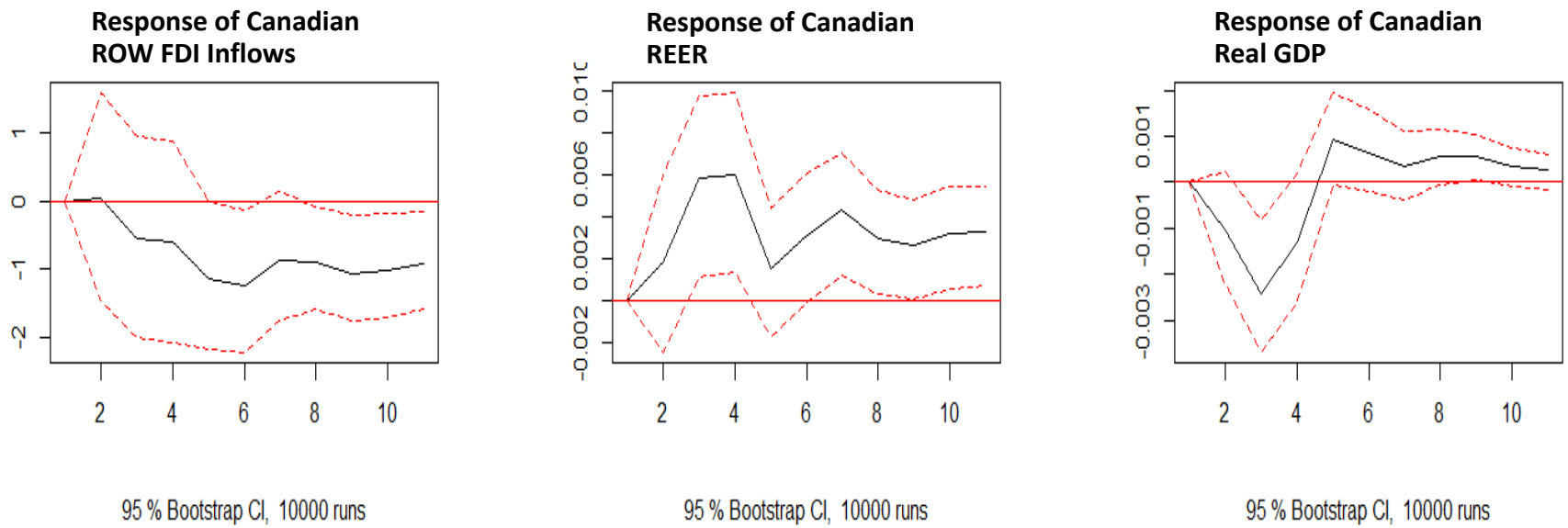


Figure 4: Response of Canadian EPU Index, Canadian ROW FDI Inflows, Canadian REER and Canadian Real GDP to US Partisan Conflict Shock

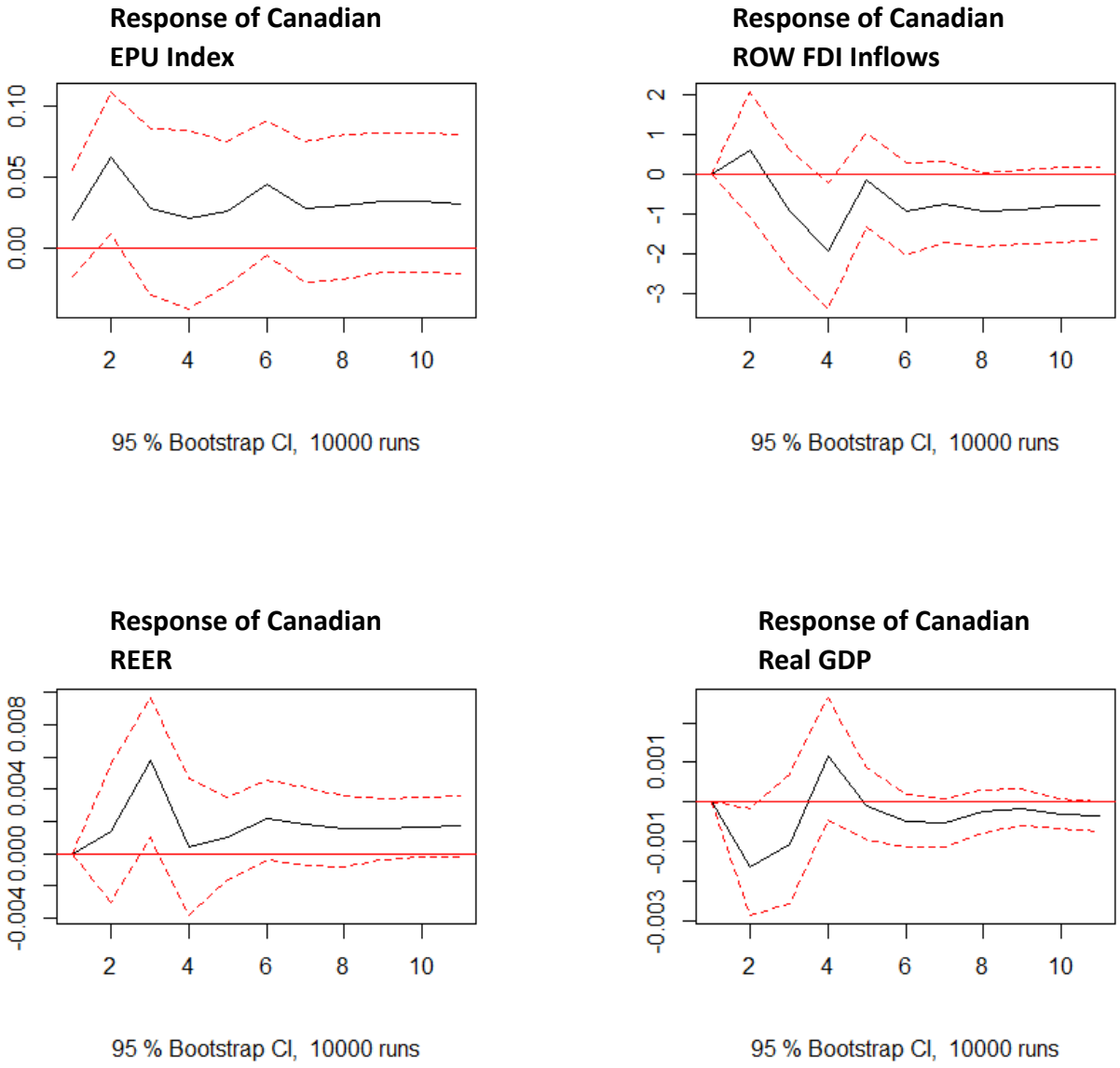


Figure 5: Response of Canadian EPU Index, Canadian ROW FDI Inflows, Canadian REER and Canadian Real GDP to US Economic Policy Uncertainty Shock

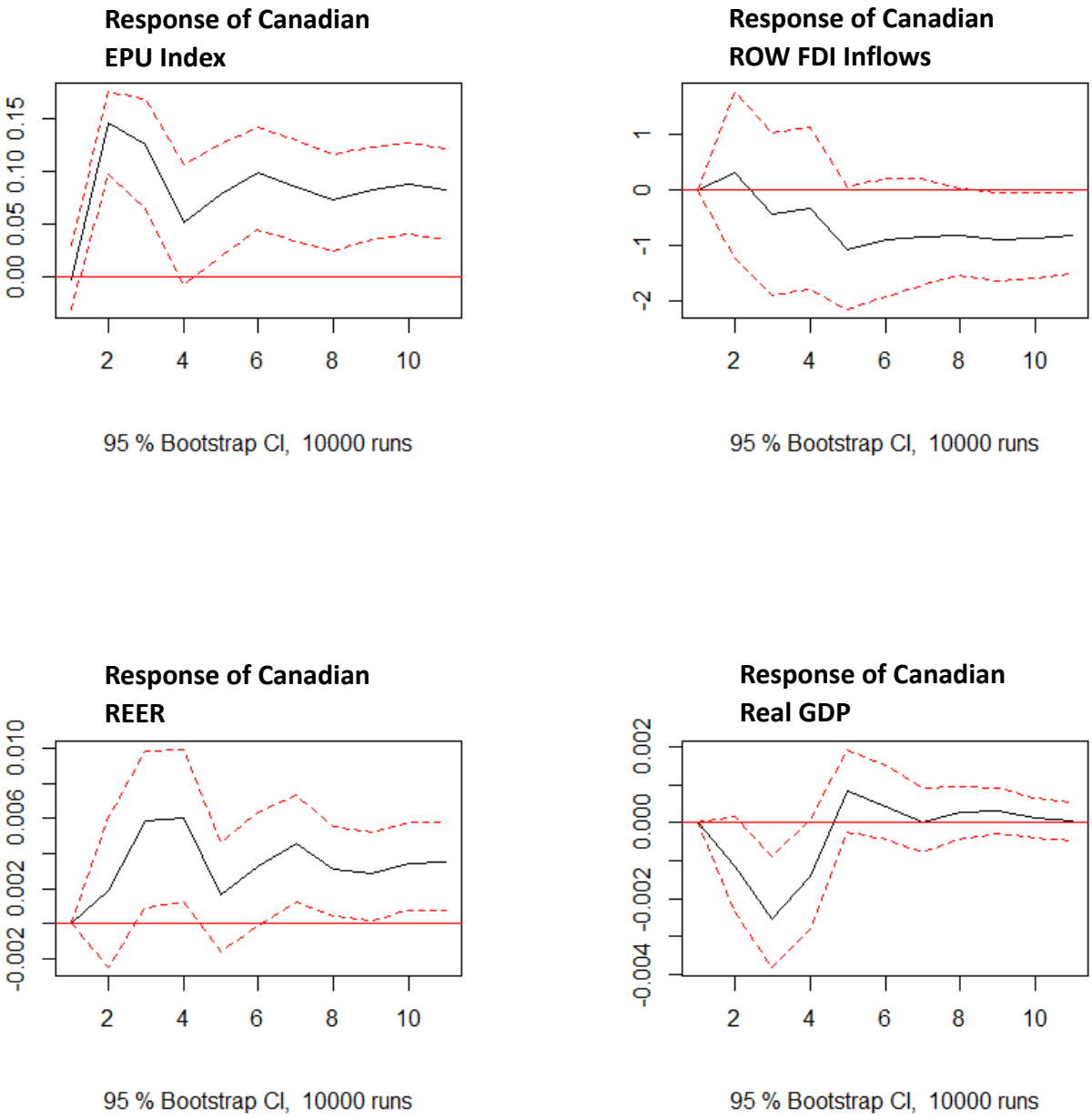


Figure 6: Response of US Canada FDI Inflows, Canadian REER, and Canadian Real GDP to US Partisan Conflict Shock

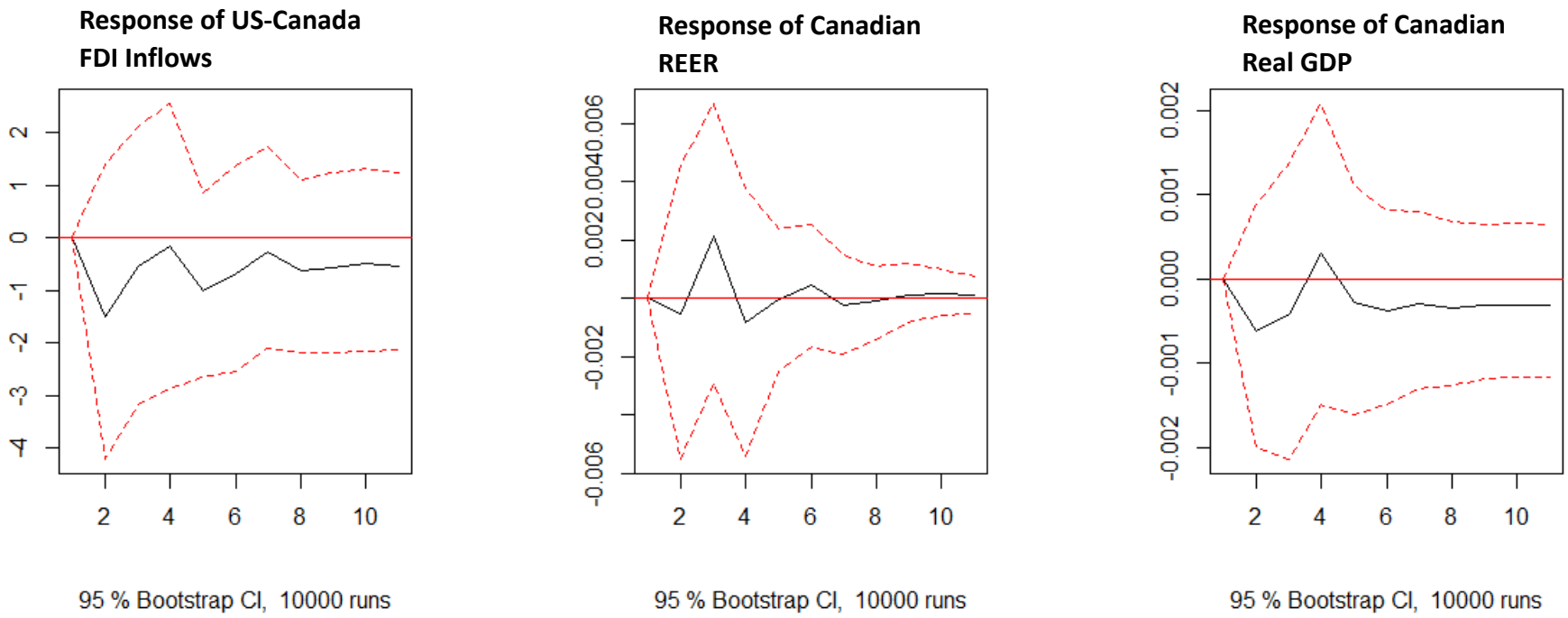


Figure 7: Response of US Canada FDI Inflows, Canadian REER, and Canadian Real GDP to US Economic Policy Uncertainty Shock

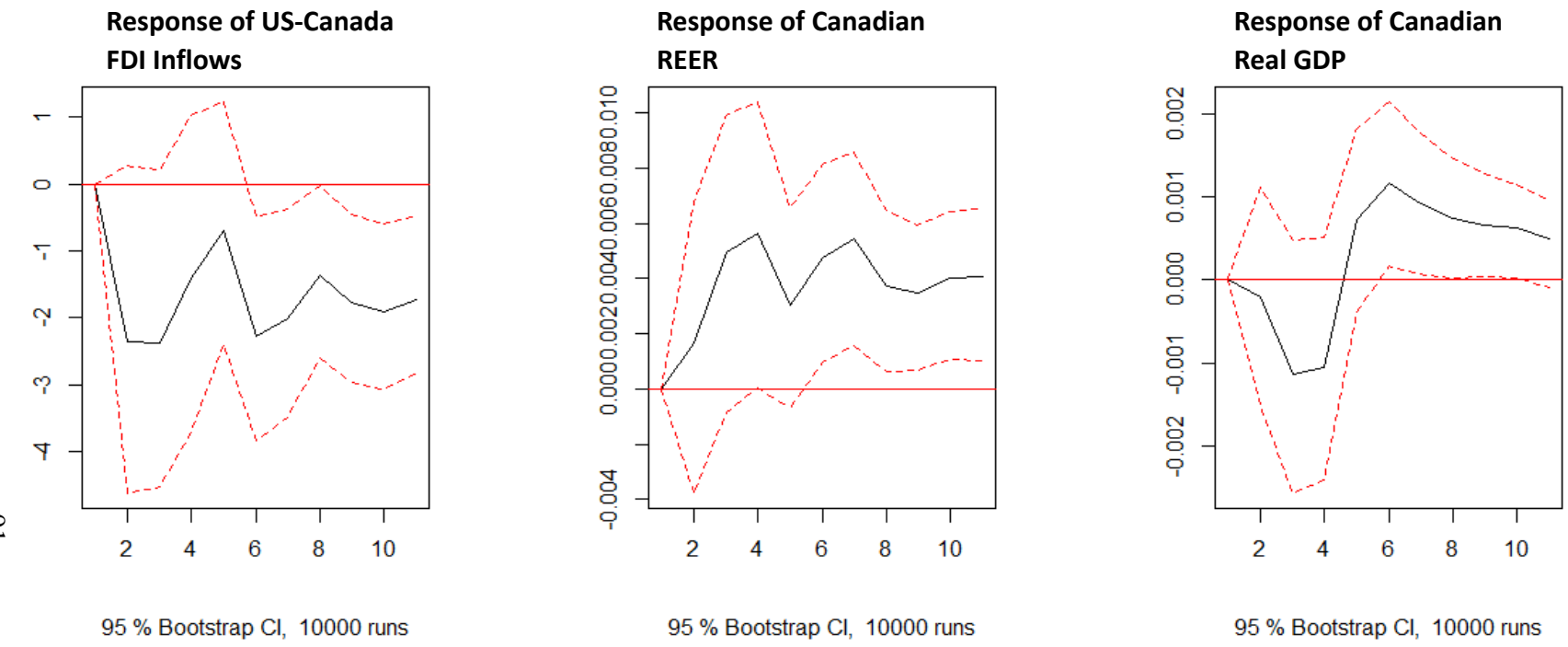


Figure 8: Response of Canadian EPU Index, US Canada FDI Inflows, Canadian REER, and Canadian Real GDP to US Partisan Conflict Shock

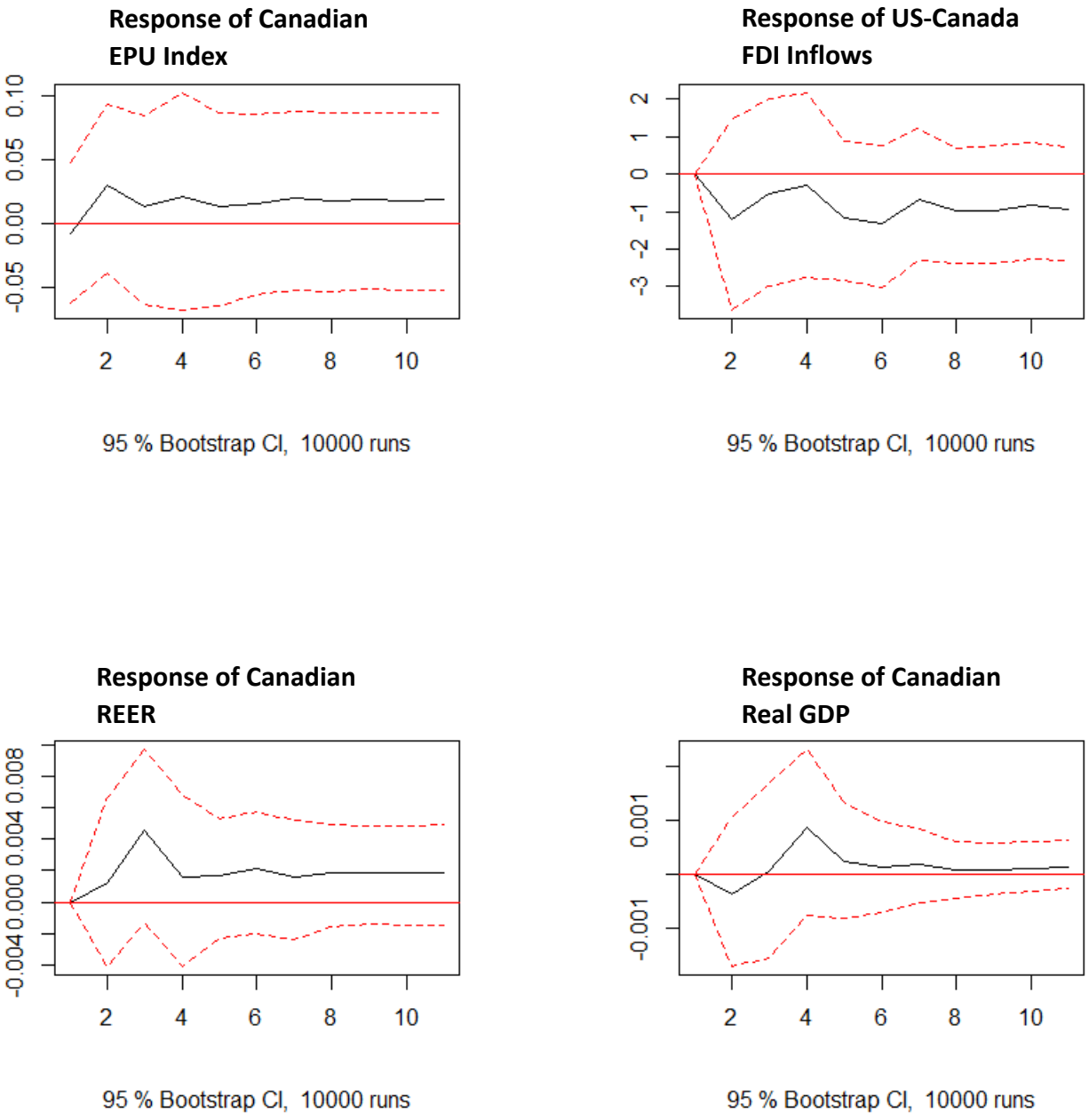


Figure 9: Response of Canadian EPU Index, US Canada FDI Inflows, Canadian REER, and Canadian Real GDP to US Economic Policy Uncertainty Shock

