
THE IMPACTS OF USMCA ON THE U.S., CANADA, AND MEXICO STOCK MARKETS

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ABSTRACT

This study examines the impacts of the election of Donald J. Trump as the 45th President of the United States and the subsequent events that resulted in the replacement of NAFTA with the United States-Mexico-Canada Agreement (USMCA) on the U.S., Canada, and Mexico stock markets. The results indicate that the major index returns on election day were positive in the U.S. and Canada, but more negative returns accrued after subsequent events in both stock markets. In the case of Mexico, most sample index returns are negative on the U.S. presidential election day followed by positive returns for all subsequent events. For academics, this study presents how it is possible for a country to pull out of an existing agreement with a discussion on its replacement and yet see the major stock indices not immediately show positive returns. For practitioners, it is important to understand that pulling out of trade deals does not guarantee that the next deal would be better for stock market performances but might favor the stock markets of developing countries. **JEL Classifications:** C22; F40; G10

INTRODUCTION

On November 9, 2016, Donald Trump was elected as President of the United States in an election that many observers felt was too close to call. During the campaign, he mentioned his opposition to the North American Free Trade Agreement (NAFTA, which came into force on January 1, 1994) several times and intended to replace NAFTA by other free trade agreements during run-up to the election. President Trump soon announced on January 23, 2017 that the U.S. would be withdrawing from NAFTA, mentioning that he would negotiate a new trade agreement among the U.S., Canada, and Mexico. After several rounds of negotiations, on September 30, 2018 the three countries finalized a new agreement, named the United States-Mexico-Canada Agreement (USMCA), to substitute for NAFTA.

The purpose of this paper is to analyze the impacts of this chain of events starting with Mr. Trump's surprise victory on the stock market returns of the U.S., Canada, and Mexico. We analyze most of the leading stock indices in the three countries, showing

robust results whereby their major stock indices generally have positive returns on the election day with later events predominantly exhibiting negative returns. The Mexico stock market, however, experienced negative returns on the U.S. election day, and the returns turned positive once the renegotiation of NAFTA was announced. Positive returns accrued for most of the indices until the announcement of USMCA creation in Mexico, including on the announcement day of USMCA formation.

NAFTA was a landmark trade agreement and went into effect in 1994 to intentionally promote trade, eliminate barriers, and reduce tariffs on imports and exports among the U.S., Canada, and Mexico. However, President Trump indicated that NAFTA was the worst trade deal ever made since NAFTA further caused trade deficits, factory closures, and job losses for the U.S., and coincided with an over 35% decline in manufacturing employment during the period of 1994 through 2016 (<https://www.cfr.org/backgrounder/naftas-economic-impact>).

Several studies have examined the impacts on the stock markets of the participating countries. Hanson and Song (1998) report that NAFTA does not favor U.S. firms but favors Mexico's since NAFTA's goal was to promote integration of Mexico with the other two North American developed economies, which was further criticized in the U.S. for contributing to high unemployment and outsourcing (undermined manufacturing). On one hand, stock returns were found to be significantly negative for some specific firms and industries, for example, motor vehicles and equipment; on the other hand, shareholders gain if they invest in the agricultural, textile, and apparel sectors since NAFTA eliminated most tariffs on products traded with a major focus on liberalizing trade in agriculture and textiles. In addition, trade liberalization could still benefit both value-added growth firms and labor-intensive firms in the two neighboring countries. Aggarwal et al. (1998) study the impacts of NAFTA on the values of the U.S. firms under different industry characteristics, and the results show that there is an aggregate positive impact of NAFTA on U.S. equity prices. Industry-wise, they find that the petroleum, auto products, and telecommunications sectors exhibit significantly negative returns, while positive returns are observed to shareholders of food products, textiles, chemicals, and machinery industries.

Rodriguez (2003) employs an event study to examine investors' perceptions in the manufacturing industries of NAFTA's three participating countries. The findings argue that the industry-wide labor-capital ratio is the most important determinant of abnormal returns. NAFTA favors industries that use abundant factors intensively. The most abundant factor of production is labor, and Mexico is known more for labor-intensive industries as their low labor cost continues to attract U.S. companies (see the rate comparison in <https://www.ivemsa.com/manufacturing-in-mexico/mexican-labor-rates>). In a comprehensive study on regional trade agreements, Moser and Rose (2014) find evidence of the natural trading partner hypothesis. Stock markets rise when Regional Trade Agreements (RTAs) are signed between countries that already engage in high volume of trade. Stock markets also rise when poorer countries sign RTAs.

The studies focusing on the impacts of NAFTA are not restricted to examining equity market returns for various countries. Darrat and Zhong (2005) look at the equity market linkages among the U.S., Canada, and Mexico and argue that there is an intensified equity linkage since the NAFTA accords. López-Herrera and Ortiz (2010) then provide evidence of a time-varying integration process among NAFTA equity markets. In another study, Chatterjee and Mitra (2000) analyze the effects of NAFTA

using a dummy variable regression and find that influences of events randomly appear in the sample countries. Their study is evidently based on earlier works that the creation of NAFTA is a critical event that potentially affects stock markets in all three countries of North America. Therefore, this paper intends to examine the chain of events starting with election day and ending in the three countries reaching a new trade agreement, USMCA.

The rest of the paper is organized as follows. Section 2 describes the event chain and the hypotheses of the study. Section 3 provides empirical evidence. Section 4 concludes results and implications.

EVENTS AND HYPOTHESES

Since the event period starts with the election and ends nearly two years later, we only select the most important events in the study period. The source of the information for most events was: <https://www.supplychaindive.com/news/NAFTA-timeline-how-USMCA-happened/538663/>. The event chain and its hypothesized effects on the U.S., Canada, and Mexico stock indices are presented in Table 1.

The first event on November 9, 2016 is the surprise election of Donald J. Trump as the 45th President of the United States. During his election campaign, Mr. Trump mentioned several times that he would withdraw the U.S. from NAFTA should he be elected. The null hypothesis would be that there would be no impact of this event on the stock indices of the three North American countries. The alternative hypothesis is that this event might have a positive impact on the returns of the U.S. stock indices, assuming NAFTA is considered as a less favorable agreement to the U.S., which is consistent with Mr. Trump's assertion. We also expect that both Mexico and Canada would have negative returns since both countries' trade with the U.S. would be adversely impacted. The reasoning behind this argument is that any agreement that follows NAFTA would be less favorable to the two neighboring countries of the U.S.

The second event (on January 23, 2017) is the third day following the swearing-in of the new president when he signed the executive orders to renegotiate NAFTA. The null hypothesis for this would be no impact on the stock market indices of the U.S., Canada, and Mexico. Alternatively, consistent with the first event, negative impacts are hypothesized for Mexico and Canada stock markets and positive returns for the U.S. stock indices. If the markets perceive the event as President Trump did, then this would be a favorable event leading up to comparative advantage to U.S. companies as compared to their counterparties in Canada and Mexico.

The third major event occurred on May 31, 2018, and June 1, 2018. On May 31, 2018, the U.S. imposed steel tariffs on the European Union, Canada, and Mexico. The EU, Canada, and Mexico retaliated on U.S. goods the next day, June 1, 2018. We hypothesize that there would be no impact of these events on the stock indices of the three countries. Alternatively, as tariffs decrease profit margins in all countries, we would expect all returns to be negative for markets of all three countries for these two days. This event marks a low point for NAFTA renegotiations.

The fourth event in the event chain occurred when the U.S. and Mexico reached a deal on August 27, 2018. This was followed by speculation the next day (August 28, 2018), that Canada would be excluded. On August 31, 2018, President Trump officially notified Congress of its intent to sign a new deal with Mexico and perhaps

Canada within ninety days. With a null hypothesis of no effect on the stock indices of the study, the alternative hypothesis for this event would be that this development is forecasted to produce positive returns for the stock indices of Mexico and the U.S. and negative returns for Canada over the five days.

The final event occurred when USMCA, the new agreement, was announced late on September 29, 2018. We thus consider the next day, September 30, 2018, to be the event day. Our null hypothesis is that there would be no impact on the stock market indices of the three countries. Alternatively, we hypothesize positive returns for all three North American countries following the agreement as it is expected that the new deal is beneficial to all parties.

EMPIRICAL EVIDENCE

The event chain in the study starts on November 9, 2016 and ends nearly two years later on September 30, 2018. We employ daily percentage return of the indices from January 14, 2014, through January 22, 2019. Such a long period of data allows us to have a long comparison period before the first event and three months of a comparison period after the last event. The data and the description of the indices are collected from *Bloomberg Database*. The daily percentage returns on the indices are calculated using the following method:

$$R_{it} = [(SI_t - SI_{t-1})/SI_{t-1}] * 100, \quad (1)$$

where R_{it} is the return of the stock index for day t , SI_t is the daily closing price of the index on day t , and SI_{t-1} refers to the closing price of the index on day $t-1$. The sample indices include the major indices in the U.S., Canada, and Mexico. The complete descriptions of all the indices and other control variables used in the study are given in Appendix.

Analysis of U.S. Indices

We first examine the returns of several important indices in the U.S., the country that initiated the revision of NAFTA and led the discussions for the subsequent agreement, USMCA. We examine the event chain for the following major indices: S&P 500 Index, Dow Jones Industrial Average (DJI), Dow Jones Composite Average (DJCOMP), NASDAQ Composite Index (NASDAQ), and Russell 2000 Index (RUSL2K). The dependent variable in the regression model is daily returns for each of these indices, and the model is below:

$$R_{it} = \beta_0 + \beta_1 \text{Event1} + \beta_2 \text{Event2} + \beta_3 \text{Event3} + \beta_4 \text{Event4} + \beta_5 \text{Event5} \\ + \beta_6 \text{World Index} + \beta_7 \text{LIBOR3M}, \quad (2)$$

where R_{it} is the daily returns of indices mentioned before. The first five independent variables are dummy variables representing the event days of these five events. A value of 1 is set for the event day(s) and 0 otherwise. Two control variables are added in the regressions. The first control variable is the daily return of the MSCI World Index (MXWO), and we utilize this index to control world stock market movements.