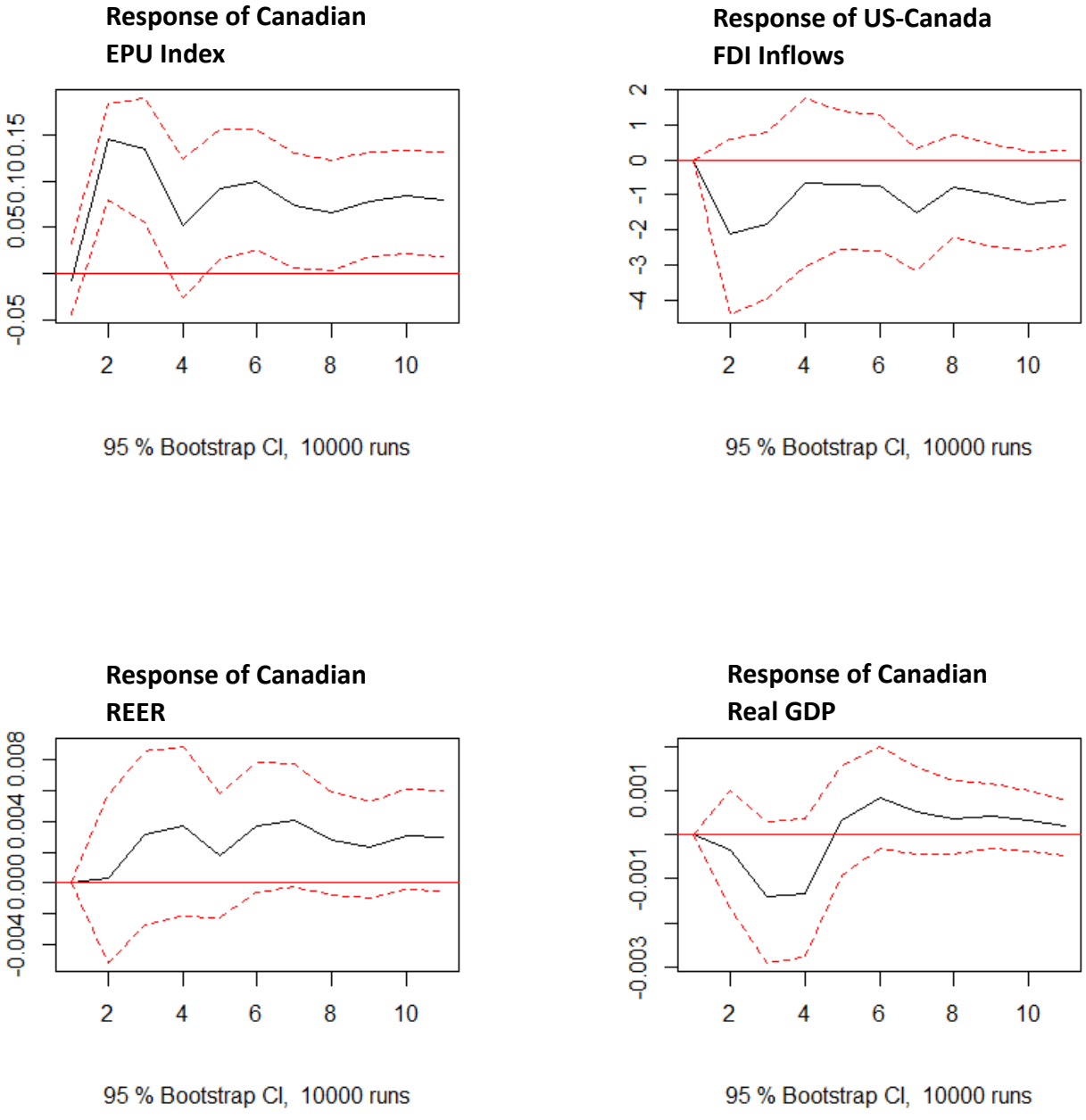


Figure 10: Response of Mexican ROW FDI Inflows Mexican REER, and Mexican Real GDP to US Partisan Conflict Shock

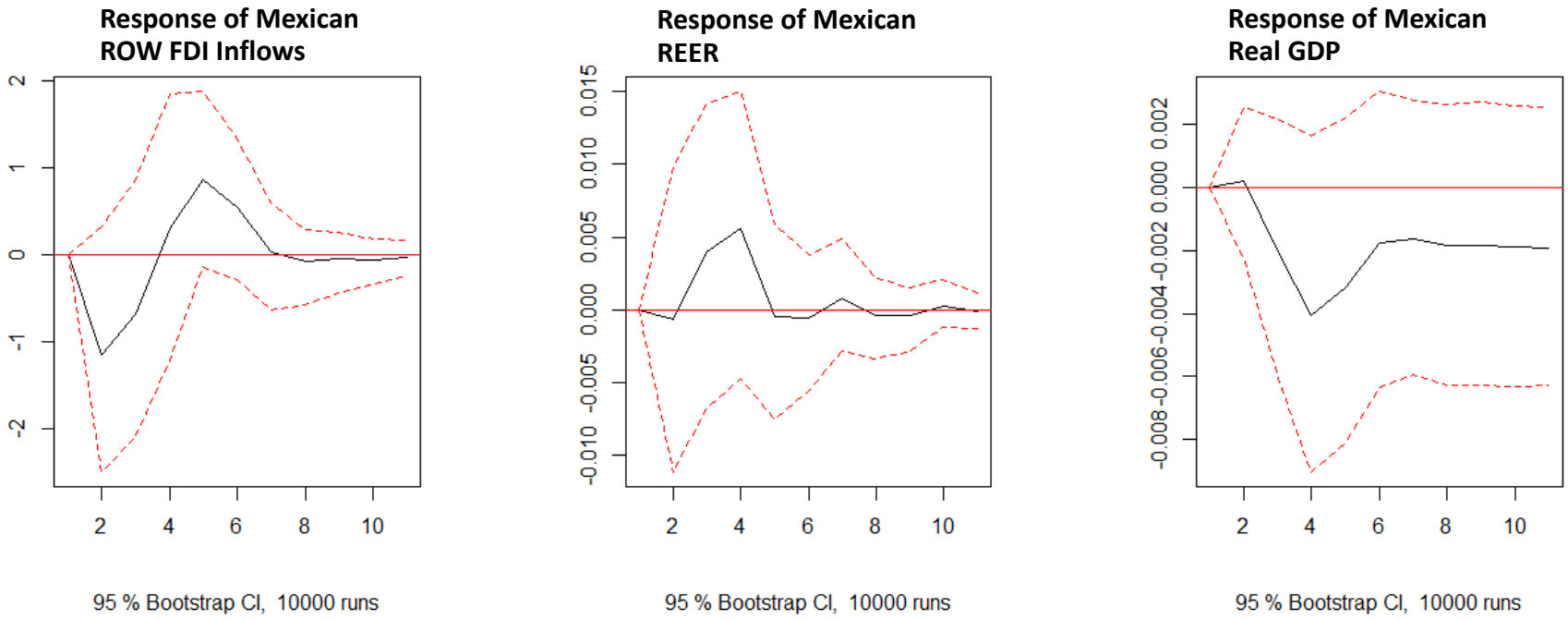


Figure 11: Response of Mexican ROW FDI Inflows, Mexican REER, and Mexican Real GDP to US Economic Policy Uncertainty Shock

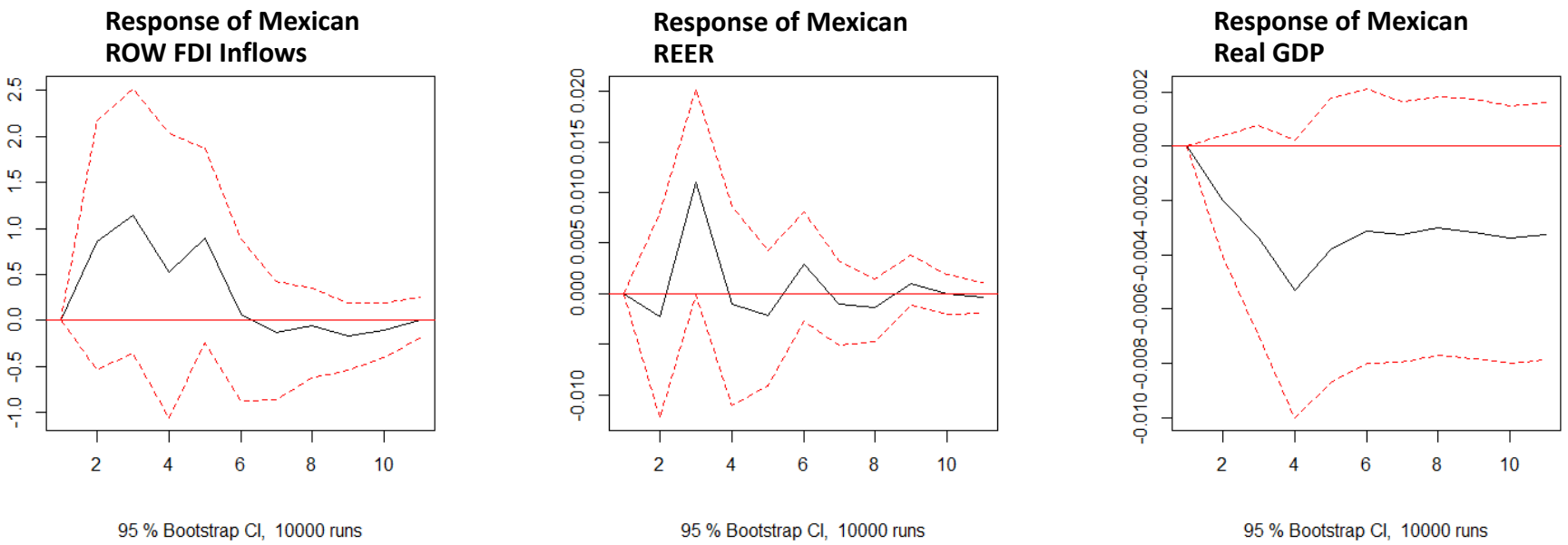


Figure 12: Response of Mexican EPU Index, Mexican ROW FDI Inflows, Mexican REER, and Mexican Real GDP to US Partisan Conflict Shock

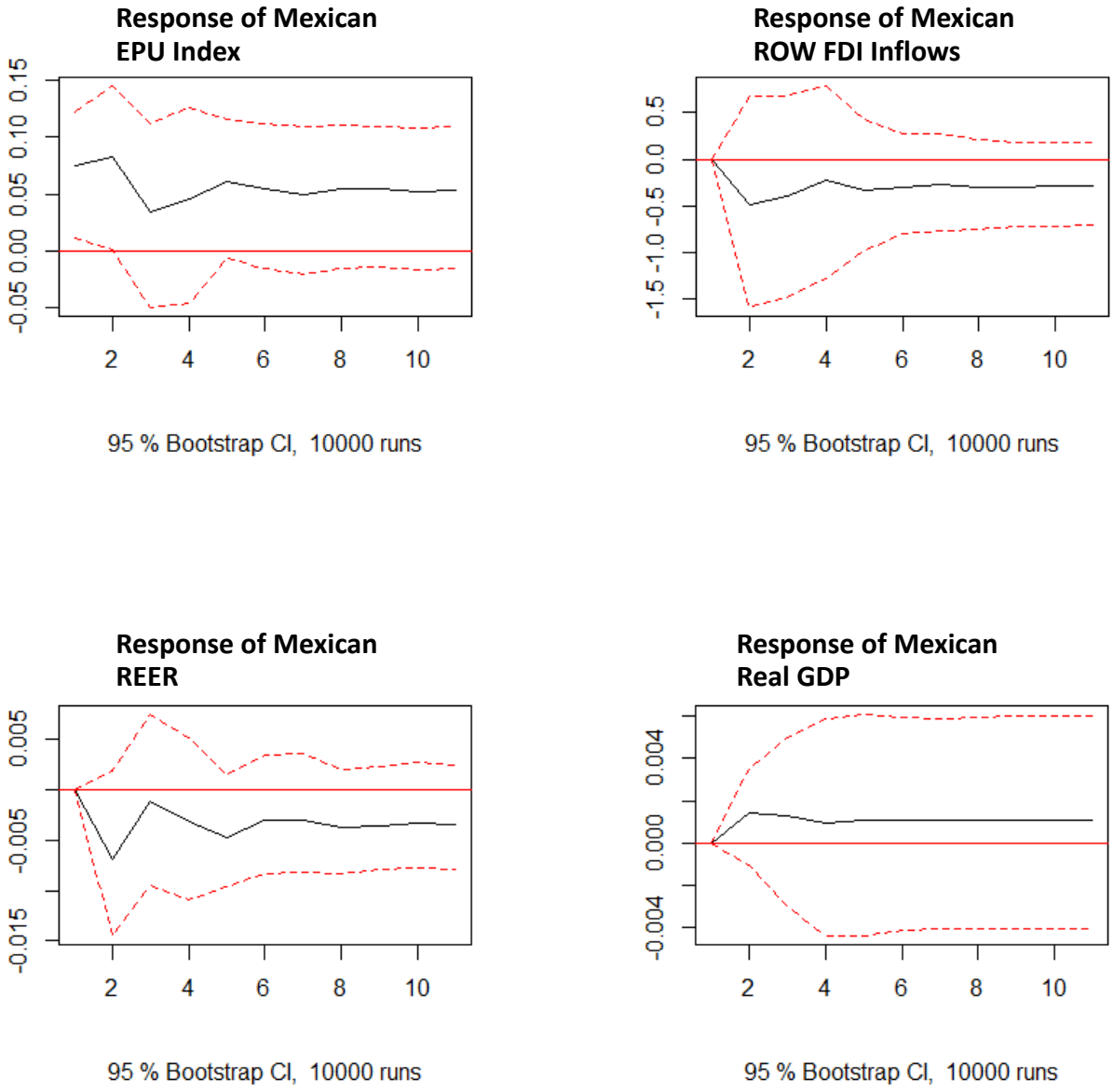


Figure 13: Response of Mexican EPU Index, Mexican ROW FDI Inflows, Mexican REER, and Mexican Real GDP to US Economic Policy Uncertainty Shock

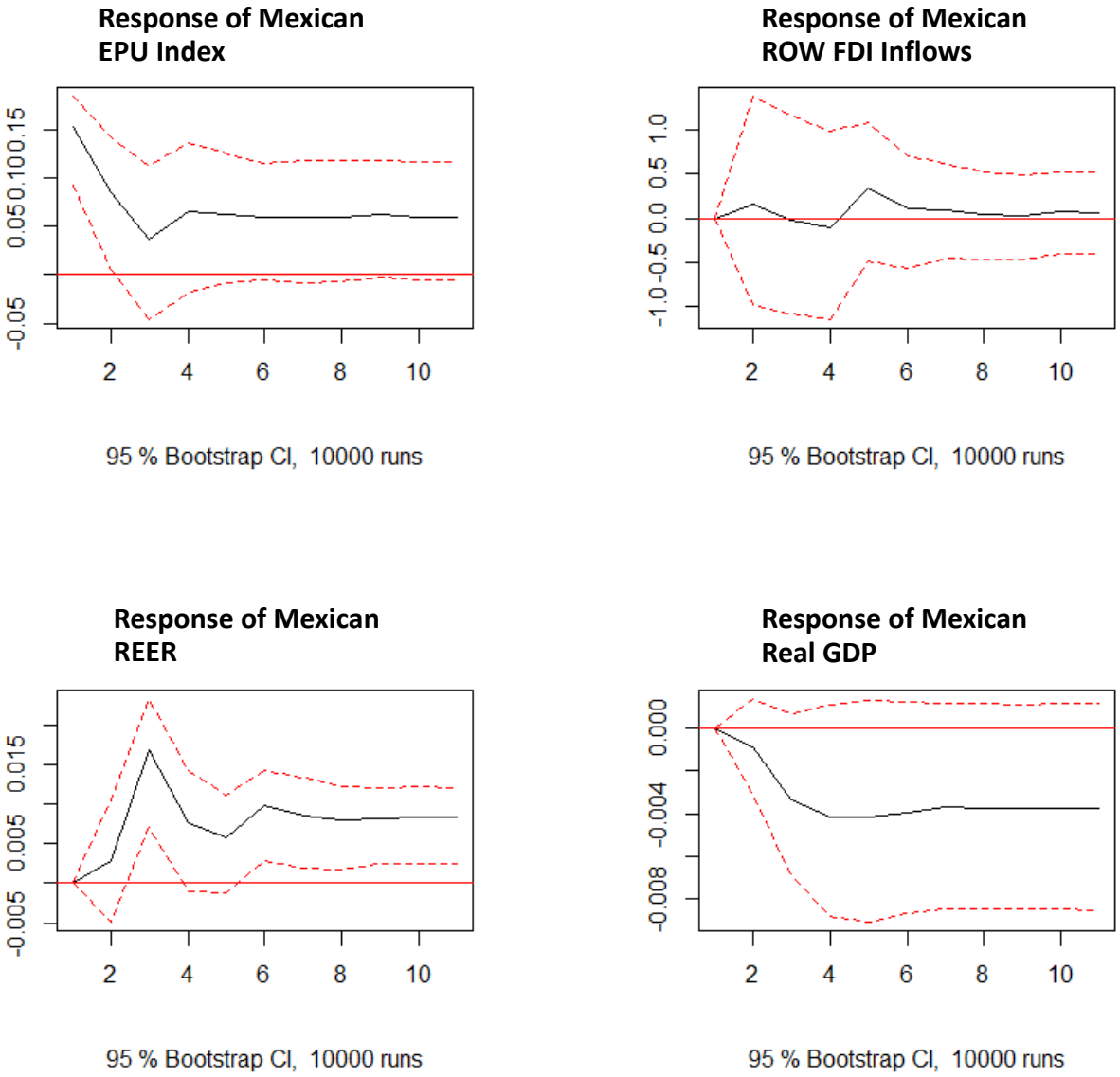


Figure 14: Response of US Mexican FDI Inflows, Mexican REER, and Mexican Real GDP to US Partisan Conflict Shock