This index is a free-float weighted equity index that only includes developed world markets. To control for interest rate movements on stock market indices, the three-month LIBOR (LIBOR3M) rate is used. The t-statistics reported in all the regressions are corrected by Newey and West (1987) heteroskedasticity and the autocorrelation consistent covariance matrix.

The results of the regressions for the U.S. are presented in Table 2. The constant terms are insignificant. The first event is the election of Mr. Trump as the President of the United States. This event generates significant impacts on all five indices. All five major indices have positively significant abnormal returns. The null hypothesis of no abnormal returns is rejected, and the alternative hypothesis of Event 1 in the U.S. is fully supported.

Event 2 occurs when President Trump signed the executive orders to renegotiate NAFTA. This could be positive information for the U.S. stock markets, assuming that any new deal would favor the U.S. more versus the neighboring countries. Our results indicate on January 23, 2017 that three out of the five major indices have significantly negative returns and one positive (albeit NASDAQ is positive only at 0.10 level). Overall, the decision to pull out of NAFTA negatively disturbed the markets. This means we reject our null hypothesis of no abnormal returns for Event 2.

Event 3 occurs during the period of May 31, 2018, to June 1, 2018, when the U.S. after months of negotiations imposes steel tariffs on the EU, Canada, and Mexico. The EU, Mexico, and Canada retaliated the next day by imposing their tariffs on U.S. goods. Against the null hypothesis of no abnormal returns, the alternative hypothesis for this two-day event for the U.S. indices is negative since the tariffs reduce the profit margins of companies and contribute to the erosion of shareholder wealth. Three out of the five major indices in the U.S. report significantly negative returns at the 0.01 level on the event days. Consistent with the results of Event 2, the returns of the NASDAQ index are significant and positive during the event period. Overall, the results suggest Event 3 is a negative event to the U.S. and support the alternative hypothesis, thereby rejecting the null.

Event 4 occurs from August 27, 2018 and ends on August 30, 2018. Initially, the U.S. and Mexico reached a deal on NAFTA (as it was still called at the time), with speculation that Canada might be excluded. On August 30, 2018 the U.S. president (Trump) notified Congress that it intended to sign a new deal with Mexico and possibly Canada shortly. For the U.S., we might expect this deal to have a positive impact, and the results do show that NASDAQ has significantly positive returns to this event, while DJCOMP has significantly negative returns. The SP500, DJI, and the RUSL2K index returns are not significant during this period. This evidence being mixed indicates that we do not reject the null hypothesis for this event.

The final event occurs when USMCA was announced on September 30, 2018. USMCA is a replacement for NAFTA. The results show that two of the large-cap indices (DJI and DJCOMP) have positive returns; however, the small-cap indices (NASDAQ and RUSL2K) have negative returns. We may conclude that this event generates different impacts on these sectors and is not surely a positive event as hypothesized. As such, there is not enough evidence to reject the null hypothesis of no abnormal returns. The null hypothesis is only partially supported by the results. In terms of the control variables, the return of the world index MXWO is positive and significant for all regression models, representing a close relationship between the world index and all major U.S. indices. The coefficients of LIBOR3M are insignificant

in all regressions, indicating that international interest rate movements during this time have no impact on the returns of the major indices in the U.S.

Analysis of Canada Market Indices

We also use Equation 2 to analyze the responses to the event chain in Canada. The stock market index is the S&P/TSX COMPOSITE INDEX (COMPOSITE). The results are in Table 3.

Table 3 shows that the constant term in the model is insignificant, and such a result is consistent with those in the U.S. For Event 1, the election of Mr. Trump is a positive event with significantly positive returns. The null hypothesis of no significant returns for Event 1 in Canada is rejected. Event 2 (the announcement of the renegotiation of NAFTA by the President of the U.S. on January 23, 2017) is a negative event for Canada stock markets. With the coefficient being negative, we find evidence against the null and in favor of the alternative. Event 3 occurs on May 31, 2018 and the following day when the U.S. imposed tariffs on Canada and Mexico and these two countries retaliated the next day. Event 3 has no impact, and therefore we cannot reject the null hypothesis. Event 4 occurs between the period of August 27, 2018 through August 30, 2018 and has a hypothesized negative effect since the U.S. and Mexico had reached a trade agreement and Canada was left out of the initial deal. The Canada stock markets report negative returns for the COMPOSITE index. This means a rejection of the null hypothesis. A positive impact generated by Event 5 for the COMPOSITE index means that the null is rejected and the alternative hypothesis of that for USMCA is supported. Consistent with the U.S. indices, the MXWO world index has a significantly positive coefficient and LIBOR3M still has no impact.

Analysis of Mexico Indices

For analyzing the Mexico stock market, we choose four major indices that are viewed as representing the country's equities, including S&P/BMV IPC (IPC), S&P/BMV IPC SUSTAINABLE (SUST_IPC), FTSC BIVA RETURN INDEX (FTSE_BIVA), and INMEX (largest stocks on S&P/BMV IPC). The regression models are constructed like those of the U.S. and Canada, and R_{it} denotes the returns of these four indices. For the case of Mexico, we use the daily return of the MSCI ACWI Index (RETMXWD), which is a free-float weighted index instead of the daily return of MXWO used for the U.S. and Canada, because the MSCI ACWI Index includes both emerging and world markets and is therefore the more appropriate measure as a control variable for Mexico.