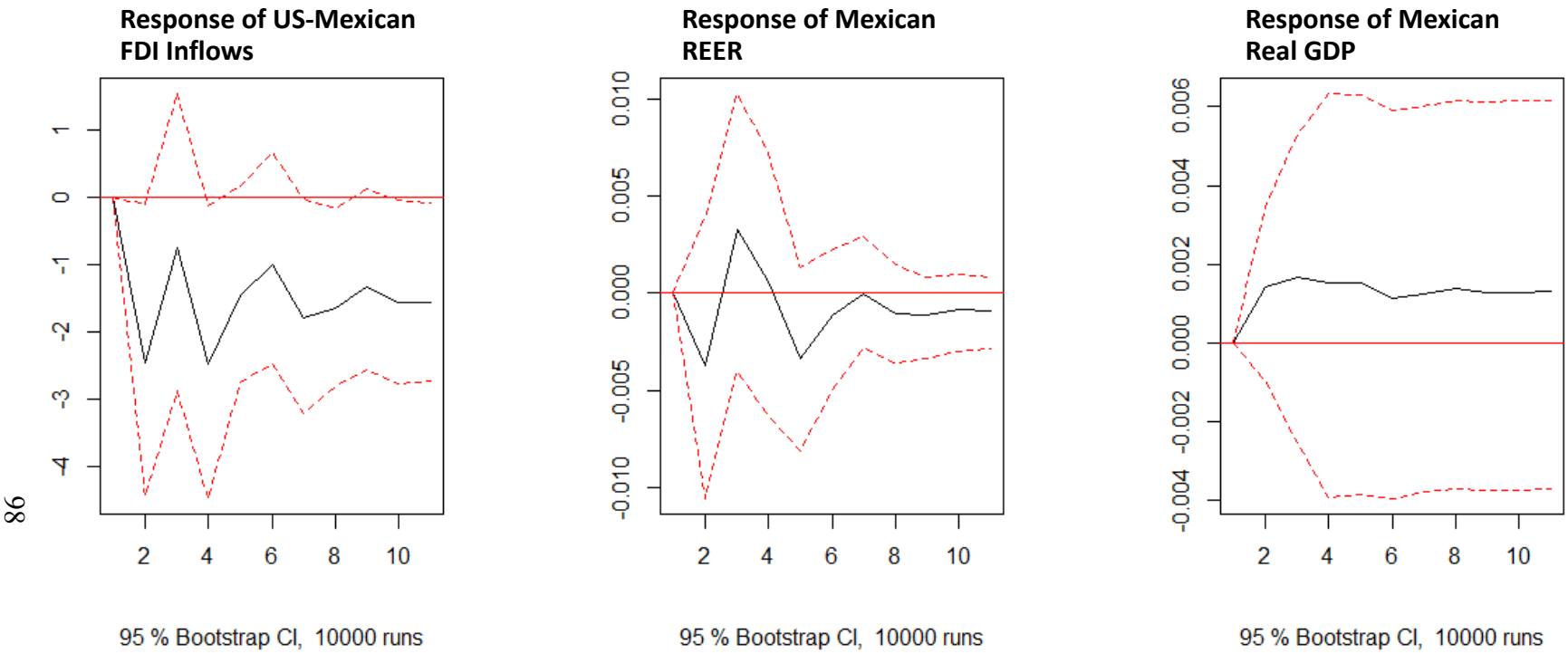
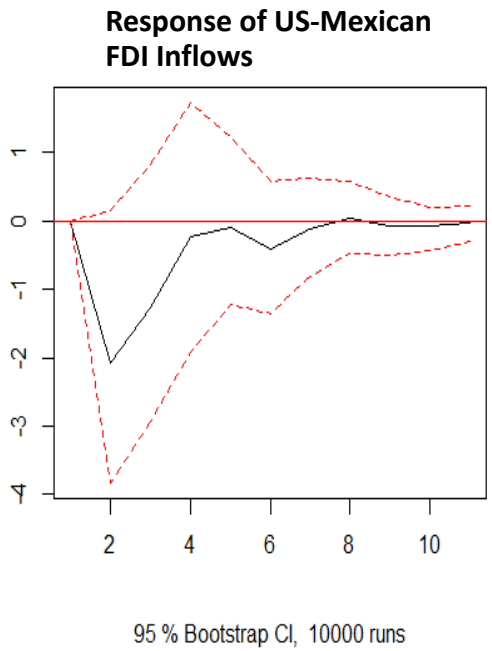
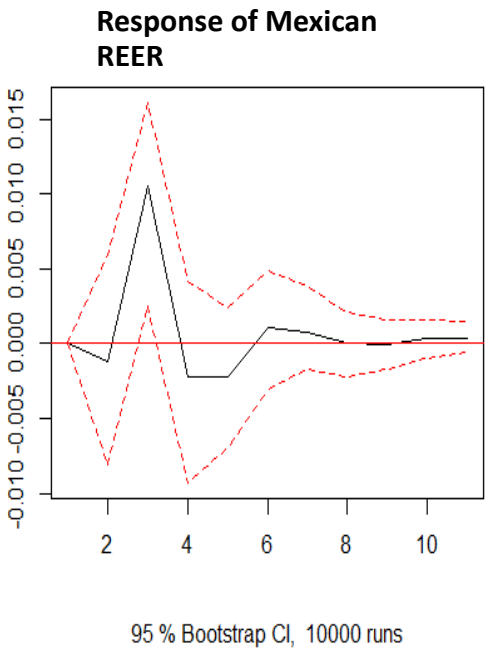


Figure 15: Response of US Mexican FDI Inflows, Mexican REER, and Mexican Real GDP to US EPU Shock





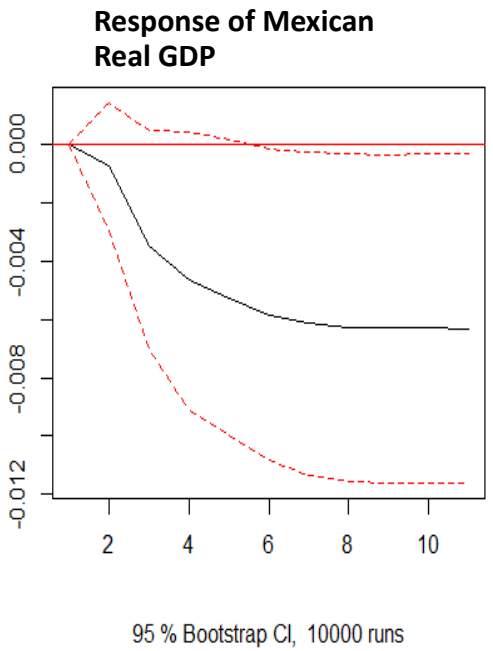


Figure 16: Response of Mexican EPU Index, US Mexican FDI Inflows, Mexican REER, and Mexican Real GDP to US Partisan Conflict Shock

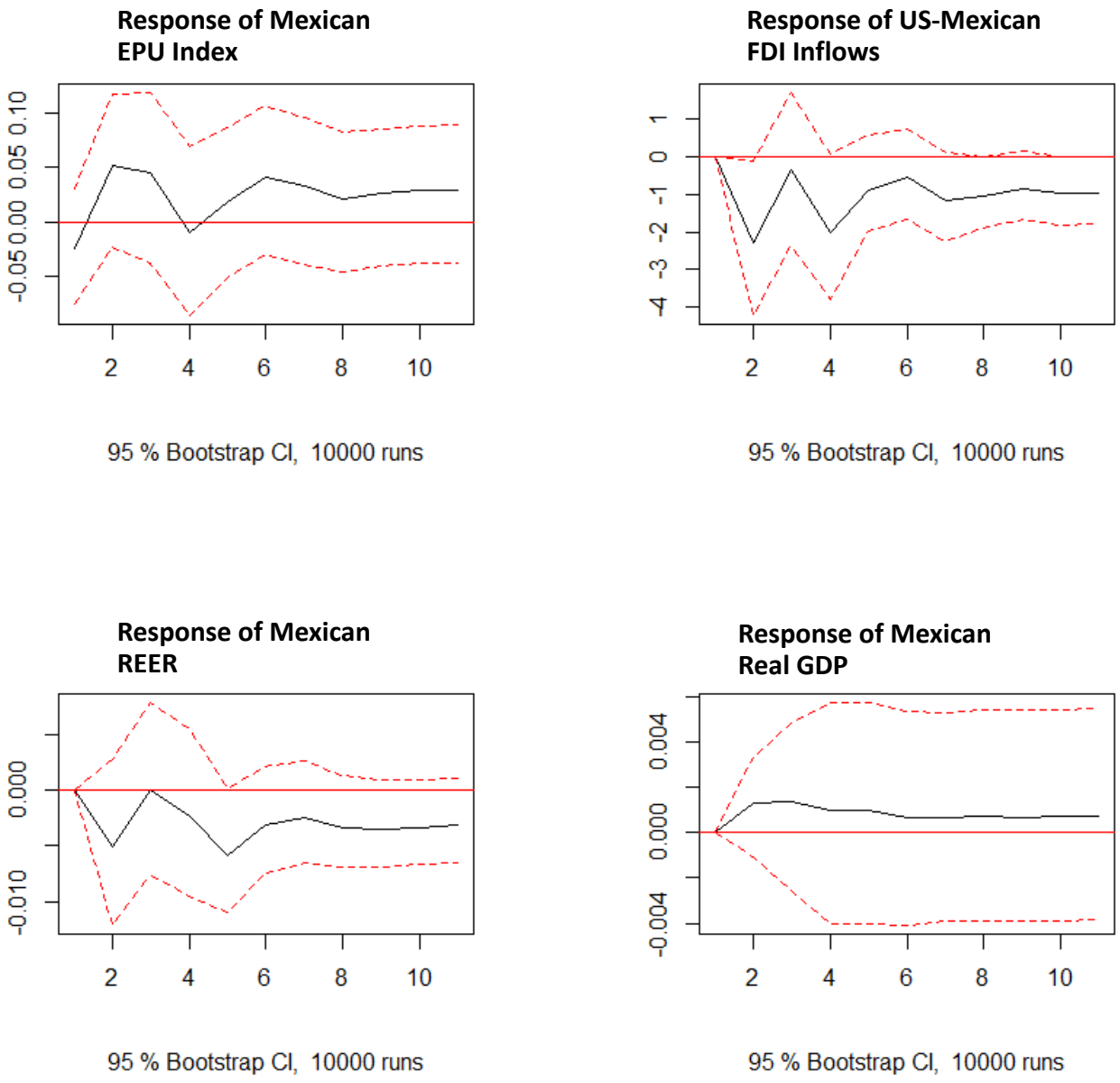
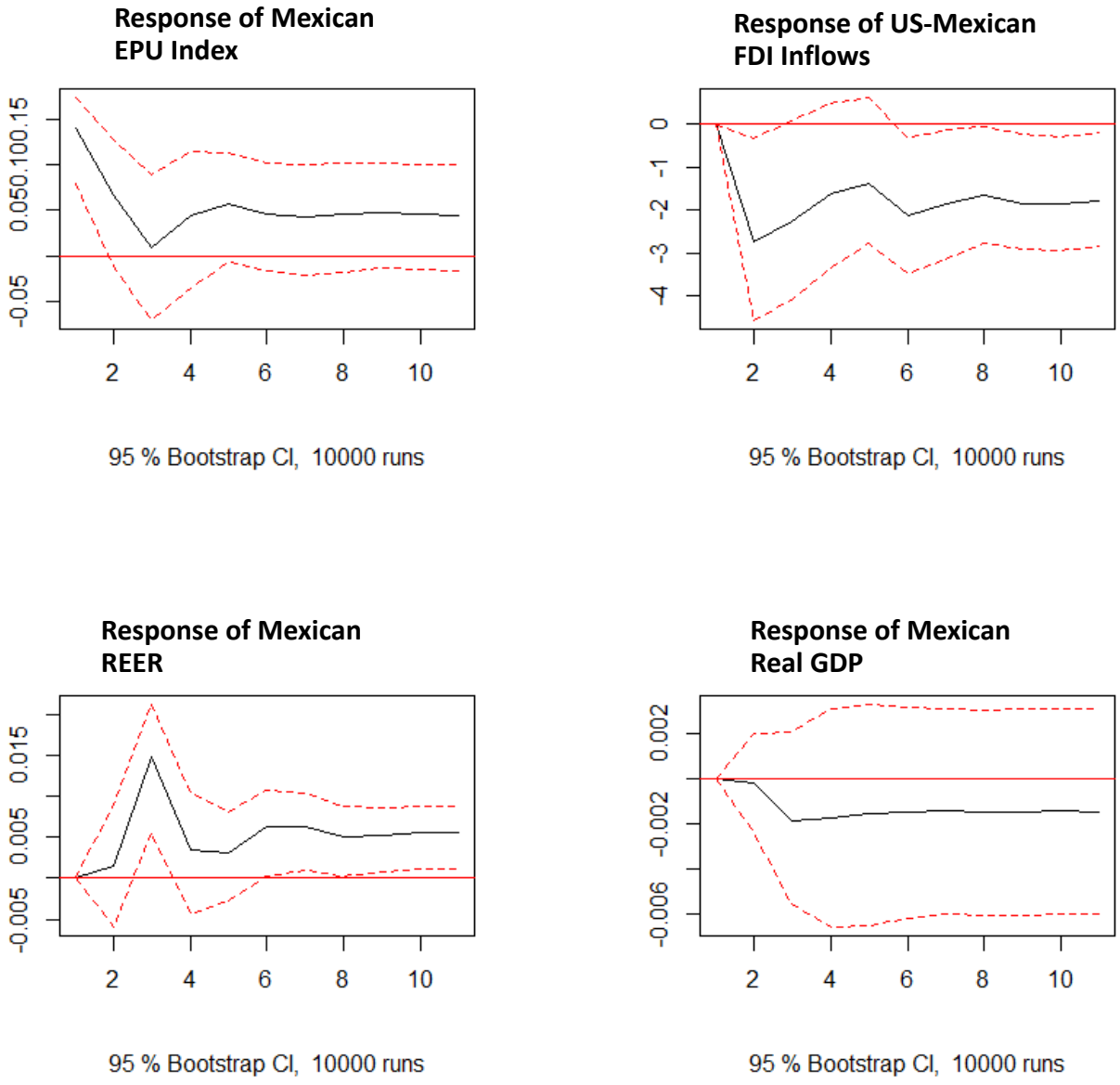


Figure 17: Response of Mexican EPU Index, US Mexican FDI Inflows, Mexican REER, and Mexican Real GDP to US EPU Shock



CHAPTER 3

POLICY UNCERTAINTY AND JAPANESE MNEs ENTRY MODES

3.1 Introduction

Foreign direct investment (FDI) is a significant vehicle for economic growth around the world. Indeed, many countries have utilised both inward and outward FDI as a way to significantly improve their level of economic development (e.g., China, Japan, Brazil, and 'Asian Tigers' such as Hong Kong, Singapore, South Korea and Taiwan). Furthermore, according to the OECD, global FDI in 2019 was $1,429 billion US dollars (FDI IN FIGURES, 2020) or about 1.63% of global GDP in 2019[21]. The importance of global FDI as a mechanism of economic growth indicates a level of interconnectedness with the global economy. This interconnectedness implies that global FDI is susceptible to global economic trends as well as regional economic trends. For example, global recessions such as the current one caused by the COVID-19 pandemic, has seen a decrease in global FDI flows (Saurav et al., 2020). As countries try to curb the effects of the pandemic, they are also trying to prevent further economic decline. These types of scenarios where the national government adopts policies that balance their national needs and economic goals presents a unique challenge for foreign investors. One can imagine that this would make foreign investors sensitive to how they choose to enter these markets.

The mode in which FDI enters a country has a substantial impact on the economic benefits a country can gain from such a venture. In the FDI literature there are several different ways in which a multinational enterprise (MNE) can establish itself in a foreign market. These include, but are not limited to, low involvement modes of market entry such as exporting/distribution (where the MNE sells its product in the foreign market from its home country) to other more involved

[21] Based on the World Bank estimate of a global of 87.698 trillion USD in 2019.

entry modes include Joint Ventures (JV) or Wholly Owned Subsidiaries (WOS). A joint venture is when the MNE enters a partnership with an existing foreign firm, while a WOS is when the MNE completely buys out a foreign firm, merges with the foreign firm and assumes significant majority ownership (90% or greater) or sets up and owns a newly established subsidiary by itself. Each of these modes of entry bring different benefits to the MNE, domestic firms, and the domestic economy. In the case of JV's, the foreign partner can share new and much needed expertise such as production methods and management skills. If managed properly this will present domestic firms new learning opportunities that can allow for their expansion as well as the development of new industries in the domestic economy. All things considered, a WOS is preferable for a foreign MNE because it allows the MNE to retain control over its business activities and gives them sole ownership over generated profits. The benefits of WOS for the domestic economy is that it may allow for more efficiency and attract more potential foreign investors. Under a WOS, the foreign MNE can bypass some of the cultural barriers (management styles, business practices) that can impede the production of good and services. Furthermore, allowing more WOS opportunities for MNEs might attract more foreign investors which in turn would bring more foreign investment to the domestic economy.

The literature presents numerous reasons as to why a firm would want to enter a foreign market in a specific manner. Some of these reasons include distance to the foreign market, MNE experience, and the size of the foreign market. There also exist other man-made barriers such as culture/language, trade restrictions, the institutional environment, and other political barriers (i.e., number of independent gov't branches, policy veto power, and political alignment within branches) (Ekeledo & Sivakumar, 1998; Yiu & Makino, 2002; Herrmann & Datta, 2006; Dow & Larimo, 2009; Lopez-Duarte & Vidal-Suarez, 2010; Brouthers, 2013). However, there is no

significant consensus as to the entry mode direction each factor leads towards. For example, when considering the effects of institutional and cultural factors such as the regulatory environment and cultural distance (the distance between two country's cultures), Yiu and Makino (2002) argue that institutional forces such as state regulations have a larger influence on entry mode decisions over cultural distance. This could be because foreign MNEs face discriminatory pressure from the host country government. Host country governments often impose some sort of ownership requirements on nondomestic enterprises. On the other hand, Lopez-Duarte and Vidal-Suarez (2010) argue that institutional and cultural factors should not be viewed as competing entry mode determinants due to their complementary effects. Countries whose culture differs significantly from one another may be less inclined to adopt favoured nation policies.

This paper examines one of the political barriers that influence the mode of FDI entry by examining the level of policy uncertainty in the foreign country. Since the 2013 creation of the policy uncertainty indices, the literature examining how policy uncertainty affects the mode of entry or level of MNE ownership has been scant. Furthermore, this is an interesting area to explore because policy uncertainty is another form of uncertainty. Based off the works of Dixit and Pindyck (1994) uncertainty via real options has some implications for whether a firm chooses to invest or not invest. Given that the different modes of FDI entry/levels of ownership present MNEs with different risks and rewards, it is not unreasonable to believe that higher levels of policy uncertainty change the amount of risk an MNE is willing to bear.

To conduct this analysis, I employ data from the Toyo Keizai (TK) Overseas Japanese Companies database. This database is unique because it contains firm level information on when and where Japanese MNEs invested and, most importantly, the type of ownership structure the Japanese parent company chose for its affiliate. The policy uncertainty data will be based off the

economic policy uncertainty index initially developed by Baker, Bloom, and Davis (2016) for 25 countries[22]. The next section surveys the literature on the determinants of entry mode choice. Section 3 discusses the characteristics of the data and section 4 describes the method of analysis. Section 5 discusses the findings of the paper and section 6 provides the concluding remarks.

3.2 Literature Review

3.2.1 Entry Mode Framework: Transaction Cost

The FDI entry mode literature identifies many different frameworks employed to explain why and how MNEs choose to enter a foreign market. A popular framework, transaction cost analysis, was conceptualized by Anderson & Gatignon (1986), but has since become a prominent framework in understanding MNE entry mode decisions (Pak & Park, 2004; Demirbaq, McGuinness & Altay, 2010; Tseng & Lee, 2010; Ashan & Musteen, 2011; Brouthers, 2013; Kao & Kuo, 2017). The basic premise is that market entrants would want to choose an entry mode that provides them with a high degree of control/ownership. Thus, to select an entry mode with a high level of control, the MNE needs to consider the following four factors: specialization of assets, internal uncertainty, external uncertainty, and the ability to free ride. By specialization of assets Anderson and Gatignon (1986) suggests that when the MNE possess some type of proprietary knowledge or product they seek entry modes with greater control.

Anderson and Gatignon (1986) further examined the effects caused by the source of the uncertainty. They argue, if uncertainty comes from an external source i.e., political instability, and economic fluctuations, then the MNE will seek entry modes with lower levels of control. But if the source of the uncertainty is internal, i.e., the MNE's ability to monitor the actions of its workers

[22] The countries used are USA, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Croatia, France, Germany, Greece, Hong Kong, India, Ireland, Italy, South Korea, Mexico, Netherlands, Pakistan, Russia, Singapore, Spain, Sweden, UK.

or ensure the loyalty of its workers then the MNE adopts modes of entry with high degree of control. Here external refers to uncertainty outsides the MNE's control while internal refers to uncertainty arising from the MNE's actions. In addition to the previous 3 factors, the ability to free ride may also lead to an MNEs choice of entry modes with more control. For example, if the MNE knows that potential local partners can free ride off the MNEs technical expertise or international recognition, then the MNE would choose an entry mode with more control.

The popularity of the transaction cost analysis has allowed researchers to approach the MNE entry mode choice from different angles. For example, Demirbaq, McGuinness, and Altay (2010) examine the entry mode choice of MNEs from an emerging market to an emerging market via the transaction cost approach and an integrated risk management framework to show the importance of institutional risk. From this they argue that a negative political and economic climate in the host country as well as interventionist attitudes of the host country leads to JV entry modes being preferred over WOS entry modes. They also state that positive FDI attitudes in the host country and a positive relationship between the host and investing country led to WOS entry modes being preferred over JV (Demirbaq et al., 2010). Others using the transaction cost approach, such as Kao and Kuo (2017), examine the effect of uncertainty on entry mode choice within the context of family ownership. They argue that MNEs that are family-owned wish to retain ownership when entering a foreign market, so as to preserve their socioemotional wealth. Thus, if there are family members on the board of directors then the MNE chooses WOS over JV's when internal uncertainty is low (Kao & Kuo, 2017).

3.2.2 Entry Mode Framework: Real Options

The real options approach is another framework that has been used to examine entry mode choice. Under this approach, the MNE creates a real option by first establishing a small investment.

In turn this allows the firm to pursue/expand or terminate its investment based on the market condition in the foreign country (Ashan & Musteen, 2011). Interestingly, the two different approaches lead to different entry mode outcomes. For example, Ashan and Musteen (2011) argue that in studies which use the transaction cost approach, investing firms move towards WOS entry modes as a response to uncertainty. On the other hand, for the studies that use the real options approach, the findings suggest that investing firms move towards JV type entry modes when host country uncertainty is present. This is likely because under RO firms would like to wait until the uncertainty is resolved before they commit to an investment. So MNEs choose JV as a less risky option until they gain a better understanding of the uncertainty, or the uncertainty subsides, after which they can transition into a WOS.

Exploring the real options approach further, Ashan and Musteen (2011) argue that uncertainty is often placed into two categories: exogenous uncertainty (that is the MNE has no influence on the uncertainty) and endogenous uncertainty (the MNE can influence the uncertainty via its behaviour). When the uncertainty is endogenous, they argue that MNEs should adopt entry modes that allow for learning. However, if the uncertainty is exogenous, then the MNE should adopt an entry mode that allows for flexibility (Ashan & Musteen, 2011). One prominent issue with the RO approach with respect to entry modes is that it does not explicitly show the value these entry modes (JV or WOS, or exports) have for the options to grow/abandon (Ashan & Musteen, 2011).

The nature of the data does not allow one to observe whether the MNE changes from its initial mode of entry to another mode of entry as uncertainty changes. Thus, this paper's analysis does not follow the real options approach.

3.2.3 Entry Mode Frameworks: Criticisms

As the transaction cost approach does not lead to a consensus as to what entry mode MNEs adopt in the presence of uncertainty, it has drawn its fair share of criticism. Ashan and Musteen (2011) argue that the transaction cost approach in terms of uncertainty only focuses on behavioural uncertainty. They argue that from the transaction cost approach, host market uncertainty leads to the unpredictability of potential local partner firms which in turn alters the investing firm's entry mode decision (Ashan & Musteen, 2011). Another criticism levied on the transaction cost approach is its view of uncertainty as a strictly negative phenomenon for MNEs. The transaction cost approach does not take into consideration the fact that host market uncertainty can provide learning opportunities and subsequent benefits for MNEs (Ashan & Musteen, 2011).

In addition to the existing criticism levied upon the aforementioned entry mode frameworks, De Villa et al., (2015) argue that in addressing uncertainty, these frameworks often exclude the host countries political environment as the source of the uncertainty. They state that to understand the relationship between the host country's political environment and market entry modes, the political environment needs to be assessed from a macro (national/supranational) perspective and a micro (firm/industry) level perspective.

Brown, Dev, and Zhou (2003) also criticize the entry mode choice literature for often ignoring the distinction between ownership and control of the investment. This is especially true for JV entry modes where the literature often assumes that as long as the MNE has a stake/partnership with the local firm it has some significant level of control. Brown et al. (2003) argue that it is possible to have a scenario in which the MNE has no ownership relationship with the local firm, rather it has a managerial relationship. They conclude that this occurs when there

are: plentiful local resources, locally available qualified investors, a unique skill advantage and a high local market training cost (Brown et al., 2003).

Following the criticism of the entry mode frameworks, other authors expanded the existing frame works to account for some of the deficiencies. For example, Brouthers (2013) examines the issue of entry mode choice within the framework of transaction costs, institutional, and cultural factors. He argues that under the transaction cost framework, MNEs would prefer WOS over JV if the transaction costs are high (Brothers, 2013). However, when one takes institutional factors' such as ownership restrictions, MNEs prefer the WOS mode of entry when the host country has fewer entry mode restrictions, when investment risk in the host country is low, and when the host country has a rapidly growing market (Brouthers, 2013).

3.2.4 Entry Mode Factors: Cultural and Institutional

The inclusion of cultural and political factors as entry mode determinants is found in the work of other authors. Lopez-Duarte and Vidal-Suarez (2010) examine cultural, political, and language diversity as factors determining MNE entry mode decisions. The empirical analysis they conduct on Spanish MNEs show higher political risks leading to a preference of WOS in the absence of language diversity, and a preference for JV's when a common language exists (Lopez-Duarte & Vidal-Suarez, 2010). This would seem to suggest that common language and culture can help MNEs with the understanding and management of political risk.

Deviating from the traditional entry mode analysis, Song (2013) contends that a relationship between the mode of FDI entry and the mode of FDI exit exists, therefore entry modes that involve full acquisition or ownership are less likely to exit the market than entry modes that involve partial ownership (Song, 2013). In the case of uncertainty, its presence in the host market, makes the irreversibility associated with certain entry modes more important on the firms exit

decision (Song, 2013). The implication of this is uncertainty makes MNEs choose a less committed ownership mode so as to maintain their flexibility.

Given the breadth of literature surrounding entry mode choice, one may ask whether there are any benefits from conducting more entry mode studies. Certainly, authors like Shaver (2013) have argued that due to the substantial progress in understanding entry modes, further research only yields marginal benefits. Future works may end up in a methodological trap, where in the focus now becomes on adding more variables or trying to obtain higher significant statistical indicators (Shaver, 2013). While the claims made in Shaver (2013) are credible, others have argued that entry mode studies are still valuable given that our knowledge of them is not as complete as it appears (Mroczek, 2014; Hennart & Slangen, 2015). Hennart and Slangen (2015) argue that entry mode studies are still valuable because there are still major questions that have yet to be answered in the field. Furthermore, readings of the past literature have yielded no consistent answers as to which entry mode MNEs will choose when entering a new market in the presence of uncertainty. As such this paper aims to expand the existing literature by examining the entry mode/ownership decisions of MNEs from an advanced economy like Japan into various economies around the world.

3.2.5 Entry Mode: Japanese Case Study

Many authors have examined how Japanese MNEs chosen to enter a new market. Delios and Henisz (2003b) employed the international stages model with political hazards as the form of uncertainty and argue that this type of uncertainty matters for Japanese FDI entry because it increased the difficulty of utilizing information necessary for a successful FDI entry. Likewise, in Delios and Henisz (2003a), they assert that if policy uncertainty is high, investments that provide short term benefits to the host country while minimizing short term costs are preferable, thus one

can expect to see more JV's and WOS's in countries with higher political uncertainty. Furthermore, their analysis showed that in low to moderate political uncertainty scenarios, distribution entries were more prevalent than JV's and WOS, but in high political uncertainty scenarios JVs were the most favoured investment entry mode, compared to the other two (Delios & Henisz, 2003a).

Pak and Park (2004) also employed internalization theory in their Japanese entry mode analysis and assert that Japanese MNEs with high research intensity prefers WOS entry modes in foreign markets. This is because firms with specialized knowledge would want to internalize their market transactions so as to maximize potential rent and limit unwanted knowledge spread. In addition to the effect of research intensity, they state that high political risk and a large cultural distance led to less preference for WOS modes of entry (Pak & Park, 2004).

Wang, Alba, and Park (2013) examine the credit rating of the Japanese MNEs' primary financial institution as a determinant of MNEs' entry mode. They conclude that a drop in the credit rating of the MNEs main financial institution causes the MNE to choose JV FDI and other forms of FDI such as such as plant and equity stake expansions over new plant FDI. They also indicate that Japanese MNEs entering large developed markets like the US, creates high information gathering fixed costs. Thus, only large MNEs can invest in large markets such as the US.

Focusing on the entry behaviour of Japanese MNEs is not new. Indeed, Japan is a good and unique case study on entry mode choice due to its large and extensive global FDI footprint, its cultural distinction from its FDI partners, and its high level of economic development. This paper differs from the previous works of Delios and Henisz (2003a, 2003b), Pak and Park (2004), and Wang, Alba, and Park (2013) in its use of recent data, its focus on policy as opposed to political

hazard as the source of uncertainty, and its focus on entry modes/ownership types beyond strict JV's and WOS's. The subsequent section describes the data and variables employed in this paper.

3.3 DATA

3.3.1 Japanese FDI Entry Mode

To examine the relationship between policy uncertainty and different modes of FDI entry, I examine the foreign investment behaviour of Japanese MNEs. The variables employed comes from electronic copies of the 2000, 2010, and 2018 Toyo Keizai's (TK) databank series "Overseas Japanese Company Data", policyuncertainty.org, the Ministry of Foreign Affairs of Japan, St. Louis FRED, State Bank of Pakistan, IMF.org, and the World Bank's Global Economic Monitor database. TK is a Japanese publishing house specializing in politics, business, and economic materials. The databank series contains firm-level Japanese business activities both domestic and abroad. Using this database, I can identify 14,388 unique instances of Japanese investments across 25 countries from 1997 until 2018.

Table 3.1 shows the distribution of these investments across the countries. From Table 3.1, it is interesting to note that more than half of Japanese investments abroad are either in China or the United States. This might be due to what both countries provide in terms of the type of FDI established (Vertical vs Horizontal). Emerging markets tend to attract vertical FDI, while mature markets tend to attract horizontal FDI. This is because vertical FDI tends to reflect a cost seeking approach. Firms choosing this method of FDI would seek out low wage countries where certain aspects of the production process can be replicated cheaply. As an emerging market, China is a large economy with relatively low wages, thus it presents unique opportunities for Japanese investors. Horizontal FDI tends to occur amongst developed economies like Japan and the US. Furthermore, firms seeking this approach do so to circumvent trade barriers, gain access to the

local market as well as surrounding markets, and take advantage of technical expertise within those countries.

Table 3.1: Japanese Oversees Investment by Country

Destination Country	# of Investments	% of Total Investment
Australia	298	2.07
Belgium	77	0.54
Brazil	271	1.88
Canada	148	1.03
Chile	45	0.31
China	6,208	43.15
Colombia	20	0.14
Croatia	5	0.03
France	203	1.41
Germany	412	2.86
Greece	7	0.05
Hong Kong	681	4.73
India	749	5.21
Ireland	30	0.21
Italy	107	0.74
Korea	689	4.79
Mexico	463	3.22
Netherlands	256	1.78
Pakistan	16	0.11
Russia	163	1.13
Singapore	792	5.5
Spain	95	0.66
Sweden	41	0.28
United Kingdom	472	3.28
United States	2,140	14.87
Total	**14,388**	**100**

One of the unique features of the TK dataset is the ability to observe the level of ownership the Japanese firm has in its foreign affiliate and conversely the level of ownership the host country has in the affiliate ownership. Tables 3.2 and 3.3 show the summary statistics for Japanese affiliate ownership and host country affiliate ownership. Typically, in the literature MNEs interactions with

the foreign market can be loosely classified into the following categories based on the level of parent company ownership: wholly owned subsidiaries (WOS), Joint Ventures (JV), and portfolio investments (PI). In the literature, WOS are often characterised by full ownership of the affiliate, portfolio investments are represented by a minor stake in the affiliate, and JV fall somewhere between WOS and PI's.

Table 3.2: Level of Ownership for Japanese Investments Abroad

Japanese Parent Ownership (x)	# of Investments	% of Total Investments
$X = 0\%$	4,384	30.47
$0 < X \leq 10\%$	130	0.9
$10\% < X \leq 20\%$	154	1.07
$20\% < X \leq 30\%$	280	1.95
$30\% < X \leq 40\%$	304	2.11
$40\% < X \leq 50\%$	558	3.88
$50\% < X \leq 60\%$	469	3.26
$60\% < X \leq 70\%$	306	2.13
$70\% < X \leq 80\%$	319	2.22
$80\% < X \leq 90\%$	331	2.3
$90\% < X \leq 100\%$	7,153	49.72
Total	**14,388**	**100**

A noteworthy aspect from Table 3.2 is that most of the share of Japanese investments abroad are WOS's (49.72%) whereas a relatively smaller portion represent JV's (18.92%[23]). This would seem to suggest Japanese investments abroad have a strong preference for WOS. Another peculiar feature of Japanese firm ownership as gleamed from Table 3.2 is the fact that 30.47% of Japanese investments abroad reflect 0% ownership from the Japanese parent company. One might think that if the Japanese parent does not own the affiliate, a local firm owns the affiliate. However, Table 3.3 shows the level of local ownership of the affiliates, and from this only 1773 (12.38%) affiliates have a nonzero amount of ownership from the host country. Further examination of the

[23] 18.92% corresponds to ownership ranging from 10% to 90% in Table 3.2.

data reveals approximately 4088 (28.41%) instances of Japanese investments abroad having no ownership from the parent company as well as local ownership from the host country.

Table 3.3: Level of Domestic Ownership

Level of Domestic Ownership (y)	# of Investments	% of Total Investments
$y = 0\%$	12,615	87.68
$0\% < y \leq 10\%$	176	1.22
$10\% < y \leq 20\%$	147	1.02
$20\% < y \leq 30\%$	209	1.45
$30\% < y \leq 40\%$	209	1.45
$40\% < y \leq 50\%$	492	3.42
$50\% < y \leq 60\%$	263	1.83
$60\% < y \leq 70\%$	146	1.01
$70\% < y \leq 80\%$	102	0.71
$80\% < y \leq 90\%$	26	0.18
$90\% < y \leq 95\%$	3	0.02
Total	**14,388**	**100**

This is interesting because it represents a relatively big percentage of Japanese FDI ownership abroad (the second largest beside WOS) and would seem to imply that a large percentage of Japanese FDI abroad is established indirectly. If these investments have no direct relationship with a Japanese parent company and no ownership from local/domestic firms, then who owns them? To answer this question the nature of these types of firms must be examined. This type of ownership occurs when a Japanese parent company has no direct influence on a local affiliate, rather a previous subsidiary of the Japanese parent company owns the local affiliate. Some examples of companies in the data that exhibit this type of ownership structure are *Honda Motors* and its affiliate *Honda Aircraft Company*; *Toshiba* and its affiliate *Toshiba America Nuclear Energy Corp*; *Bandai Namco* and its affiliate *Bandai Namco Entertainment Europe SAS*; *JTEKT Automotive Texas LP* an automotive manufacturing plant owned by *JTEKT North America*

Corporation, which is owed by *JTEKT Corporation*, a merger between two Japanese corporations, *Koyo Seiko Co.* and *Toyoda Machine Works*.

These types of indirect foreign market entry present a unique model of ownership that is not often explicitly examined within entry mode studies. In the case of Honda Aircraft, it was established in 2006 by Honda Motors and is an affiliate of Honda Motors. However, it is headquartered in the United States and has no direct ownership from its Japanese parent company. A similar story can be told for Toshiba America Nuclear Energy Corp, and JTEKT Automotive Texas LP. Toshiba America Nuclear Energy Corp is part of Toshiba America Inc. which is a wholly owned subsidiary of Toshiba Corp. In the case of JTEKT Automotive Texas LP, it is owned by the JTEKT North America Corporation, and thus has no direct relationship with the Japanese JTEKT Corporation.

One potential issue that may explain the distribution of investment ownership seen in Table 3.2 is ownership restrictions. Countries often imposed restrictions on foreign ownership because they believe foreign ownership poses a risk to national security, or the firm/industry being acquired/entered represents a key industry in the country. Thus, if a country imposes foreign ownership restrictions, then it drastically limits a MNEs entry mode choice. Table A1 and A2 in the appendix show the ownership restrictions pertaining to the sample of countries used. From this it can be seen that several countries do limit ownership restrictions. However, these restrictions are not universal, rather they tend to be in specific industries. Indeed, examining Table A3 to A6 shows the break down of the entry mode types across the sample of countries used. The entry modes examined in this paper are generally present across all countries, except for Croatia and Greece. Though these two countries have no ownership restrictions, their lack of full representation

across the entry mode types can be attributed to the small number of observed Japanese investments.

3.3.2 Policy Uncertainty

The main independent variable of interest is the policy uncertainty variable. As was mentioned in the literature, the relationship between political risk and entry mode choice have been previously examined, however the relationship between policy uncertainty and entry mode choice is still an area that is yet to be explored. The measure of policy uncertainty employed in this paper was initially developed by Baker, Bloom, and Davis (2016) for the United States, but it has since been expanded to other countries by other authors.

The initial method of calculation by Baker, Bloom, and Davis (2016) involved three different components: A newspaper component is based on the frequency of news articles from 10 of the nation's leading newspapers; reports published by the Congressional Budget Office that lists temporary federal tax code provisions. And forecasted disagreements from Federal Reserve Bank of Philadelphia's "Survey of Professional Forecasters" for the CPI, purchases of goods and services by state and local governments, and purchases of goods and services by the federal government. However, the CBO report component and the Survey of Professional Forecasters component do not exist for other countries, thus only the newspaper-based component was used to construct EPU indices for all countries in the sample.

For the newspaper-based portion, the calculation method of Baker, Bloom, and Davis (2016) involved monthly searches across 10 papers for terms related to economic and policy uncertainty. They then divide the raw count of policy uncertainty articles by the total number of articles in the same paper and month and then normalize the resulting series for each paper to have a unit standard deviation from January 1985 through December 2009. Finally, the normalized

values are summed each month to obtain a multi-paper index which is then normalized again to an average value of 100. An index below 100 implies low levels of policy uncertainty and an index of above 100 corresponds to high levels of policy uncertainty. The major difference between the method of EPU calculation for other countries lies in the number of newspapers used and the initial normalization date.