Table 4 lists the results of the regressions. The constant terms are insignificant in any of the regressions. Event 1, the election of Donald Trump as President, leads to a significantly negative return in all four indices. Such results are different from the returns of the U.S. and Canada, but the null hypothesis is rejected and there is a strong support for the alternative hypothesis. The potential reason is that, during the election campaign, Mr. Trump had expressed the opinions that he would build a wall between the U.S. and Mexico. In addition, he threatened pulling out of NAFTA, which, as earlier studies have shown, was a wealth-creating event for Mexico. However, the threat of pulling out of NAFTA was possibly buffered with an unrelated event of building a border wall for this event just only for Mexico.

For Event 2, when the U.S. suggested renegotiations of NAFTA, the returns of all indices on this day are all positive and significant in Mexico. We therefore reject the null hypothesis of no impact. One reason could be that the negative returns had already occurred after the election and before the announcement of renegotiation, and thus the announcement was only a formality and the stock markets had already priced in the negative returns. The positive returns could indicate that the market feels that a new agreement could now be negotiated. We reject the null hypothesis for Event 2.

Event 3 is the imposition of steel tariffs on trading partners by the U.S. on May 31, 2018, followed by Mexico, Canada, and the EU retaliating the next day. The null of no impact is countered by an alternative hypothesis of the perception of it as a negative event. The four major indices experience positive returns on the event days. The null is rejected. Even in the alternative hypothesis, the effect appears to be the opposite of what was expected.

Event 4 happens when the U.S. and Mexico reached a deal on NAFTA in which Canada was not initially involved but suggested that negotiations were underway to include Canada within the next three months. This event, in fact, has no impact on the Mexico stock markets. Not one of the four indices shows any significant returns for Event 4. Therefore, Event 4 could be the least impactful event on the stock markets, and such results are consistent with those in the U.S. markets. We do not reject the null hypothesis for this Event.

Event 5, the final event, occurred on September 30, 2018 when USMCA replaced NAFTA. This event, which ended all uncertainty that occurred for nearly two years, is hypothesized to have a positive impact on the Mexico stock markets. There are significantly positive returns for the four major indices on the event day. The evidence appears to go against the null and in favor of the alternative hypothesis for Event 5. Consistent with the results in the U.S. and Canada, the coefficients of the world index RETMXWD are also positive and significant for all eighteen indices. LIBOR3M has no significant coefficients in any of the indices studied.

Robustness Checks

This section applies (G)ARCH models for robust checks of the OLS results. The ARCH process imposes an autoregressive structure on the conditional variance, which allows volatility shocks to persist over time. The stock markets usually exhibit volatility clustering, implying large (small) changes are followed by large (small) changes, which have long been recognized as important features of stock return behaviors. Before estimating the GARCH model, the important part to confirm the existence of heteroscedasticity is from the ARCH test, and the results (not presented here) suggest that the null hypothesis of no heteroscedasticity/homoscedasticity is rejected at the 1% significance level for all stock markets and indices, indicating the ARCH (1) effect is present. To check the robustness of the ARCH results, this study further employs high-order ARCH effects (order 6 is used), and the results are still similar to those of the ARCH (1) test.

The table presented in the Appendix reveals important results in identifying whether these five events affect stock indices in the three countries. The results show that Event 1 (the revision of NAFTA) statistically significantly benefits the U.S. and Canada stock markets, but generates negative impacts on the Mexico stock markets. For Event 2 (the renegotiation of NAFTA), we find there are positive impacts on

Mexico, but not for the U.S. and Canada. When the U.S. imposed steel tariffs on the EU, Canada, and Mexico (Event 3), most of the U.S. and Canada stock indices turn down (negative impacts), but the NASDAQ index rises; Event 3 is also positive news to Mexico. In August 2018 (the U.S. and Mexico reach a deal on NAFTA), Event 4 generally has no significant impacts on these stock markets. Most of the indices for Canada and Mexico are negative, but insignificant, except for COMPOSITE. In the U.S., only the NASDAQ index shows positive responses. For Event 5 (USMCA), this event brings great benefits to Mexico, but not for Canada and small companies in the U.S., because RUSL2K shows a negative coefficient. Generally, the results of GARCH models are quite similar to those of the OLS results, and the impacts of these five events are convincing.

IMPLICATIONS AND CONCLUSIONS

This paper examines the impacts of USMCA on the U.S., Canada, and Mexico stock markets, starting with the U.S. Presidential Election of 2016 and analyzing a chain of major events. Event 1, the election of Donald Trump, fairly generates positive returns for the U.S. and Canada, but brings negative returns to Mexico. Canada's COMPOSITE index also has positive returns. Expectedly, there are negative returns for all Mexico stock market indices. Evidence implies that the stock markets in Canada did not consider the election of Mr. Trump as a negative event. The reason is that the US and Canada stock markets are highly correlated with each other. This strong positive response from the event in the U.S. market is probably reflected in the Canada stock market index also.