3.3.3 Control Variables

Given the potential regional and firm level differences that contribute towards a Japanese firm's decision to invest in the host country I include the following variables to capture those characteristics: Free trade agreement with Japan, country experience, capital stock, domestic country's industrial production, the number of Japanese owners and the affiliates employee size. The free trade agreement variable takes on a value of 1 if Japan and the host country have signed an agreement and 0 otherwise. One would expect that investments into countries in which Japan has signed an economic partnership agreement (EPA)[24] should be less risky, thus increasing the amount of ownership from the Japanese parent company. The country experience measure control for the effects MNEs may have due to learning over time or their familiarity in conducting business in a specific country. The capital stock measure shows the amount of seed capital used in establishing the investment and acts as a proxy for affiliate size. The domestic country's industrial production accounts for the domestic country's market size. Large markets may have more lucrative prospects for MNEs as such the MNEs may be willing to persevere through adverse market conditions in order to acquire market benefits. The number of Japanese owners is a dummy variable that takes on a value of 1 if the foreign affiliate has 2 or more parent companies, and 0

[24] EPA's are Japans version of a free trade agreement. Despite the difference in nomenclature, they have the same stipulations as other bilateral free trade agreements.

otherwise[25]. Having more owners allows for the spreading of risk, as such MNEs who pursue this strategy may be willing to try entry modes that they would not otherwise take. Affiliate employee size acts as one proxy for firm size. On the one hand, large sized affiliates might be better able to overcome host country risk so MNEs might be induced to choose entry modes with a higher degree of control. But on the other hand, large sized affiliates represent bigger costs for the MNE as such they may become liabilities in regions with high country risk.

3.4 Model

As was discussed in the literature review section, most of the entry mode literature often focuses on JV's and WOS. In these studies (Delios & Henisz, 2003a; Pak & Park, 2004; Dow & Larimo, 2009; Tseng & Lee, 2010; Brouthers, 2013) JVs are typically classified as any foreign ownership in a domestic firm within the following range $5\% \leq x < 95\%$[26], and WOS are classified as ownership where $x \geq 95\%$ with x representing the equity stake. While this form of classification makes statistical analysis of entry mode studies relatively simple, it assumes that the nature of a JV relationship is identical across all levels of ownership. This assumption highlights the criticism of the lack of distinction between ownership and control levied by Brown et al. (2003). One can imagine that the responsibilities and rewards of an MNE with a 20% stake in a local firm differs significantly from the responsibilities of an MNE with a 50% stake in the local firm, which in turn is itself different from that of an MNE with a 75% or 85% stake. Even though these MNEs would all be considered as having a joint venture relationship, it is clear that they would not face the same decision matrix with respect to entry. In terms of how the MNEs may choose to exit the host country, it is not inconceivable to imagine that different levels of ownership would lead to different

[25] This cut-off format was chosen because in the data, 89.52% of the affiliates have 1 owner, 8.46% have two owners, 1.46% have 3 owners and 0.55% have more than 3 owners.
[26] International sources (UNCTAD) typically measure JVs as foreign ownership that is ≥ 10% but less than 95%.

types of exit strategies. An MNE with a 20% or 30% stake in a local affiliate might find it more inconvenient or less profitable to stay in a market with growing levels of uncertainty than an MNE with a 60% or 75% stake. This means that MNEs that are less invested in the local market might find it easier to exit the local market than MNEs that are more invested. Considering how the MNEs potential exit strategy affects its mode of entry as per Song (2013), it is evident that JV's do not represent a singular type of firm relationship.

A similar line of thought can be levied when examining the WOS entry modes. As was highlighted earlier, WOS is often classified as an ownership level of 95% or more, but in terms of decision making and organization control, it is justifiable to ascertain whether 95% differs significantly from 85% or 75%. When one group has a majority ownership in an organization, they are often the final decision maker, as such they become the de facto 'head' of the organization. One caveat with this line of thought is the level of majority ownership. A 51% or 60% ownership level is technically[27] a majority, but it is different from say an 80% or 90% ownership level in terms of risk, responsibilities, and rewards. This means that defining WOS as a singular category might not be fully representative of the MNEs relationship with its foreign subsidiary/affiliate.

To resolve the issues previously described, I use the level of Japanese parent company ownership to classify entry modes into 5 categories shown in Table 3.4. This means that the dependent variable has 5 potential outcomes. The classification scheme is as follows: an ownership level (x) of 0 is the indirect ownership category. An ownership level of $10\% < x < 50\%$ represents minority JVs; an ownership level where $x = 50\%$ represents equal JV; ownership levels of $50\% < x < 90\%$ represents majority JVs, and an ownership level of $x > 90\%$ represents WOS. Another reason for adopting the above categorization scheme is because incremental changes in ownership

[27] From a definitional interpretation of the word majority.

percentages do not yield relevant information. An MNE changing its ownership share from 25% to 30% in response to policy uncertainty changes does not say much since its responsibilities and ability to influence firm operations of the affiliate remain unchanged. Furthermore, such miniscule changes may not have major effects on the local economy. Categorizing the percentage ownership gives a much better insight into what an "average" MNE might do.

Table 3.4: Entry Mode Category

Entry Modes Type	# of Investments	% of Total Investments
Indirectly Owned Affiliates	4,384	30.75
Minority Joint Ventures	993	6.96
Equal Joint Ventures	303	2.13
Majority Joint Ventures	1,262	8.85
Wholly Owned Subsidiary	7,316	51.31

Table 3.5 displays the summary statistics for the variables being used in the model. The summary statistics show that the EPU has a minimum value of 8.5, and a maximum value of 558.2. Figures 2(A-C) in the appendix also shows the monthly EPU index for all the countries used in this analysis. To make the interpretation of the EPU index easier, I recode the EPU index from the continuous format into a categorical variable with three outcomes: Low, Medium, and High. The low category encompasses EPU < 100, the medium category contains the EPU index between 100 and 200, and the high category contains the EPU index greater than 200. For the subsequent analysis, the low category of the EPU is the reference category.

Table 3.5: Summary Statistic

Model Variables	N	Mean	Std. Dev	Min	Max
# of Affiliate Employees	8,353	160.0	578.1	0	15,610
Industrial Production Growth	14,182	1.471	33.86	-95.93	2,041
Free Trade Agreement	14,258	0.0912	0.288	0	1
# of Japanese Owners	14,258	0.105	0.306	0	1
Log of Capital Stock	11,769	14.88	2.445	2.510	25.61
EPU	14,152	101.4	56.24	8.509	558.2
Log of Country Exp	14,182	4.245	1.297	-1.431	5.532
Entry Mode	14,258	3.430	1.804	1	5

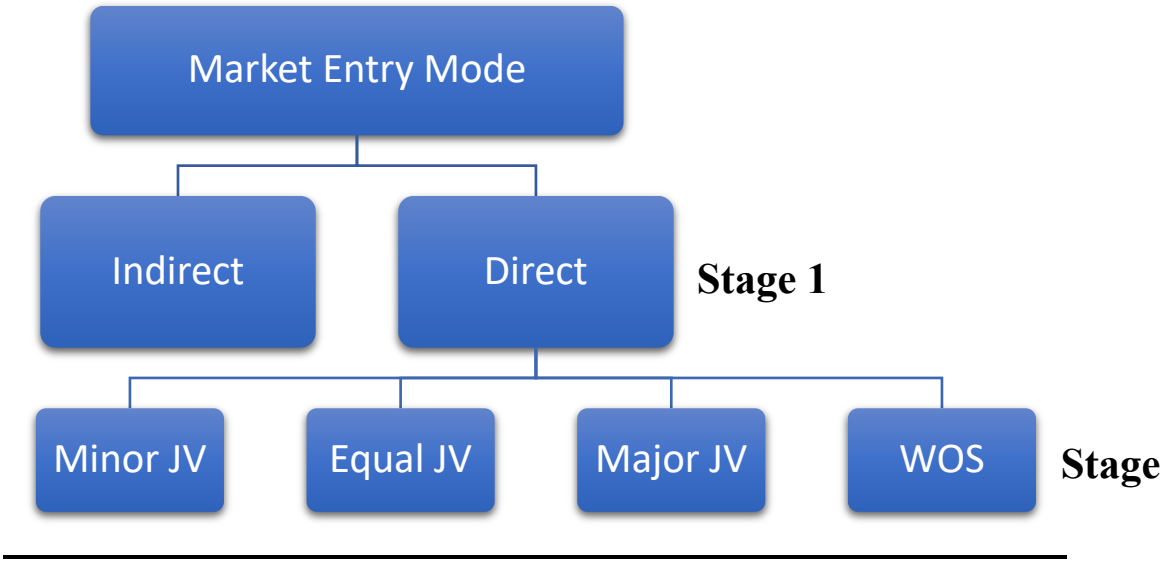
One interesting aspect of Japanese MNE ownership presented in the data is the large percentage of zeros. However, further investigation of the data reveals that these reported zeroes are not 'true zeroes' (i.e., non affiliation/non entry), rather they represent a set of independent subsidiaries/affiliates that have no direct ownership from the parent company but are still within the parent company's global network. These types of indirect foreign market entry present a unique model of ownership that is not often explicitly examined within entry mode studies. Though there exists no direct ownership between the Japanese MNE and the affiliate the indirect ownership category can still be considered as a form in which Japanese MNEs enter foreign markets. As with the earlier examples of Honda Aircraft Company, and others, the major goal and vision that these affiliates aim to fulfill is dictated the Japanese parent company. Even though a Japanese MNE may not own any shares in these types of affiliates, they still exert significant control on the direction of these firms, thus this method of ownership should be considered a valid form of entry for a Japanese MNE.

The above format of FDI represents a unique challenge for modelling the entry for the Japanese MNEs. As was previously mentioned, entry mode studies typically focus on WOS and JV modes of entry. However, the previously described "indirect" market entry mode does not fit

neatly into WOS or JV categories. Thus, it should not be lumped together with the WOS and JV categories. This is especially significant considering the indirect entry category accounts for 30.75% of the data.

This discrepancy between the indirect entry and the other WOS and JV entry categories can be resolved by re-imagine the entry mode decision of Japanese MNEs as occurring in stages. Figure 1 describes the stages of entry via a decision tree. In the first stage the Japanese MNE chooses to enter the foreign market based on various political, economic, and industry/firm specific factors. If the MNE chooses to enter the foreign market indirectly then a market entry mode similar to the example described above is adopted.

Figure 3.1: Stages of Entry Via a Decision Tree



If the Japanese MNE chooses a direct mode of entry, then it proceeds to the second stage where the choice becomes which of the other four entry modes to pick. To capture the differences between the set of choices in the first and second stage, two equations will be estimated. Since stage 1 is modeled as having only two choices it will be estimated via a logit model. Direct entry takes on a value of 1 while indirect entry takes on a value of 0.

To model the choice amongst the multiple types of entry modes in the second stage, I employ a multinomial logistic regression model. It is important to point out that the equations estimated for stage 1 and stage 2 are independent of each other. This means that a Japanese MNEs decision to choose an indirect mode of entry does not affect the choice of others picking a direct mode of entry and vice versa.

The estimated can be expressed equations take the following generalized functional form:

$$\log\left(\frac{P(Entry\ Mode = Direct|x)}{P(Entry\ Mode = Indirect|x)}\right) = a_1 + b_1(epu = medium) + b_2(epu = high) + b_i\ ControlVariables \quad (1)$$

for stage 1 and

$$\log\left(\frac{P(Entry\ Mode = Minor\ JV|x)}{P(Entry\ Mode = WOS|x)}\right) = a_{21} + b_{22}(epu = medium) + b_{23}(epu = high) + b_{2i}\ ControlVariables \quad (2)$$

$$\log\left(\frac{P(Entry\ Mode = Equal\ JV|x)}{P(Entry\ Mode = WOS|x)}\right) = a_{31} + b_{32}(epu = medium) + b_{33}(epu = high) + b_{3i}\ ControlVariables \quad (3)$$

$$\log\left(\frac{P(Entry\ Mode = Major\ JV|x)}{P(Entry\ Mode = WOS|x)}\right) = a_{41} + b_{42}(epu = medium) + b_{43}(epu = high) + b_{4i}\ ControlVariables \quad (4)$$

for stage 2

Here x represents the explanatory variables. Equation 1 represents the log odds of the binary logit for stage 1, while Equations 2 – 4 represents and the log odds of the multinomial logit for stage 2. Taking the exponents of both sides in equations 1 though 4 gives the odds ratio for stage 1 and the relative risk ratio for stage 2. The estimates reported in this paper reflect the odds

ratios and the relative risk ratios. Equations 2 through 4 shows the number of categories being estimated for the dependent variable. In the multinomial logistic regression model, it is the probability of selecting a given category relative to a baseline that is being modelled i.e., the probability of picking equal JV over WOS. In this case, the baseline category represents the WOS scenario.

Though the structure of entry mode choice can be viewed via a decision tree it does not reflect a true nested structure. This is because there are no independent and observable characteristics associated with each mode of entry in this model. This means that the decision to enter a country via WOS or an Equal JV is likely to be based on things such as the firms experience, and the market/socio economic conditions rather than the differences between WOS and Equal JV. This also has an implication for one of the major assumptions of the multinomial logit model, the independence of irrelevant alternatives (IIA) assumption. The IIA basically states that the choice between two alternatives does not depend on the existence of a third one, that is the choices are not correlated. This implies a level of substitutability between the choices and is an important assumption to acknowledge because if ignored, then the results of the multinomial logit can not really be trusted. We can test for the presence of the IIA assumption via a Hausman test as suggested by Hausman & McFadden (1984) or an approximate likelihood ratio test by Small & Hsiao (1985)[28]. It is important to note that these tests give inconsistent results (Long & Reese, 2001). Another to bypass the IIA assumption is by adopting models that relax the IIA assumption such as the alternative specific probit model (ASPM). To estimate an ASPM you need variables that are unique to each alternative or categorical outcome. Since the categorical outcomes in this paper were developed based off the MNE ownership percentages there are no variables unique to

[28] See Table(A7) in the appendix for Hausman test results.

each category. Thus, the ASPM is not an appropriate model to estimate. However, the IIA assumption will not be much of an issue in this context because multinomial logit models can still be used regardless of the IIA assumption when the outcome categories are distinct enough (McFadden, 1973). Given the nature of the entry mode choices available to MNEs in this paper, it is difficult to argue the substitutability between choices such as independent affiliate and Major JV or Minor JV and WOS. Depending on the characteristics of the MNE and the characteristics of the investment location these entry mode choices provide different benefits. As such they do not reflect the same preferences of the MNE. Though the IIA is an assumption with major implications, there exist enough entry mode choices within the model such that the effects of violating the IIA are not so severe.

As was mentioned in the pervious section, this category accounts for the largest clustering of the data representing about 51.31% of Japanese MNE investments. Another reason for using a multinomial logit regression model for the second stage is because the ordering of the dependent variable has no significant meaning, i.e., the WOS is not "better" than the minor JV, which in turn is not better than the equal JV or the major JV. Furthermore, these entry mode categories do not need to be in a specific manner; WOS can be first, with minor JV second and major JV third. Rather I am interested in knowing how different characteristics, specifically the level of policy uncertainty at the time of entry, affects the choice of entry the firm makes.

Table 3.6: Pairwise Correlations

Correlations	1	2	3	4	5	6	7	8
1. # of Affiliate Employees	1							
2. Entry Mode	-0.0731*	1						
3. Log Capital Stock	0.2659*	-0.0015	1					
4. Industrial Production %	-0.0045	-0.0187	-0.0042	1				
5. Policy Uncertainty	-0.0426*	-0.0276*	-0.0102	0.0156	1			
6. Free Trade Agreement	-0.0234	0.0358*	-0.0179	0.0354*	0.026	1		
7. Country Experience	0.0544*	0.0129	0.0409*	-0.0153	-0.1489*	-0.2985*	1	
8. Number of Japanese Owners	0.0305	0.0407*	0.0897*	-0.0065	-0.0348*	0.0172	0.0599*	1

* Indicates significance at the 5% level

The policy uncertainty measure employed in this study enters the model in two different ways p_{i-6}, and p_{i-12}[29]. Here, p_i refers to the level of the EPU for country i and p_{i-6}, and p_{i-12} represents the level of policy uncertainty 6 months prior and one year before FDI entry occurred. One issue to look out for when conducting analysis such as this is the presence of multicollinearity amongst the independent regressors. This becomes an issue if not addressed because it means that the computed p-values may be biased, which in turn impairs the ability of correctly assessing any significant impact of the independent regressors. Table 3.6 shows the pairwise correlation coefficients for the variables used. From this I can examine how each variable is related to one another.

From the correlation table, several significant relationships can be seen. Though the correlation coefficients are small with the highest being .2985, the only way to be certain of the existence (or lack thereof) of multicollinearity is to check the variance inflation factor (VIF). The computed VIF score for the independent variables is 1.07, which is less than the VIF threshold of 10. This means that multicollinearity is not an issue for the model.

3.5 Results

Table 3.7 presents the estimates from the stage 1 regression analysis. The first column shows the results regarding the impact of policy uncertainty 6 months before entry on the choice of a direct entry versus an indirect entry. From this one can see that there exists a negative relationship between the relative level of uncertainty and the decision to choose a direct entry. Specifically, the odds of a Japanese MNE choosing a direct mode of entry in the presence of medium levels of policy uncertainty is 0.80011. A high level of policy uncertainty relative to a low level of policy uncertainty does not have a significant impact on the MNEs indirect/direct entry

[29] Analysis for p_i, p_{i-1} have been included for completeness.

mode choice. Interestingly the results from the other control variables show that the higher the number of employees and the higher the IP growth rate, the greater the preference is for the indirect mode of entry (the odds ratio is less than 1 implying a negative relationship between the variables and the direct entry mode). The second column tell a similar story where medium levels of policy uncertainty relative to low levels of policy uncertainty are significant in affecting the choice between direct versus indirect entry30. The results from this table seem suggests that Japanese MNEs prefer indirect modes of entry as opposed to direct modes of entry in the presence of medium levels of uncertainty.

Table 3.7: Logistic Regression of Direct Entry vs Indirect Entry

	6 Months Prior	12 Months Prior
Policy Uncertainty		
Medium	0.80011**	0.78425**
	(0.07828)	(0.07806)
High	0.93830	1.10131
	(0.14143)	(0.22196)
# of Affiliate Employees	0.99975***	0.99976***
	(0.00006)	(0.00006)
Log Capital Stock	1.09118***	1.08943***
	(0.02284)	(0.02338)
IP Growth	0.99823***	0.99821***
	(0.00062)	(0.00056)
Japanese FTA	1.15889	1.15980
	(0.20107)	(0.19956)
Log Country Experience	1.03687	1.03941
	(0.04374)	(0.04657)
# of Japanese Owners	2.14307***	2.20413***
	(0.37188)	(0.39622)
Constant	0.84481	0.85025
	(0.26665)	(0.28421)
Observations	7,202	6,918

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1, Displayed coefficients correspond to the odds-ratio

[30] The analysis was also conducted for uncertainty 1 month prior to entry as well as during entry. The results remained significant, albeit at the 10% level (See Table 6-1A in the appendix).

It might also be the case that in the presence of uncertainty Japanese MNEs prefer entry modes with lower commitment requirement. Tables 3.8 and 3.9 present the estimates from the multinomial logit analysis. The presented estimates show the relative risk ratios (rrr) associated with each explanatory variable. These relative risk ratios tell the likelihood of falling into one of the comparative entry modes relative to the baseline entry mode. A significant rrr > 1 tells us that the observed category is preferred over the reference category, while a significant rrr < 1 tells us the opposite.