For Event 2 (when President Trump ordered NAFTA renegotiation) the results suggest that the event is negative to the U.S. and Canada and positive for Mexico. For the U.S., the reason for the negative returns could be the short-term implications of renegotiating a deal would mean lower stockholder returns, albeit temporarily. A second reason could be that the U.S. has traditionally supported free trade among nations. For Mexico, it is possible that the positive returns stem from the fact that a long-anticipated event had finally occurred. It could now start renegotiating a deal, and the picture was becoming clearer. It could also be that Mexico has negative returns for Event 1, which is based on the pre-election speeches of the incoming President, that covered the impact of the removal of NAFTA. It is also possible that the second event was well anticipated in Mexico, and that the actual announcement was already priced into the stock market.

Event 3, the announcement of steel tariffs by the U.S. and immediate retaliation by Canada and Mexico are by nature a negative event. The results suggest negative returns in the U.S., no impact in Canada, and positive returns in Mexico. For Event 4 (when Mexico and the U.S. reached a deal and speculation arose that Canada might be left out of a new agreement), the U.S. president notified Congress of its intention to sign a new deal with Mexico and possibly involve Canada later. In the U.S., three of the five indices (SP500, NASDAQ, and RUSL2K) do now show any impact, while the other two (DJI and DICOMP) are mixed. Canada has negative returns, and so we accept the hypothesis for that country, but there is no observed impact on Mexico. Finally, for Event 5 (when USMCA was announced on September 30, 2018), it appears that the U.S. stock markets do not consider it as a positive event. Two indices have positive

returns, while two others have negative returns. Canada has positive returns and so does Mexico. The results here are comparable to some earlier studies on the signing of NAFTA. As Hanson and Song (1998) indicate, the U.S. firms received insignificant returns, while Mexican firms received positive returns at the announcement of NAFTA in 1993. A second reason could be from Moser and Rose (2014, page 38) who mention that stock markets tend to increase more in poorer countries signing regional trade agreements than richer ones. In the case of the USMCA, Canada and the U.S. are wealthier than Mexico.

The process of globalization has enabled investors to invest in financial markets all over the world, but the appearance of global investors has tightened relationships between financial markets in different parts of the world, which in turn have made international portfolio diversification a very difficult task. A deeper analysis of the existence and strength of relationships between markets for risk management and optimal portfolio allocation has become important. This thus study brings several important implications for academics and practitioners.

For academics, we show the impacts of a long chain of events resulting from the abolishment of one trade agreement and its replacement with another on the stock markets of the trading countries. The study also presents how it is possible for a country to pull out of an existing agreement and lead a discussion on its replacement and yet see the major stock indices not show immediate positive returns.

For practitioners, it is important to understand that pulling out of trade deals does not guarantee that the next deal would be better for stock market performances but might favor the stock markets of developing countries. In addition, the results of Event 3 show that tariffs would lead to negative returns for all parties, and that the relationships between Mexico and the other two stock markets are not as strong as the relationship between the U.S. and Canada. Investors could use this information to initiate long or short positions on index-based ETFs of these three sample countries when similar events happen in the future.

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TABLE 1. TIMELINE OF EVENTS IN THE STUDY

Notes: The null hypothesis for all events is no impact. The alternative hypothesis for the events is given above in columns 4 and 6. The source of the information for events 2-5 is: <https://www.supplychaindrive.com/news/NAFTA-timeline-how-USMCA-happened/538663/>. We thank Supply Chain Drive and Mr. Edwin Lopez of Supply Chain Drive for permitting us to cite the information on their website.

Event Number	Date	Event Descriptions	Alternative Hypothesized Effects on U.S. Stock indices	Accept/Reject	Alternative Hypothesized Effects on Canada and Mexico Stock indices	Accept/Reject
Event 1	November 9, 2016	Donald J. Trump was elected 45 th President of the United States on Tuesday November 8, 2016. https://www.nytimes.com/2016/11/09/us/politics/hillary-clinton-donald-trump-president.html	Positive	Accept	Negative	Reject for Canada; Accept for Mexico
Event 2	January 23, 2017	President Trump to sign executive orders signaling TPP withdrawal and NAFTA renegotiation. The long-awaited moves signal President Trump's eagerness to renegotiate trade deals, which is a move both Mexico and Canada appear to favor.	Positive	Reject	Negative	Accept for Canada; Reject for Mexico

Event 3	May 31, 2018	The U.S. moves forward with steel tariffs on EU, Canada, and Mexico. The 25% steel and 10% aluminum tariffs on imports from the countries will go into effect at midnight this day.	Negative	Accept	Negative	Reject for both Canada and Mexico
	June 1, 2018	The U.S. allies retaliate against 'unacceptable' steel tariffs. Canada, Mexico, and the EU swiftly responded with retaliatory measures on U.S. goods ranging from steel to felt-tipped pens.				
Event 4	August 27, 2018	The U.S. and Mexico reach a deal on NAFTA. Canada is expected to return to the table promptly now that the two parties have resolved bilateral differences over issues including auto rules of origin.	Positive	Reject	Negative for Canada and Positive for Mexico	Accept for Canada and reject for Mexico
	August 28, 2018	What is next for NAFTA? A deluge of news emerged after the U.S. and Mexico reached a bilateral deal yesterday, with speculation that Canada would be excluded and NAFTA would be terminated.				

Event 5	September 30, 2018	<p>The U.S. kicks off the process to sign NAFTA 2.0.</p> <p>The U.S. president has officially notified Congress of its intent to sign a new trade deal with Mexico - and maybe Canada - within 90 days.</p> <p>NAFTA negotiators strike a new deal, called USMCA.</p> <p>A new deal finally reached legislators' desks the previous night.</p>	Positive	Reject	Positive	Accept for Canada and Mexico
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TABLE 2. U.S. RESULTS

The table below gives the results of regression analysis for U.S.-based indices. The dependent variables in the regressions are the daily returns of the Standard and Poor 500 (SP500), Dow Jones Industrial Average (DJI), Dow Jones Composite Average (DJCOMP), NASDAQ Composite Index (NASDAQ), and Russell 2000 Index (RUSL2K). The independent variables are C (Constant), the events (Events 1 to 5), the world index (MXWO), and the three-month LIBOR rate. For all regressions, the Newey-West (1987) method is used to correct for autocorrelation and heteroskedasticity. For each variable, the values of the regression coefficient, the standard error, and the t-statistic value are given in that order below.

Index	SP500	DJI	DJCOMP	NASDAQ	RUSL2K
Intercept	0.01, 0.01, 1.47	0.01, 0.01, 0.77	0.02, 0.02, 1.05	0.03, 0.02, 1.53	- 0 . 0 0 , 0.03, -0.06
Event1	0.79, 0.33, 2.38**	1.09, 0.01, 86.43***	0.11, 0.01, 9.06***	0.74, 0.01, 50.32***	2.76, 0.02, 171.65***
Event2	-0.21, 0.33, -0.63	-0.08, 0.01, -8.42***	-0.37, 0.01, -36.96***	0.02, 0.01, 1.79*	- 0 . 2 1 , 0 . 0 2 , -13.27***
Event3	-0.04, 0.24, -0.18	-0.31, 0.09, -3.37***	-0.39, 0.07, -5.27***	0.34, 0.06, 6.07***	- 0 . 2 5 , 0 . 0 6 , -4.20***
Event4	0.03, 0.15, 0.21	-0.03, 0.03, -0.81	-0.07, 0.03, -2.47***	0.23, 0.09, 2.48***	0.01, 0.20, 0.06
Event5	0.14, 0.33, 0.43	0.50, 0.02, 27.38***	0.24, 0.02, 12.59***	-0.36, 0.03, -13.70***	- 1 . 6 3 , 0 . 0 3 , -53.06***
RetMXWO	1.09, 0.01, 82.39***	1.06, 0.04, 29.88***	1.00, 0.03, 30.54***	1.23, 0.04, 32.90***	1.19, 0.03, 35.54***
LIBOR3M	-0.01, 0.01, -0.49	0.01, 0.01, 0.52	0.00, 0.01, 0.01	-0.00, 0.02, -0.31	0.00, 0.02, 0.24
R-SQ.	0.84	0.80	0.77	0.75	0.66
N	1267	1267	1267	1267	1267
F-Statistic	972.57	708.71***	612.39***	525.79***	348.95***

Notes: *, **, and *** denote that the coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

TABLE 3. CANADA RESULTS

The table shows the results of regression analysis for Canada-based indices. The dependent variables in the regressions are the daily returns of the S&P/TSX Composite Index (COMPOSITE). The independent variables are the 5 events, the return of the world index (MXWO), and the 3-month LIBOR rate. For all regressions, the Newey-West (1987) method is used to correct for autocorrelation and heteroskedasticity. For each variable, the values of the regression coefficient, the standard error, and the t-statistic value are given in that order below.

Index	COMPOSITE
Intercept	-0.00, 0.02, -0.11
Event1	0.49, 0.01, 33.20***
Event2	-0.38, 0.01, -30.57***
Event3	-0.18, 0.13, -1.32
Event4	-0.21, 0.05, -4.36***
Event5	0.05, 0.02, 2.26**
RetMXWO	0.75, 0.03, 25.44***
LIBOR3M	0.00, 0.01, 0.11
R-SQ.	0.57
N	1261
F-Statistic	241.49***

Notes: See Table 2.

TABLE 4. MEXICO RESULTS

The table shows the results of the regression analysis for Mexico-based indices. The dependent variables in the regressions are the daily returns of S&P/BMV IPC (IPC), S&P/BMV IPC SUSTAINABLE (SUST_IPC), FTSC BIVA RETURN INDEX (FTBIVA INDEX), and INMEX (largest stocks on S&P/BMV IPC). The independent variables are the 5 events, the return of the world index (MXWO), and the 3-month LIBOR rate. For all regressions, the Newey-West (1987) method is used to correct for autocorrelation and heteroskedasticity. For each variable, the values of the regression coefficient, the standard error, and the t-statistic value are given in that order below.