Table 3.8 shows the impact of the explanatory variables on Japanese MNEs entry mode choice relative to the base category (WOS). The estimates reveal that, relatively high levels of policy uncertainty 6 months before entry is only significant for the minor JVs entry mode. Specifically, the relative risk ratios show that for high levels of policy uncertainty 6 months before entry, the risk of a Japanese MNE establishing a minor JV relative to a WOS is 1.721. This means that Japanese MNEs are 1.721 times more likely to choose a minor JV as their entry mode of choice. For the other entry modes, there is no significant relationship with policy uncertainty. The presented relative risk ratio seems to suggest that when policy uncertainty is high (EPU >200) during the month of entry, Japanese MNEs prefer the less committed form of direct entry.

The relative risk ratios from the number of affiliate employees implies that Japanese MNEs have a higher preference for establishing minor JV's and major JV's relative to the WOS as the number of affiliate employees increases. Interestingly, the reported relative risk ratios also suggest that a free trade agreement with Japan leads to a preference of WOS over minor JV (0.706 < 1) as well as a preference of WOS over major JV (0.760 < 1), but it has no significance on equal JV being preferred to WOS. For capital stock, the relative risk ratios show that as the capital stock

increases by one-unit, Japanese MNEs were 1.135 times more likely to establish a minor JV relative to WOS, and 1.08 times more likely to establish a major JV over a WOS.

Table 3.8: Effects of EPU on Direct Entry Modes (6-month Lag)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.835742	0.782676	0.864577
	(0.104748)	(0.134328)	(0.094761)
High	1.720299**	1.111981	0.988334
	(0.398766)	(0.428985)	(0.205200)
# Affiliate Employees	1.000277***	1.000004	1.000148***
	(0.000077)	(0.000180)	(0.000052)
Log Capital Stock	1.134806***	1.132993*	1.078656***
	(0.040750)	(0.075356)	(0.029493)
IP Growth	1.000035	0.999114	1.000425
	(0.002058)	(0.007535)	(0.001905)
Japanese FTA	0.706138**	0.833666	0.759703*
	(0.119527)	(0.265430)	(0.125800)
Log Country Experience	1.167690***	1.209546**	1.082231*
	(0.056217)	(0.108237)	(0.047816)
# of Japanese Owners	2.718446***	2.036630***	3.718899***
	(0.522311)	(0.376215)	(0.519533)
Constant	0.007732***	0.002319***	0.032746***
	(0.005236)	(0.002822)	(0.016798)
Observations	5,583	5,583	5,583

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

For country experience, a one unit increase in country experience means that Japanese MNEs were 1.17 times, 1.21 times, and 1.08 times likely to establish minor JV's, equal JV's, and major JV's over a WOS. For the number of Japanese owners, the relative risk ratio tells us that when there are 2 or more owners, Japanese MNEs have a lower risk of establishing WOS relative to the other three direct entry modes (see rrr's of 2.72, 2.04 and 3.72)[31].

[31] The analysis was estimated using policy uncertainty during, and 1 month before entry. The results are given in Table 6-2A and 6-3A in the appendix

Table 3.9: Effects of EPU on Entry Modes (12-month Lag)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.145986	0.988487	0.739731***
	(0.123227)	(0.155739)	(0.073692)
High	1.576142**	0.944933	1.118995
	(0.290402)	(0.390463)	(0.231525)
# Affiliate Employees	1.000277***	1.000043	1.000120**
	(0.000073)	(0.000153)	(0.000053)
Log Capital Stock	1.128607***	1.137578*	1.078176***
	(0.040887)	(0.079932)	(0.029550)
IP Growth	1.000296	0.984243	1.000698
	(0.001942)	(0.013864)	(0.001873)
Japanese FTA	0.718203**	0.873213	0.769278
	(0.118278)	(0.280798)	(0.134184)
Log Country Experience	1.203197***	1.226393**	1.080021*
	(0.060882)	(0.122444)	(0.046993)
# of Japanese Owners	2.677879***	1.989702***	3.764657***
	(0.521184)	(0.365088)	(0.557323)
Constant	0.006617***	0.001813***	0.034015***
	(0.004477)	(0.002387)	(0.017585)
Observations	5,358	5,358	5,358

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3.9 shows the results when focusing on policy uncertainty levels twelve months before entry. The estimated rrr's show that in the presence of medium levels of policy uncertainty twelve months prior to entering the foreign market, the relative risk of establishing a major JV over a WOS is 0.74. In the presence of high levels of policy uncertainty twelve months prior, Japanese MNEs are 1.58 times more likely to establish a minor JV over a WOS. These results suggest that if the Japanese MNE uses past levels of policy uncertainty as a guideline for the future, and expect medium levels of policy uncertainty, they prefer WOS over major JVs. However, if they believe that it will be high, then they prefer to establish minor JVs over WOS. The rrr's for the other control variables do not differ significantly from those of Table 3.8.

Based on the full sample results from Tables 3.7 to 3.9, it is possible that Japanese MNEs

prefer indirect modes of entry in the presence of policy uncertainty. For the MNEs that enter directly, their entry mode choice is primarily influenced by high levels of policy uncertainty. Furthermore, of the entry modes examined relative to the baseline case of the WOS, only equal JVs were not significantly impacted by any level of policy uncertainty. The equal JVs may not be a favoured choice for Japanese MNEs because they represent high levels of risk compared to the minor JV option, but they represent fewer financial gains when compared to the major JV option and the WOS option.

3.6 Robustness Check

Based on the results from the previous section, one naturally asks how well these results hold in the presence of a different set of assumptions/conditions. Examining Table 3.1, which shows the dispersion of Japanese investments abroad, reveals most Japanese investments are located within two countries, China, and the United States. China has the largest share of Japanese investment abroad, representing 43.15% of investments in the sample, while the United States accounts for 14.87%. Together they both account for more than 58% of the investments found in the data. This means that these two countries are stand out from the others, and the observed effects may indeed be driven by what occurs within these two countries. I re-estimate the model focusing exclusively on China and the United States, and a model without China and the United States.

Tables 3.10 to 3.12[32] below and in the appendix displays the results from the model specification focusing only on China and the United States. From Table 3.13, the odds ratio shows that in the presence of medium levels of policy uncertainty 6-months prior, and 12-months prior, Japanese MNEs prefer an indirect mode of entry when investing in China and the United States (odds ratio 0.76314, and 0.72691). When compared with the full sample in Table 3.7 a similar

[32] Tables 7-2 and 7-3 in the appendix show the effects of policy uncertainty during the month of entry and one month prior to entry.

story emerges. This proves that the observed effects of policy uncertainty are only due to the investment behaviour in the two countries. The control variables in Table 3.10 also shows that the increasing the number of affiliate employees leads to a lower preference for a direct entry mode, whereas greater country experience and a higher number of Japanese owners increased the preference for direct modes of entry.

Table 3.10: Logistic Regression of Direct Entry vs Indirect Entry (China & US)

	During Entry	1 Month Prior	6 Month Prior	12 Month Prior
Policy Uncertainty				
Medium	0.84896	0.76893***	0.76314***	0.72691***
	(0.08943)	(0.07610)	(0.07445)	(0.07811)
High	0.71711	0.89034	0.90548	1.38350
	(0.16930)	(0.25673)	(0.19303)	(0.39067)
# of Affiliate Employees	0.99974**	0.99974**	0.99973**	0.99973**
	(0.00011)	(0.00011)	(0.00011)	(0.00011)
Log Capital Stock	1.02454	1.02521	1.03170	1.03075
	(0.03406)	(0.03445)	(0.03535)	(0.03688)
IP Growth	1.04731	1.06162	1.06670	1.07885
	(0.05916)	(0.05870)	(0.06276)	(0.06653)
Log Country Experience	1.80034***	1.75227***	1.74948***	1.69551***
	(0.27157)	(0.25489)	(0.26940)	(0.28598)
# of Japanese Owners	2.73790***	2.67677***	2.43325***	2.50045***
	(0.45951)	(0.44521)	(0.42512)	(0.46516)
Constant	0.10079***	0.11671***	0.10623***	0.12553**
	(0.08082)	(0.09073)	(0.08841)	(0.11460)
Observations	4,781	4,720	4,516	4,343

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1, Displayed coefficients correspond to the odds-ratio

Table 3.11: The Effect of EPU on Direct Entry Modes, 6-month Lag (China & US)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.00858	0.92397	0.82233
	(0.13221)	(0.22778)	(0.13437)
High	3.19512***	1.01964	1.17651
	(0.91004)	(0.57736)	(0.33692)
# of Affiliate Employees	1.00027**	1.00002	1.00011
	(0.00011)	(0.00022)	(0.00009)
Log Capital Stock	1.13855***	1.20640**	1.10030***
	(0.05062)	(0.09355)	(0.03906)
IP Growth	0.99849	0.82738	0.94603
	(0.10296)	(0.11462)	(0.07340)
Log Country Experience	2.92089***	3.77025***	2.55262***
	(0.69978)	(1.41207)	(0.47932)
# of Japanese Owners	2.63264***	2.17117***	3.79577***
	(0.52694)	(0.49480)	(0.63532)
Constant	0.000050***	0.000002***	0.00025***
	(0.000067)	(0.000005)	(0.00024)
Observations	3,443	3,443	3,443

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The results from Table 3.11 show that high levels of policy uncertainty 6 months prior to entry have a significant impact on the establishment minor JV's, relative to WOS. Indeed, the estimation shows that in the high levels of uncertainty in the 6 months leading to entry causes Japanese MNEs to be 3.195 times more likely to establish a minor JV relative to a WOS. For the control variables, the relative risk ratios show that a higher number of affiliate employees increases likely hood of establishing a minor JV relative to a WOS by 1.00027 times. The reported relative risk ratios also showed that the log of capital stock, the country experience, and the number of Japanese owners all increased the preference for minor JVs, equal JVs, and major JVs relative to WOS.

The risk ratios found in Table 3.12 differ slightly from those in Table 3.11. Here the rrr's show that in the presence of medium levels of policy uncertainty 12 months prior, Japanese MNEs are 0.672 times likely to establish a major JV over a WOS. This means that if the Japanese MNE bases its entry mode decision on the presence of a medium level of policy uncertainty 12 months prior, then they choose to establish a WOS over a major JV. However, if the Japanese MNE bases its entry mode decision on a high level of policy uncertainty 12 months prior, then they choose to establish a minor JV over a WOS. Specifically, they are 2.333 times likely to establish a minor JV over a WOS in the presence of high uncertainty.

Table 3.12: The Effect of EPU on Direct Entry Modes, 12-month Lag (China & US)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.167034	0.868003	0.671858***
	(0.142994)	(0.194807)	(0.097225)
High	2.333329***	1.252640	0.824305
	(0.681827)	(0.735465)	(0.304132)
# of Affiliate Employees	1.000243**	1.000019	1.000091
	(0.000100)	(0.000194)	(0.000081)
Log Capital Stock	1.130536***	1.240446***	1.104608***
	(0.049680)	(0.099144)	(0.039981)
IP Growth	1.005255	0.868996	0.924601
	(0.107673)	(0.124586)	(0.073403)
Log Country Experience	2.821401***	3.579870***	2.393292***
	(0.729532)	(1.421766)	(0.491284)
# of Japanese Owners	2.632680***	2.084188***	3.964533***
	(0.549048)	(0.460747)	(0.698841)
Constant	0.000065***	0.000002***	0.000358***
	(0.000092)	(0.000004)	(0.000377)
Observations	3,307	3,307	3,307

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

To further verify whether the results observed in Table 3.7 extends to the other countries, I re-estimate the model excluding China and the United States. The results from these estimates are given by Tables 3.13 through 3.15. One can see that there exist significant differences between the estimated odds ratios in Table 3.7 and 3.13. For example, Table 3.13 does not show any significant relationship between any levels of policy uncertainty and the choice of direct versus indirect entry.

Table 3.13: Logistic Regression of Direct Entry vs Indirect Entry (China & US Excluded)

	6 Months Prior	12 Months Prior
Policy Uncertainty		
Medium	0.93732	0.97401
	(0.10804)	(0.13723)
High	0.95726	0.92473
	(0.24724)	(0.22404)
# of Affiliate Employees	0.99976***	0.99978***
	(0.00008)	(0.00008)
Log Capital Stock	1.17557***	1.17379***
	(0.02175)	(0.02178)
IP Growth	0.99785**	0.99782**
	(0.00096)	(0.00097)
Japanese FTA	0.66707***	0.65483***
	(0.09792)	(0.09579)
Log Country Experience	1.76820***	1.83142***
	(0.14768)	(0.15740)
# of Japanese Owners	1.67797**	1.75441**
	(0.42505)	(0.44678)
Constant	0.08493***	0.07728***
	(0.02801)	(0.02633)
Observations	2,686	2,575

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1, Displayed coefficients correspond to the odds-ratio

This suggest that the level of policy uncertainty does not play a role on the decision of Japanese MNEs to enter the 23 other countries. This seems to lend some support to the notion that the observed policy uncertainty effects from the earlier tables might be driven by the types of

investments pursued in China and the United States. For the other control variables, we can see that higher capital stock, greater country experience and more Japanese owners increase the preference for direct entry modes (odds ratio > 1). On the contrary, a higher number of affiliate employees, a higher market growth and a free trade agreement with Japan are associated with a higher preference for indirect entry modes.[33]

Table 3.14 shows the rrr pertaining to uncertainty levels 6- month prior to entry. The rrr's show a significant relationship between medium levels of policy uncertainty 6 months prior, and the choice of a minor JV over WOS entry

Table 3.14: The Effect of EPU on Direct Entry Modes, 6-month Lag (China & US Excluded)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.68675*	0.63389	1.03007
	(0.15069)	(0.20394)	(0.12678)
High	0.74473	1.05054	0.91860
	(0.24311)	(0.59031)	(0.23998)
# Affiliate Employees	1.00023*	0.99971	1.00013
	(0.00012)	(0.00035)	(0.00010)
Log Capital Stock	1.13705***	1.06876	1.06162*
	(0.05072)	(0.08103)	(0.03537)
IP %	0.99983	0.99869	1.00011
	(0.00203)	(0.00723)	(0.00186)
FTA	0.71680*	0.79440	0.73096
	(0.13935)	(0.30499)	(0.14798)
Log Country Exp	0.91222	1.14644	0.96907
	(0.11089)	(0.32774)	(0.15558)
# JPO	2.72701***	1.68287	3.41350***
	(0.84521)	(0.68432)	(0.63647)
Constant	0.01870***	0.00850***	0.05958***
	(0.01447)	(0.01205)	(0.04756)
Observations	2,140	2,140	2,140

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

[33] See Table 7-1A, 7-2A, and 7-3A in the appendix for the results using policy uncertainty levels during month of entry and 1 month prior to entry.

However, there is no significant relationship between any levels of policy uncertainty and the other entry mode types. The rrr for the control variables show that an increase in the number of affiliate employees leads to a preference of minor JV's over WOS. Likewise, higher capital stock, and a higher number of Japanese owners lead to a preference of minor JV's and major JV's over WOS. Unsurprisingly a free trade agreement with Japan, leads to WOS being preferred over minor JV's. The results also show that the greater the number of owners the greater the preference for minor JV's and major JV's (see rrr's of 2.73 and 3.41 to be precise).

For Table 3.15, the reported rrr's show that there exists no significant relationship between policy uncertainty 12 months prior to entry and the choice of entry mode relative to WOS.

Table 3.15: The Effect of EPU on Direct Entry Modes, 12-month lag (China & US Excluded)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.27741	1.30599	0.92657
	(0.19200)	(0.47912)	(0.10235)
High	0.98946	0.74821	1.41059
	(0.46786)	(0.52801)	(0.39338)
# Affiliate Employees	1.00025**	0.99978	1.00009
	(0.00011)	(0.00034)	(0.00011)
Log Capital Stock	1.13245***	1.04328	1.05885*
	(0.05254)	(0.08174)	(0.03377)
IP %	0.99975	0.98269	1.00026
	(0.00201)	(0.01309)	(0.00190)
FTA	0.72503*	0.84585	0.76629
	(0.13960)	(0.34242)	(0.15443)
Log Country Exp	0.94572	1.05477	0.96207
	(0.12033)	(0.32025)	(0.15008)
# JPO	2.73182***	1.82405	3.30544***
	(0.86573)	(0.76397)	(0.63264)
Constant	0.01329***	0.01113***	0.06272***
	(0.01057)	(0.01645)	(0.04721)
Observations	2,051	2,051	2,051

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The lack of significance for policy uncertainty lends further support to the notion that the observed effects found in Tables 3.7 to 3.9 are caused by Japanese MNE behaviour in China and the United States.

If the observed effects only matter for China and the United States, a natural question to ask is why? One possible solution lies in the type of FDI that flows into these two countries. Though China and the United States are two of the largest economies in the world they both differ in what they offer potential MNEs. This is especially true when considering the nature of FDI flowing into both countries. As a developing economy China is likely to receive more vertical FDI as opposed to horizontal FDI. This means that MNEs are more likely to fragment their production processes to take advantage of the low-cost options within China. On the other hand, MNEs choosing to establish themselves in the United States may do to circumvent trade barriers or take advantage of a particular resource endowment. Moreover, Vertical FDI and Horizontal FDI impose upon MNEs, different costs, in response to uncertainty. To examine whether FDI mode of entry changes depending on the type of FDI, I estimate the model separately for China and the U.S. The results from the estimation are given by Tables 3.16 to 3.19.

Table 3.16: Logistic Regression of Direct Entry vs Indirect Entry (Vertical FDI vs Horizontal FDI)

	China - Vertical		USA - Horizontal	
Variables	6 Months Prior	12 Months Prior	6 Months Prior	12 Months Prior
Policy Uncertainty				
Medium	0.6883***	0.6493***	0.8995	0.9355
	(0.0778)	(0.0836)	(0.1319)	(0.1485)
High	0.8079	1.6081	1.1687	1.2226
	(0.2146)	(0.5119)	(0.4356)	(0.5570)
# of Affiliate Employees	0.99976**	0.99975**	0.99907**	0.99912**
	(0.0001)	(0.0001)	(0.0004)	(0.0004)
Log Capital Stock	1.0929**	1.0911*	0.9577	0.9545
	(0.0490)	(0.0492)	(0.0425)	(0.0443)
IP Growth	1.0830	1.0797	1.0283	1.0531
	(0.0732)	(0.0772)	(0.1287)	(0.1410)
# of Japanese Owners	3.0898***	3.0404***	1.2660	1.3981
	(0.5871)	(0.6138)	(0.4334)	(0.5280)
Constant	0.9659	0.9907	4.0318**	4.1111**
	(0.6648)	(0.7044)	(2.6719)	(2.7723)
Observations	3,615	3,502	901	841

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1

Comparing between Vertical FDI and Horizontal FDI, the results show policy uncertainty, especially medium levels of policy uncertainty are significant in determining the choice between direct entry and direct entry when vertical FDI is likely. With a log odds ratio of 0.6883 and 0.6493, Japanese MNEs that pursue Vertical FDI prefer indirect entry modes over direct entry modes in the presence of medium levels of policy uncertainty. The results in Table 3.16 do not show any significant effect of policy uncertainty on the decision of MNE's to enter directly or indirectly when the type of FDI is likely to be horizontal. Tables 3.17 and 3.18 show the results for the MNEs that that choose to enter directly.