Index	IPC	SUST_IPC	FTSE_BIVA	INMEX
Intercept	0.01, 0.03, 0.42	0.01, 0.03, 0.34	0.01, 0.03, 0.33	0.01, 0.03, 0.46
Event1	-2.20, 0.02, -126.29***	-2.01, 0.02, -113.54***	-2.00, 0.02, -118.64***	-2.44, 0.02, -138.33***
Event2	1.67, 0.02, 90.61***	1.54, 0.02, 82.51***	1.74, 0.02, 97.78***	1.76, 0.02, 94.86***
Event3	0.16, 0.05, 3.15***	0.16, 0.06, 2.79***	0.20, 0.05, 4.35***	0.24, 0.06, 4.22***
Event4	-0.09, 0.12, -0.75	-0.12, 0.13, -0.93	-0.14, 0.12, -1.17	-0.03, 0.13, -0.21
Event5	0.60, 0.05, 12.07***	0.53, 0.05, 10.70***	0.63, 0.05, 13.07***	0.66, 0.05, 13.29***
RetMXWD	0.71, 0.03, 21.26***	0.73, 0.03, 21.62***	0.70, 0.03, 21.41***	0.75, 0.03, 22.18***
LIBOR3M	-0.02, 0.03, -0.59	-0.02, 0.03, -0.52	-0.02, 0.03, -0.55	-0.02, 0.03, -0.65
R-SQ.	0.36	0.36	0.36	0.38
N	1263	1263	1263	1263
F-Statistic	101.32***	102.10***	101.19***	108.76***

Notes: See Table 2.

APPENDIX OF THE STOCK INDICES

U.S.

1. **S&P 500 (SP500):** The S&P 500 Index measures the performance of 500 large companies listed on the stock exchanges of the United States. It is one of the leading indices used by portfolio managers for representing the U.S. stock market.
2. **Dow Jones Industrial Average (DJI):** The Dow Jones Industrial Average is compiled by Dow Jones as a way to gauge the performance of the industrial component of U.S. stock markets. It is the oldest continuing market index there.
3. **Dow Jones Composite Average (DJCOMP):** The Dow Jones Composite Average is a price-weighted average that tracks 65 US prominent companies. The average is a combination of the Dow Jones Industrial, Transportation, and Utilities Averages.
4. **NASDAQ Composite Index (NASDAQ):** The NASDAQ Composite Index is a broad-based capitalization-weighted index of stocks in all three NASDAQ tiers: Global Select, Global Market, and Capital Market. The index was developed with a base level of 100 as of February 5, 1971.
5. **Russell 2000 Index (RUSL2K):** The Russell 2000 Index is comprised of the smallest 2000 companies in the Russell 3000 Index, representing approximately 8% of the Russell 3000 total market capitalization. The real-time value is calculated with a base value of 135.00 as of December 31, 1986. The end-of-day value is calculated with a base value of 100.00 as of December 29, 1978.

CANADA

1. **S&P/TSX Composite Index (COMPOSITE):** The S&P/Toronto Stock Exchange Composite Index is a capitalization-weighted index designed to measure the market activity of stocks listed on TSX. The index was developed with a base level of 1000 as of 1975. The sectors available under SPTSX Index GRPS<GO> do not price intraday. This index contains investment trusts effective 12/19/05. For the S&P/TSX Equity Index, please see TXEQ Index.

MEXICO

1. **S&P/BMV IPC (IPC):** The S&P/BMV IPC Index seeks to measure the performance of the largest and most liquid stocks listed on the Bolsa Mexicana de Valores. The index is designed to provide a broad, representative, yet easily replicable index covering the Mexico equities market. The constituents are weighted by a modified market cap subject to diversification requirements.
2. **S&P/BMV IPC SUSTAINABLE (SUST_IPC):** The S&P/BMV IPC Sustainable Index is designed to measure the performance of Mexico's leading companies in terms of economic, environmental, and social criteria, providing an objective benchmark for managing sustainability investment portfolios. The

constituents are weighted by the modified market cap subject to diversification requirements.

3. **FTSE BIVA PRICE RETURN INDEX (FTBIVA INDEX):** The FTSE BIVA Index is designed to represent the behavior of Mexico's stock market. Using the FTSE Global Equity Index Series (TGEIS) as a base, the FTSE BIVA Index uses a higher liquidity threshold to reflect the performance of liquid Mexican companies. The FTSE BIVA Index also includes REITs.
4. **S&P/BMV INMEX INDEX (INMEX):** The S&P/BMV INMEX Index is designed to measure the performance of the 20 largest and most liquid stocks of S&P/BMV IPC. Index constituents are weighted by a modified market cap, subject to diversification requirements.