Table 3.17: Effects of EPU on Direct Entry Modes (6-month Lag)

	China – Vertical FDI		
Policy Uncertainty	Minor JV	Equal JV	Major JV
Medium	1.00926	0.94552	0.79758
	(0.13388)	(0.22709)	(0.13338)
High	4.64753***	1.42854	1.69326*
	(1.39735)	(0.84023)	(0.50707)
# Affiliate Employees	1.00026**	1.00002	1.00008
	(0.00010)	(0.00021)	(0.00008)
Log Capital Stock	1.15129***	1.22243**	1.12421***
	(0.05453)	(0.09969)	(0.04356)
IP Growth	1.01628	0.82802	0.95939
	(0.10342)	(0.11561)	(0.07993)
# of Japanese Owners	2.17754***	2.05066***	3.22635***
	(0.43426)	(0.49666)	(0.51359)
Constant	0.01512***	0.00254***	0.03214***
	(0.01166)	(0.00314)	(0.01979)
Observations	2,856	2,856	2,856

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3.18: Effects of EPU on Direct Entry Modes (12-month Lag)

	China – Vertical FDI		
Policy Uncertainty	Minor JV	Equal JV	Major JV
Medium	1.14799	0.94075	0.69735**
	(0.14654)	(0.21253)	(0.10451)
High	2.94782***	1.63613	1.07571
	(0.87099)	(0.96196)	(0.40764)
# Affiliate Employees	1.00023**	1.00003	1.00006
	(0.00010)	(0.00019)	(0.00007)
Log Capital Stock	1.13909***	1.24430**	1.12355***
	(0.05304)	(0.10669)	(0.04394)
IP Growth	1.00375	0.87406	0.92536
	(0.10381)	(0.13160)	(0.07872)
# of Japanese Owners	2.21324***	2.08784***	3.40291***
	(0.47151)	(0.50165)	(0.57708)
Constant	0.01768***	0.00170***	0.03415***
	(0.01341)	(0.00221)	(0.02133)
Observations	2,758	2,758	2,758

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The computed relative risk ratios show that in the presence of relatively high level of uncertainty, Japanese MNEs pursing Vertical FDI prefer Minor JVs over WOS. Table 3.19 and 3.20 examine the case when considering Japanese MNEs horizontal FDI and entry mode choice.

Table 3.19: Effects of EPU on Direct Entry Modes (6-month Lag)

	USA – Horizontal FDI		
Policy Uncertainty	Minor JV	Equal JV	Major JV
Medium	1.02416	0.49296	0.98218
	(0.32655)	(0.37355)	(0.42944)
High	1.30e-06***	8.68e-07***	1.53e-06***
	(7.51e-07)	(4.38e-07)	(9.70e-07)
# Affiliate Employees	1.00026	0.99948	1.00075
	(0.00063)	(0.00074)	(0.00056)
Log Capital Stock	1.10039	1.10882	0.93780
	(0.09591)	(0.15775)	(0.07642)
IP Growth	1.51980	1.17436	1.16852
	(0.65528)	(0.71212)	(0.31429)
# of Japanese Owners	13.21718***	2.10420	14.06155***
	(5.96804)	(2.50667)	(5.72162)
Constant	0.00654***	0.00377***	0.10953*
	(0.00833)	(0.00761)	(0.13131)
Observations	587	587	587

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3.20: Effects of EPU on Direct Entry Modes (12-month Lag)

	USA – Horizontal FDI		
Policy Uncertainty	Minor JV	Equal JV	Major JV
Medium	0.98096	0.20355	0.36826***
	(0.31166)	(0.23039)	(0.10211)
High	6.30e-07***	2.06e-07***	4.79e-07***
	(3.03e-07)	(1.18e-07)	(1.85e-07)
# Affiliate Employees	1.00020	0.99938	1.00079
	(0.00061)	(0.00077)	(0.00054)
Log Capital Stock	1.10363	1.24212*	0.93814
	(0.09890)	(0.14240)	(0.08053)
IP Growth	1.62483	1.29726	1.47068
	(0.76903)	(0.94845)	(0.41141)
# of Japanese Owners	12.34678***	0.00000***	14.69823***
	(5.76841)	(0.00000)	(6.07379)
Constant	0.00681***	0.00086***	0.15215
	(0.00873)	(0.00162)	(0.18592)
Observations	549	549	549

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

With a computed rrr of 1.30e-06, 8.68e-07, and 1.53e-06 Japanese MNEs who have entered directly and are conducting horizontal FDI strongly prefer WOS over all other modes of entry in the presence of relatively high levels of policy uncertainty. The same holds true when considering the level of uncertainty 12 months prior to entry. These results would seem to suggest that in the case of horizontal FDI, MNEs desire to have more control over their investments when the level of uncertainty is high. Since horizontal FDI involves duplicating the production process in another country, MNEs might choose an entry mode with more control as a means of holding on to any industry secretes or intellectual property that might be lost.

3.7 Conclusion

This paper examines the determinants regarding an MNEs entry mode choice. Drawing from past entry mode literature, the entry mode question was re-examined within the context of policy uncertainty. Based on the presented data, a unique entry mode that is not often studied in the literature was observed. Thus, the decision pertaining to the mode of entry for Japanese MNEs across 25 countries was analyzed based on five entry mode types in two stages. In the first stage the choice facing Japanese MNEs in the presence of policy uncertainty was whether to enter the foreign market directly or indirectly. The results showed that in the presence of policy uncertainty, Japanese MNEs preferred to adopt indirect entry mode choices, as opposed to a more direct entry mode choice. In the second stage I examined the type of direct entry mode that was choses in the presence of policy uncertainty. Based on the data, the FDI observations were not evenly distributed across all countries; rather most of the observations were clumped into two countries: China, and the United States. When the outlying observations were separated from the data, the effects of policy uncertainty were largely insignificant. However, when focusing solely on the outlying observations, the results showed strong effect arising from the level of policy uncertainty. When

compared with the option of establishing a wholly owned subsidiary, Japanese MNEs preferred to mostly establish minor JV. The results from both stages seem to suggest some sort of risk averse behaviour for Japanese MNEs because they mostly preferred entry mode types that had less of a commitment to the foreign market. This leads to the following two conclusions. Japanese MNEs in the presence of foreign policy uncertainty seem to prefer entry modes where the policy risk from the foreign country can be confined while still allowing them to retain some level of influence. Second, the influence of policy uncertainty is not universal, rather it depends on the orientation of investments made within a region. MNEs choosing horizontal FDI preferred entry modes with more control when policy uncertainty was high. However, for vertical FDI the results are mixed. These results seem to fall in line with the transaction cost approach where MNEs in the presence of external uncertainty prefer JV modes of entry as opposed to WOS modes of entry. One caveat with this research is the inability to observe whether the Japanese MNEs maintains the same type of FDI over time and in the presence of policy uncertainty. Indeed, it could be the case that a Japanese MNE that initially enters the foreign market as a minor JV may choose to eventually merge or acquire its local partner as it becomes familiar with the foreign market, effectively turning it into a WOS scenario. This would imply that as time goes on the MNE learns how to mange the policy risk and adjusts its behaviour to ensure it still captures the maximum economic benefit. While this caveat is a shortcoming of the dataset employed in this analysis, it represents a ripe area for future research. The focus of Japan in this paper represents a unique opportunity for analysis. As one of the largest sources of global FDI outflows (UNCTAD, 2020), Japanese MNEs are likely to pay special attention to the uncertainty climate in the host countries as it plays a major role in their investment outcome. The focus on Japan allows this paper to examine the relationship between policy uncertainty and FDI from the perspective of an active and robust investor. It is

possible that countries that do not invest extensively abroad choose different entry modes in the presence of policy uncertainty, however that is not the focus of this essay. Thus, the results of this essay maybe more reflective of a local phenomenon as opposed to a global one.

REFERENCES

Anderson, E., & Gatignon, H. (1986). Modes of foreign entry: A transaction cost analysis and propositions. *Journal of International Business Studies*, *17*(3), 1-26.

Ahsan, M., & Musteen, M. (2011). Multinational enterprises' entry mode strategies and uncertainty: A review and extension. *International Journal of Management Reviews, 13*(4), 376-392.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics, 131*(4), 1593-1636.

Brouthers, K. D. (2013). A retrospective on: Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies, 44*(1), 14-22.

Brown, J. R., Dev, C. S., & Zhou, Z. (2003). Broadening the foreign market entry mode decision: separating ownership and control. *Journal of International Business Studies, 34*(5), 473-488.

Delios, A., & Henisz, W. J. (2003a). Policy uncertainty and the sequence of entry by Japanese firms, 1980–1998. *Journal of International Business Studies, 34*(3), 227-241.

Delios, A., & Henisz, W. J. (2003b). Political hazards, experience, and sequential entry strategies: The international expansion of Japanese firms, 1980–1998. *Strategic Management Journal, 24*(11), 1153-1164.

Demirbag, M., McGuinness, M., & Altay, H. (2010). Perceptions of institutional environment and entry mode. *Management International Review, 50*(2), 207-240.

De Villa, M. A., Rajwani, T., & Lawton, T. (2015). Market entry modes in a multipolar world: Untangling the moderating effect of the political environment. *International Business Review, 24*(3), 419-429.

Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton University Press.

Dow, D., & Larimo, J. (2009). Challenging the conceptualization and measurement of distance and international experience in entry mode choice research. *Journal of International Marketing, 17*(2), 74-98.

Ekeledo, I., & Sivakumar, K. (1998). Foreign market entry mode choice of service firms: a contingency perspective. *Journal of the Academy of Marketing Science, 26*(4), 274-292.

FDI in Figures. (2020). In Foreign Direct Investment Statistics: Data, Analysis and Forecasts. http://www.oecd.org/investment/statistics.htm

Hausman, J., & McFadden, D. (1984). Specification tests for the multinomial logit model. *Econometrica: Journal of the Econometric Society*, 1219-1240.

Hennart, J. F., & Slangen, A. H. (2015). Yes, we really do need more entry mode studies! A commentary on Shaver. *Journal of International Business Studies, 46*(1), 114-122.

Herrmann, P., & Datta, D. K. (2006). CEO experiences: Effects on the choice of FDI entry mode. *Journal of Management Studies, 43*(4), 755-778.

Kao, M. S., & Kuo, A. (2017). The effect of uncertainty on FDI entry mode decisions: The influence of family ownership and involvement in the board of directors. *Journal of Family Business Strategy, 8*(4), 224-236.

Long, S. J., & Freese, J. (2001). *Regression Models for Categorical Dependent Variables Using Stata* (pp. 188-190). College Station, TX: Stata Press. https://is.muni.cz/el/1423/podzim2010/VPL454/Regression_Models_For_Categorical_Dependent_Variables_USING_STATA.pdf

López-Duarte, C., & Vidal-Suárez, M. M. (2010). External uncertainty and entry mode choice: Cultural distance, political risk and language diversity. *International Business Review, 19*(6), 575-588.

McFadden, D. (1973). Conditional logit analysis of qualitative choice behavior.

Mroczek, K. (2014). Transaction cost theory--explaining entry mode choices. *Poznan University of Economics Review*, *14*(1).

Pak, Y. S., & Park, Y. R. (2004). Global ownership strategy of Japanese multinational enterprises: A test of internalization theory. *MIR: Management International Review*, 3-21.

Saurav, A., Kusek, P., Kuo, R., & Viney, B. (2020). The impact of COVID-19 on foreign investors: Evidence from the second round of a global pulse survey. In *World Bank Blogs*. https://blogs.worldbank.org/psd/impact-covid-19-foreign-investors-evidence-second-round-global-pulse-survey

Shaver, J. M. (2013). Do we really need more entry mode studies? *Journal of International Business Studies, 44*(1), 23-27.

Small, K. A., & Hsiao, C. (1985). Multinomial logit specification tests. *International Economic Review,* 619-627.

Song, S. (2014). Entry mode irreversibility, host market uncertainty, and foreign subsidiary exits. *Asia Pacific Journal of Management, 31*(2), 455-471.

Tseng, C. H., & Lee, R. P. (2010). Host environmental uncertainty and equity-based entry mode dilemma: The role of market linking capability. *International Business Review, 19*(4), 407-418.

Wang, P., Alba, J. D., & Park, D. (2013). Determinants of different modes of FDI: firm-level evidence from Japanese FDI into the US. *Open Economies Review, 24*(3), 425-446.

Yiu, D., & Makino, S. (2002). The choice between joint venture and wholly owned subsidiary: An institutional perspective. *Organization Science, 13*(6), 667-683.

APPENDIX

Table A1: Ownership Restrictions by Country during sample period

Destination Country	General Restrictions	Other restrictions
Australia[34]	>15% requires govt approval	Financial ownership cap <15% Airports cap @49% Telecom cap @35%
Belgium	None	None
Brazil	None	None
Canada[35]	None	Telecom: Majority Canadian (80%) Air Carrier cap @ 49% Uranium Production cap @49%
Chile	None	Nuclear Energy and Mining: Chilean ownership Only
China[36]	Mining, Publishing, Agriculture, Electricity generation requires control by the Chinese partner	Transportation cap @ < 25% Telecom cap @ <50% Scientific and Education: Prohibited
Colombia[37]	Munitions manufacturing, Toxic waste disposal, Colombian Licensed commercial ships, preserved land - prohibited	Commercial Airline cap @40% Maritime Agents cap @40% Broadcast cap @40% Finance – prior authorization
Croatia	None	None
France[38]	Gov't approval required for: Public security industries and National Defense	Prior approval for: Energy infrastructure; Transportation; Public Water supplies; Electronic communication; Public health
Germany	None	None
Greece	None	Restrictions in real estate for non-EU states
Hong Kong	None	Broadcasting cap @49%
India	Defense and private security 49% Non-Scheduled Air Transport and Ground Handling 74% Publishing/Broadcast 26%	Banking: private 74%, public 20% Commodity Exchange 49% Credit Information 74% Stock exchanges, and clearing corporations, 49%
Ireland	None	None

[34]Parliament of Australia: Parliamentary library Briefing Book, Australia's foreign investment policy
[35] https://www.ic.gc.ca/eic/site/cprp-gepmc.nsf/eng/00021.html
[36] The Special Administrative Measures on Access to Foreign Investment (2019 edition)
[37] UNITED NATIONS PUBLICATIONS, ISBN 92-1-112696-7
[38] https://www.state.gov/reports/2019-investment-climate-statements/france-and-monaco/

Table A2: Ownership Restrictions by Country during sample period

Destination Country	General Restrictions	Other restrictions
Italy	Gov't can block ownership in Defense, Energy, Transport and Communication Industries if ownership is deemed a security risk	Prior Authorization required for Banking and Insurance Companies
Korea	Foreign ownership is prohibited in Specific national banks, Public financial sectors, Governmental sectors, Educational, Artistic, and religious institutions, Professional and political associations, Labour unions, Nuclear power plants, Radio and Terrestrial broadcasting,	Animal Husbandry and coastal fishery <50%. Electric power distribution < 50% Meat Wholesale < 50%. Coastal passenger and cargo transportation, must be JV and <50% Other Transportation <50%. Publishing <30%, magazine <50%. Broadcasting ≤49% Telecomm ≤49% News supply services < 25%.
Mexico	None	State Ownership Only for: Oil exploration and extraction, Sale of electricity, Nuclear power, Radioactive minerals, Telegraph, and radiotelegraph services, Postal services, Minting, Airport and Heliports
Netherlands	None	Restrictions for: Defence and security, Energy, Public broadcasting, Finance, Transportation, Media, Postal services.
Pakistan	None	Agricultural Sector 60% cap Local Banking 49% cap
Russia	≥10% ownership in a Russian credit organisation requires prior approval by the Central Bank of Russia. Mass media sector <20% cap	Gov't approval required for foreign ownership in the following sectors: Nuclear and radioactive materials; Aerospace; Natural Resources; Exploration and production of minerals, Coding and Cryptographic equipment; Mass Media and Telecomm; Biological Research
Singapore	None	Restrictions on Foreign ownership in Broadcasting and Domestic News Media
Spain	None	None
Sweden	None	None
United Kingdom	None	None
United States[39]	≤5% Banking Sector	Mining – no foreign ownership for non reciprocating nations No foreign ownership permitted in the following sectors: Energy generation, Broadcasting, Defense companies engaged in Gov't contractual work

[39] Congressional Research Service, Foreign investment in the United States

Table A3: Entry Mode Choice by Country (%)

Entry Mode	Australia	Belgium	Brazil	Canada	Chile	China	Total
Indirect Ownership	41.28	39.47	29.96	50.34	36.36	27.12	30.75
Minor JV	3.02	5.26	6.61	5.52	6.82	9.36	6.96
Equal JV	3.36	1.32	1.17	1.38	0	2.82	2.13
Major JV	6.38	7.89	8.95	4.83	18.18	11.43	8.85
WOS	45.97	46.05	53.31	37.93	38.64	49.28	51.31
Country Total	298	76	257	145	44	6,177	14,258
%	100	100	100	100	100	100	100

Table A4: Entry Mode Choice by Country (%)

Entry Mode	Colombia	Croatia	France	Germany	Greece	Hong Kong	Total
Indirect Ownership	45	100	44.55	35.78	57.14	20.56	30.75
Minor JV	10	0	6.44	2.45	0	4.7	6.96
Equal JV	5	0	0.5	0.74	0	1.76	2.13
Major JV	5	0	4.46	4.9	0	4.85	8.85
WOS	35	0	44.06	56.13	42.86	68.14	51.31
Country Total	20	5	202	408	7	681	14,258
%	100	100	100	100	100	100	100

Table A5: Entry Mode Choice by Country (%)

Entry Mode	India	Ireland	Italy	Korea	Mexico	Netherlands	Total
Indirect Ownership	21.05	26.67	50	13.28	41.22	32.94	30.75
Minor JV	10.25	3.33	2.83	10.51	4.95	5.49	6.96
Equal JV	2.91	0	0	3.94	2.25	1.18	2.13
Major JV	15.79	3.33	8.49	13.58	7.88	5.88	8.85
WOS	50	66.67	38.68	58.69	43.69	54.51	51.31
Country Total	722	30	106	685	444	255	14,258
%	100	100	100	100	100	100	100

Table A6: Entry Mode Choice by Country (%)

Entry Modes	Pakistan	Russia	Singapore	Spain	Sweden	United Kingdom	United States	Total
Indirect								
Ownership	66.67	40.51	23.54	62.11	51.22	35.9	43.07	30.75
Minor JV	20	2.53	3.42	12.63	0	3.63	3.19	6.96
Equal JV	0	1.27	1.01	0	4.88	1.71	0.7	2.13
Major JV	13.33	6.33	5.82	5.26	4.88	5.98	3.29	8.85
WOS	0	49.37	66.2	20	39.02	52.78	49.74	51.31
Country								
Total	15	158	790	95	41	468	2,129	14,258
%	100	100	100	100	100	100	100	100

Table A7: Hausman test of IIA assumption

Ho: Odds (Outcome -J vs Outcome-K) are independent of other alternatives.

Omitted	chi^2	DF	$P>chi^2$	Evidence
Independent Affiliate	-16.959	21	1.000	For Ho
Minor JV	-5.973	22	1.000	For Ho
Equal JV	-1.408	21	1.000	For Ho
Major JV	46.552	21	0.001	Against Ho
WOS	2607.16	22	0.000	Against Ho

Table 6-1A: Logistic Regression of Direct Entry vs Indirect Entry

	During Entry	1 Month Prior
Policy Uncertainty		
Medium	0.87290*	0.83062*
	(0.07194)	(0.08565)
High	0.78410	0.82303
	(0.14153)	(0.16507)
# of Affiliate Employees	0.99977***	0.99976***
	(0.00005)	(0.00006)
Log Capital Stock	1.08769***	1.08702***
	(0.02201)	(0.02232)
IP Growth	0.99826***	0.99820***
	(0.00058)	(0.00058)
Japanese FTA	1.15893	1.16142
	(0.19403)	(0.19313)
Log Country Experience	1.04865	1.04599
	(0.04278)	(0.04223)
# of Japanese Owners	2.33081***	2.29710***
	(0.38167)	(0.37769)
Constant	0.81578	0.84989
	(0.25203)	(0.26099)
Observations	7,616	7,529

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1, Displayed coefficients correspond to the odds-ratio

Table 6-2A: The Effect of EPU on Direct Entry Modes

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.939171	1.057385	0.849120
	(0.106318)	(0.149794)	(0.084477)
High	1.899459***	1.007964	1.063011
	(0.295967)	(0.534363)	(0.201615)
# Affiliate Employees	1.000294***	1.000074	1.000150***
	(0.000075)	(0.000145)	(0.000052)
Log Capital Stock	1.124534***	1.096143	1.080992***
	(0.037552)	(0.067349)	(0.026987)
IP %	1.000335	0.999202	1.000032
	(0.001822)	(0.006716)	(0.002037)
FTA	0.641061***	0.790589	0.743463*
	(0.103927)	(0.250559)	(0.123807)
Log Country Exp	1.150407***	1.244691***	1.100704**
	(0.049329)	(0.104744)	(0.047460)
# JPO	2.745153***	2.043377***	3.710064***
	(0.519654)	(0.364930)	(0.493819)
Constant	0.009509***	0.003264***	0.030325***
	(0.005667)	(0.003707)	(0.015258)
Observations	5,907	5,907	5,907

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6-3A: Effects of EPU on Direct Entry Modes (1-month lag)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.957557	0.973178	0.806244**
	(0.135962)	(0.154416)	(0.084067)
High	1.728898***	1.130648	0.834642
	(0.316318)	(0.364861)	(0.158824)
# Affiliate Employees	1.000283***	1.000062	1.000149***
	(0.000078)	(0.000149)	(0.000053)
Log Capital Stock	1.127079***	1.106578	1.079903***
	(0.038798)	(0.068980)	(0.027000)
IP %	0.999968	0.998731	1.000154
	(0.001953)	(0.008152)	(0.001976)
FTA	0.643671***	0.788406	0.748406*
	(0.106882)	(0.250905)	(0.126759)
Log Country Exp	1.154326***	1.239556**	1.087476*
	(0.051056)	(0.103702)	(0.047012)
# JPO	2.736593***	2.100980***	3.754970***
	(0.521385)	(0.378423)	(0.515149)
Constant	0.009018***	0.002919***	0.033061***
	(0.005518)	(0.003305)	(0.016541)
Observations	5,841	5,841	5,841

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 8-1A: Logistic Regression of Direct Entry vs Indirect Entry (China & US Excluded)

	During Entry	1 Month Prior
Policy Uncertainty		
Medium	1.01321	1.07569
	(0.08505)	(0.12824)
High	0.79503	0.77051
	(0.16822)	(0.14321)
# of Affiliate Employees	0.99979***	0.99976***
	(0.00007)	(0.00008)
Log Capital Stock	1.17758***	1.17515***
	(0.02103)	(0.02102)
IP Growth	0.99786**	0.99787**
	(0.00091)	(0.00093)
Japanese FTA	0.68576***	0.67108***
	(0.09883)	(0.09863)
Log Country Experience	1.75656***	1.77470***
	(0.13938)	(0.14390)
# of Japanese Owners	1.74586**	1.73181**
	(0.41430)	(0.41620)
Constant	0.07991***	0.08010***
	(0.02654)	(0.02623)
Observations	2,835	2,809

Robust SE in parentheses *** p<0.01, ** p<0.05, * p<0.1, Displayed coefficients correspond to the odds-ratio

Table 8-2A: The Effect of EPU on Direct Entry Modes (China & US Excluded)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.82194	0.84133	0.87939
	(0.13341)	(0.24351)	(0.15039)
High	1.16568	0.27154	1.06310
	(0.29975)	(0.28063)	(0.28757)
# Affiliate Employees	1.00026**	0.99971	1.00013
	(0.00011)	(0.00036)	(0.00009)
Log Capital Stock	1.12078***	1.04438	1.06321**
	(0.04678)	(0.07283)	(0.03270)
IP %	1.00023	0.99909	0.99973
	(0.00182)	(0.00565)	(0.00199)
FTA	0.65998**	0.72849	0.71097*
	(0.12327)	(0.27591)	(0.14516)
Log Country Exp	0.93467	1.23373	1.01273
	(0.10523)	(0.34191)	(0.15836)
# JPO	2.55165***	1.48948	3.19287***
	(0.70234)	(0.61005)	(0.55155)
Constant	0.02134***	0.00985***	0.05576***
	(0.01570)	(0.01331)	(0.04413)
Observations	2,251	2,251	2,251

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 8-3A: The Effect of EPU on Direct Entry Modes, 1-month lag (China & US Excluded)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	0.76252	0.95921	0.87227
	(0.18349)	(0.30258)	(0.14779)
High	0.99952	1.33995	0.73836
	(0.28308)	(0.69448)	(0.17977)
# Affiliate Employees	1.00024**	0.99973	1.00013
	(0.00012)	(0.00035)	(0.00010)
Log Capital Stock	1.12208***	1.05199	1.06555**
	(0.04650)	(0.07397)	(0.03326)
IP %	0.99966	0.99863	0.99987
	(0.00201)	(0.00703)	(0.00190)
FTA	0.66000**	0.75072	0.71853
	(0.12557)	(0.29196)	(0.14674)
Log Country Exp	0.93910	1.18286	1.00359
	(0.10454)	(0.32995)	(0.15784)
# JPO	2.59645***	1.50098	3.18343***
	(0.72295)	(0.61510)	(0.56559)
Constant	0.02146***	0.00868***	0.05687***
	(0.01543)	(0.01196)	(0.04541)
Observations	2,234	2,234	2,234

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 7-2A: The Effect of EPU on Direct Entry Modes (China and U.S.)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.06627	1.15255	0.84756
	(0.14117)	(0.23288)	(0.12332)
High	2.71463***	1.62857	0.98719
	(0.70903)	(0.99421)	(0.34590)
# of Affiliate Employees	1.00028**	1.00011	1.00011
	(0.00011)	(0.00018)	(0.00009)
Log Capital Stock	1.12609***	1.14989*	1.10146***
	(0.04799)	(0.08290)	(0.03788)
IP Growth	0.96481	0.82949	0.88795
	(0.08931)	(0.09724)	(0.06939)
Log Country Experience	2.47345***	3.25447***	2.85545***
	(0.48489)	(1.06793)	(0.54335)
# of Japanese Owners	2.78327***	2.24397***	3.95423***
	(0.58515)	(0.47852)	(0.63374)
Constant	0.00015***	0.00001***	0.00015***
	(0.00016)	(0.00002)	(0.00015)
Observations	3,656	3,656	3,656

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 7-3A: The Effect of EPU on Direct Entry Modes, 1-month lag (China and U.S)

Entry Modes	Minor JV	Equal JV	Major JV
Policy Uncertainty			
Medium	1.14605	0.98177	0.80117
	(0.14632)	(0.21229)	(0.11173)
High	2.71078***	0.87491	0.99893
	(0.66947)	(0.49424)	(0.34632)
# of Affiliate Employees	1.00028**	1.00009	1.00011
	(0.00011)	(0.00018)	(0.00009)
Log Capital Stock	1.13304***	1.16219**	1.09974***
	(0.04942)	(0.08642)	(0.03799)
IP Growth	0.95710	0.79869*	0.91894
	(0.09221)	(0.09783)	(0.07074)
Log Country Experience	2.67001***	3.16734***	2.64733***
	(0.54387)	(1.04310)	(0.49367)
# of Japanese Owners	2.74666***	2.34832***	4.02508***
	(0.57954)	(0.50310)	(0.67360)
Constant	0.00009***	0.00001***	0.00022***
	(0.00010)	(0.00002)	(0.00022)
Observations	3,607	3,607	3,607

Robust SE in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Figure 2A: Economic Policy Uncertainty By Country

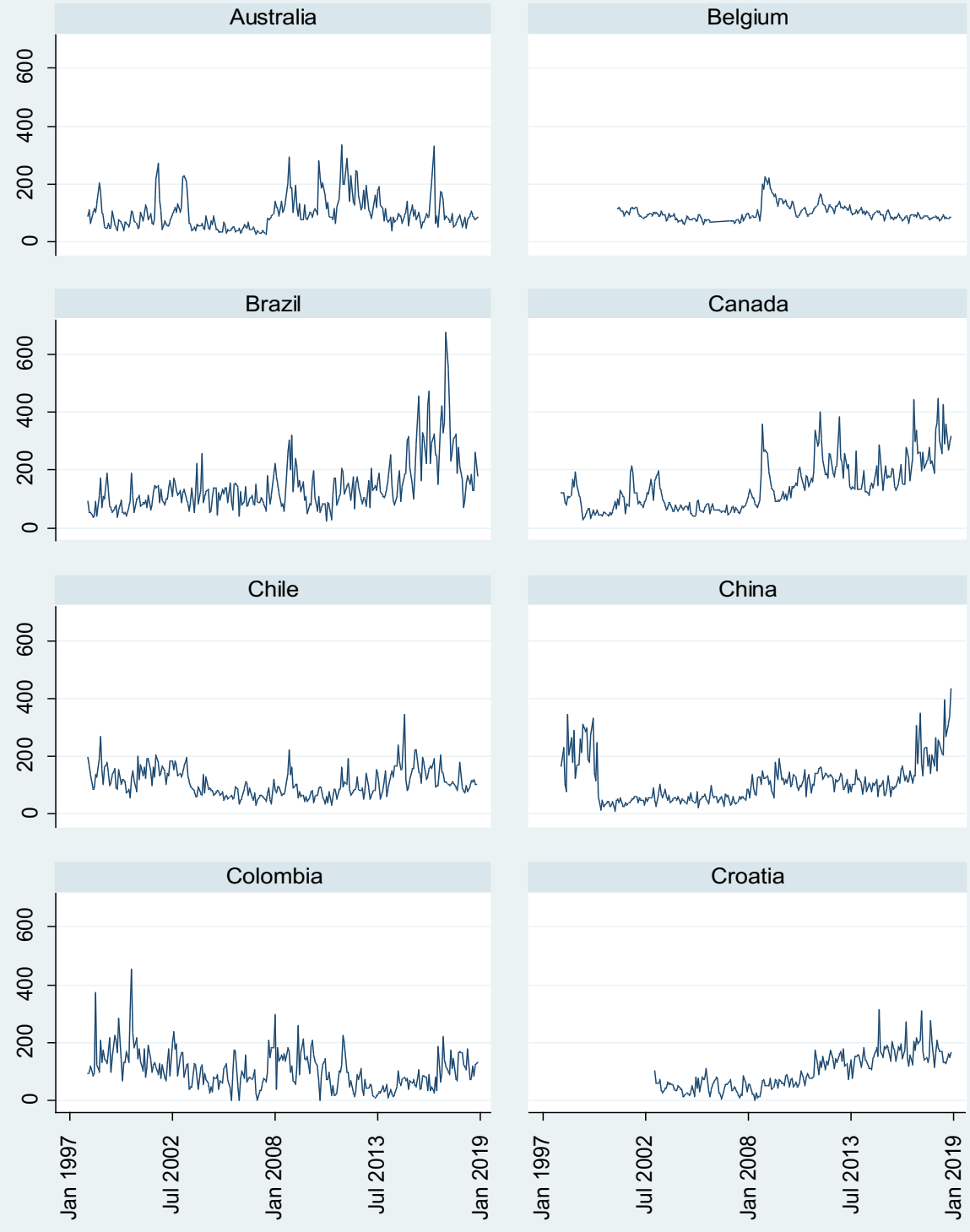
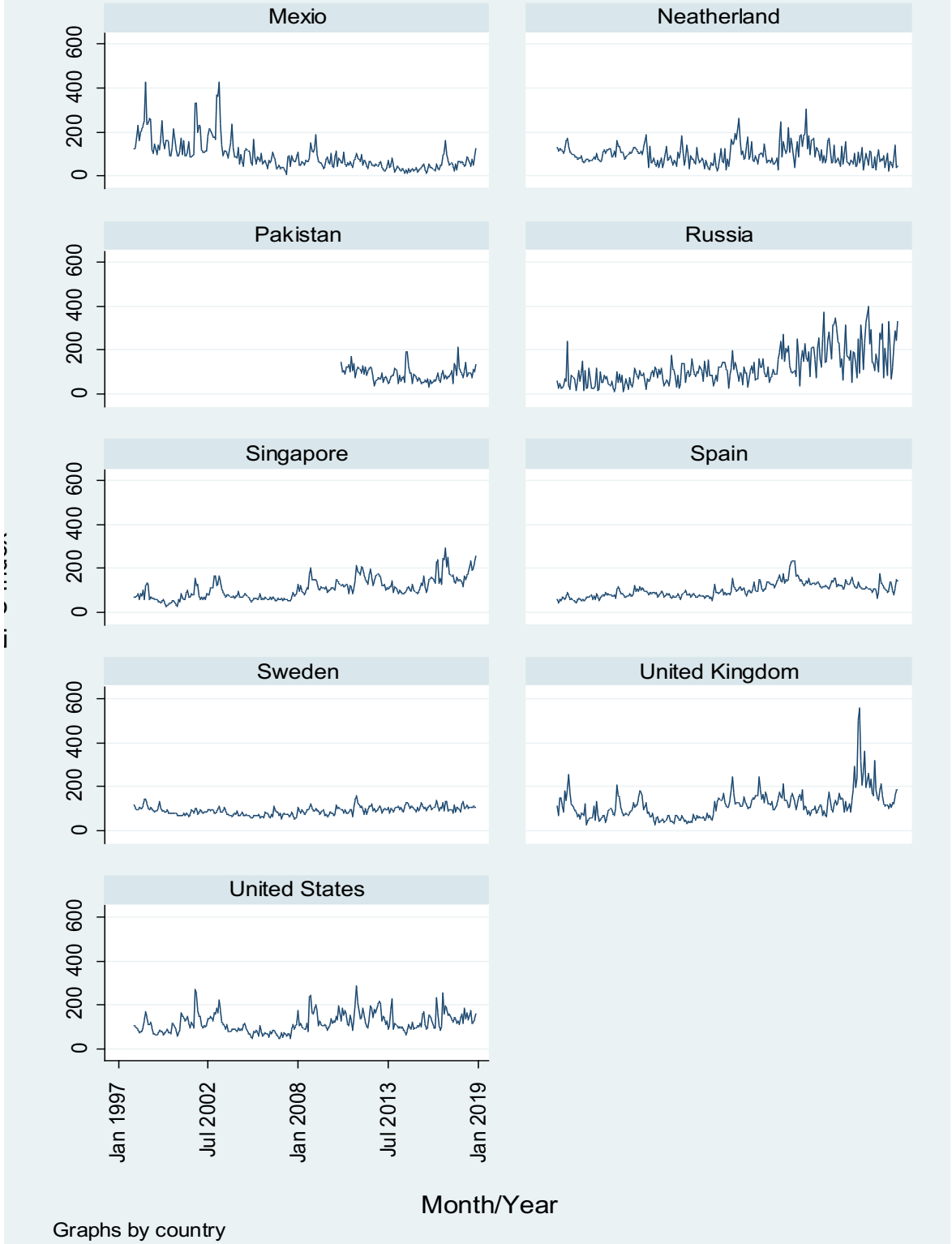


Figure 2B: Economic Policy Uncertainty By Country

Figure 2C: Economic Policy Uncertainty By Country



CONCLUSION

FDI is an important aspect of a country's development path. As such policies and behaviours that promote FDI while reducing barriers or uncertainty around it are of great importance. This dissertation examined how FDI, and uncertainty interact across three different dimensions. The first chapter reaffirmed the negative relationship between FDI and uncertainty by using new uncertainty indices. Indeed, the PC Index and EPU index offered mixed support for the propositions levied in the chapter. However, the more specific the index is regarding the source of uncertainty (CPU) the less explanatory power it has in explaining the FDI/uncertainty relationship. The chapters interesting result is that developed and large economises such as the United States are not immune to the negative effects policy uncertainty has on foreign direct investment.

My essay's second chapter showed that the effect of policy uncertainty spillovers depended on how they[spillovers] interacted with the economy. Canadian FDI and other Canadian macroeconomic variables were affected directly and indirectly by U.S. policy uncertainty spillovers. In the case of Mexico, it was only affected indirectly and only with respect to U.S. FDI flowing into Mexico. Interestingly when policy uncertainty is measured via the index (PC) that focus on more political terms, there was no significant impact of U.S. policy uncertainty. But when it is measured via economic terms (EPU) then significant relationships appeared. This seems to suggest that the United States neighbours are less concerned about its political climate, at least in terms of their economies.

My final chapter shows how in the presence of policy uncertainty, Japanese MNEs preferred to adopt indirect entry mode choices, as opposed to a more direct entry mode choice. In the second stage I examined the type of direct entry mode that was choses in the presence of policy uncertainty. The results showed that when compared to the option of establishing a wholly owned

subsidiary, Japanese MNEs preferred to mostly establish minor JV. The results from both stages seem to suggest some sort of risk avers behaviour for Japanese MNEs because they mostly preferred entry mode types that had less of a commitment to the foreign market. Japanese MNEs in the presence of foreign policy uncertainty seem to prefer entry modes where the policy risk from the foreign country can be confined while still allowing them to retain some level of influence.

Taken together, these three chapters focus on the FDI/uncertainty relationship in geographically proximate and developed economies. The novel aspect of this dissertation is the framework in which it models how political disturbances in developed economies affect its FDI inflows and decisions. While developed economies are often considered to be stable it is still possible for its political agents to engage in behaviour that may end up reducing investor certainty.

The dissertation's goal has been to examine several ways though which policy uncertainty affects FDI. The subsequent analysis performed in each chapter, while yielding interesting results, generated additional questions that lay the groundwork for further research. For example, the major theme in this dissertation is the idea of policy uncertainty. In this dissertation policy uncertainty is measured via a newspaper-based index. Though the newspapers used to generate the index are major newspapers one could argue that newspaper-based indices only focus on "perceived" uncertainty. Since the index is determined based on the number of articles it is possible the more articles are written about disagreements amongst policy makers the more likely social perception of uncertainty is to rise. However, newspaper editors and journalists are often not present when new policies are being decided or negotiated. It is possible that policy makers may on a certain economic direction for the country but disagree on how to get there. For example, policy makers within a country may agree that promoting investments is desirable but disagree on how to promote it. One group may favour tax reduction policies for businesses, while the other group may favour

infrastructure development policies. These two policies may not contend with each other and may not be reported as such in the media, but they still alter the potential investment costs and benefit for MNEs. An interesting area to explore would be to see whether the findings in this dissertation hold as different, non-newspaper-based measures of policy uncertainty are employed. Another interesting area that was not examined in this research is examining how U.S. policy uncertainty has affected the types of investment that enter the country. Not all FDI's are the same. Greenfield, brownfield, Mergers & Acquisitions, as well as Joint Ventures all impose different costs and benefits for the investor. Thus, it is possible that these investments behave differently towards policy uncertainty.

One interesting question that arose but was not fully explored in this research is how foreign investments react to policy uncertainty changes over time. It is possible that for some investors, the presence of policy uncertainty may cause them to modify the type of investments they initiated. For example, an MNE that initially enters the foreign market as a minor JV may choose to eventually merge or acquire its local partner as it becomes familiar with the foreign market, effectively turning it into a WOS scenario. Or a an MNE might choose to sell off its affiliate if it feels that the level of uncertainty withing a region is too high. In this scenario one could then argue that policy uncertainty may reduce incoming investments as well as aid in the termination of existing investments.