WORLD INDICES AND LIBOR (CONTROL VARIABLES)

1. **MSCI World Index:** The MSCI World Index is a free-float weighted equity index. It was developed with a base value of 100 as of December 31, 1969. MXWO includes developed world markets and does not include emerging markets. MXWD includes both emerging and developed markets.
2. **MSCI ACWI Index:** The MSCI ACWI Index is a free-float weighted equity index. It was developed with a base value of 100 as of December 31, 1987. MXWD includes both emerging and developed world markets. For developed markets only, please see MXWO.
3. **ICE LIBOR USD 3 Month:** London - Interbank Offered Rate - ICE Benchmark Administration Fixing for US Dollar. The fixing is conducted each day at 11am and released at 11.45am (London time). The rate is an average derived from the quotations provided by the banks determined by the ICE Benchmark Administration.

APPENDIX TABLE. ROBUSTNESS CHECKS OF GARCH(1,1) MODELS

This table shows the results of the GARCH (1,1) models. Due to limited space, we only show the estimated coefficients and T-Stat values for the dependent variables in mean equations. Other results, including the coefficients of variance equations, are available upon request. The GARCH (1,1) model applied in the paper can be expressed as:

$$\text{Mean Equation: } r_t = \mu + \sum_{i=1}^5 \phi_i \times \text{Event}_i + \theta \times (\text{RetMXWO or RetMXWD}) + \delta \times \text{LIBOR3M} + \varepsilon_t, \\ \varepsilon_t / \Phi_{t-1} \sim N(0, h_t),$$

$$\text{Variance Equation: } h_t = \omega + \alpha \times \varepsilon_{t-1}^2 + \beta \times h_{t-1},$$

where $\omega \geq 0$, $\alpha \geq 0$, and $\beta \geq 0$. Here, Φ_{t-1} is the information set of all information through time t-1. ε_{t-1}^2 is the news about volatility from the previous period (ARCH term), and h_{t-1} represents the conditional variance, is the last period forecast variance (GARCH term), and must be non-negative. In addition, we also try GARCH (2,1), GARCH (1,2), and EGARCH (1,1), and the results are similar to those of GARCH (1,1) models.

Panel A	US: SP500		US: DJI		US: DJCOMP		US: NASDAQ		US: RUSL2K						
	Coeff.	T-Stat	Coeff.	T-Stat	Coeff.	T-Stat	Coeff.	T-Stat	Coeff.	T-Stat					
Constant	0.0161	2.3150	**	2.3150	1.7941	**	0.0151	1.5890	0.0274	2.0856	**	0.0042	0.2643		
Event1	0.7989	2.9125	***	2.9125	3.9201	***	0.1239	2.2305	**	0.7432	1.6740	*	2.0119	2.1578	**
Event2	-0.2080	-1.1276		-1.1276	-1.6575	*	-0.3786	-1.9161	*	0.0214	2.0552	**	-0.2271	-0.3612	
Event3	-0.0212	-0.1216		-0.1216	-2.3896	**	-0.3859	-1.7205	*	0.3397	1.7441	*	-0.2400	-0.5670	
Event4	0.0208	0.2218		0.2218	-0.1399		-0.0982	-1.6460	*	0.2162	2.1556	***	0.0114	0.0416	
Event5	0.1524	0.6015		0.6015	2.5937	***	0.2500	3.7001	***	-0.3645	-1.6443		-1.6200	-2.5870	***
RetMXXWO	1.0300	74.7136	***	74.7136	58.7809	***	0.9727	55.3757	***	1.1959	50.8312	***	1.1874	49.1487	***
LIBOR3M	0.0093	0.9314		0.9314	2.2400	**	-0.0030	-0.2368		0.0096	0.5296		-0.0113	-0.5072	

Panel B	Canada: COMPOSITE		Mexico: IPC		Mexico: SUST_IPC		Mexico: FTSE_BIVA		Mexico: INMEX	
	Coef.	T-Stat	Coef.	T-Stat	Coef.	T-Stat	Coef.	T-Stat	Coef.	T-Stat
Constant	-0.0111	-0.2296	0.0140	0.7938	0.0136	0.7667	0.0126	0.7378	0.0127	0.7145
Event1	2.2621	1.8439 *	-4.4168	-7.8299 ***	-0.0964	-2.1989 **	-0.2316	-2.4167 **	-0.2379	-2.4849 **
Event2	2.0179	1.0538	1.6175	1.9326 *	1.4863	1.9396 *	1.6985	1.0788	1.7155	1.7269 *
Event3	-0.2023	-1.2898	0.1419	2.3505 **	0.1478	1.7484 *	0.1899	2.4919 **	0.2130	2.5273 **
Event4	-0.6534	-4.8026 ***	-0.1321	-0.4535	-0.1572	-0.5218	-0.1808	-0.6302	-0.0705	-0.2204
Event5	-0.1391	-1.6471 *	0.5606	1.8939 **	0.4983	1.7275 *	0.5950	2.9892 ***	0.6157	1.8293 *
RetMXWD [#]	0.4721	7.1607 ***	0.6992	28.0635 ***	0.7167	26.6296 ***	0.6793	28.7398 ***	0.7402	28.2173 ***
LIBOR3M	-0.0494	-0.6338	-0.0577	-2.4463 **	-0.0593	-2.5038 **	-0.0599	-2.6627 ***	-0.0608	-2.6034 ***

Notes: # For Canada and Mexico stock markets, we use MXWO and MXWD, respectively. *, **, and *** denote that the coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.