

ANALYSIS

The Anatomy of a NAFTA Deal

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Introduction

Renegotiations of the North American Free Trade Agreement are in full swing. Though the talks have hit a stumbling block, a new agreement between the U.S. and fellow NAFTA partners Mexico and Canada with only small changes is likely. Dissolving the pact would result in significant near-term economic costs and risk diminishing North America's long-term economic growth prospects. This paper assesses the economic impact of a new NAFTA and the potential economic fallout if the negotiations and NAFTA fail.

The Anatomy of a NAFTA Deal

JESSE ROGERS, BRENDAN LACERDA AND MARK ZANDI

Renegotiations of the North American Free Trade Agreement are in full swing. Though the talks have hit a stumbling block, a new agreement between the U.S. and fellow NAFTA partners Mexico and Canada with only small changes is likely. Dissolving the pact would result in significant near-term economic costs and risk diminishing North America's long-term economic growth prospects. This paper assesses the economic impact of a new NAFTA and the potential economic fallout if the negotiations and NAFTA fail.

Since NAFTA came into effect in January 1994, trade among the U.S., Mexico and Canada has more than tripled, transforming the region into the world's second-largest trade bloc, with the value of goods and services exchanged annually surpassed only by the European Union. In the quarter century since the signing of NAFTA, tariffs for most goods and services have been scaled back or eliminated, fostering the integration of goods, commodity and financial markets across North America.

The initial years of the agreement were dominated by trade in final goods, but the advent of cross-border supply chains has enabled manufacturers to source parts from NAFTA countries at various stages of the production process, leveraging efficiencies and lowering costs. As a result, regional

trade in autos, electronics and farm commodities has outpaced total output growth in these same industries, giving rise to a manufacturing and agricultural powerhouse spanning the North American continent. Business cycles in the three countries were little correlated in the years before NAFTA, but rising trade flows and increased supply-chain linkages have brought their economies into sync (see Chart 1). Buoyed by low costs and proximity to major markets in South America, Europe and Asia, NAFTA countries have increased exports to the rest of the world as well.

Growth in cross-border investment has further tethered the three economies. Mexico has long been the primary destination of foreign direct investment within the region, with its automotive, electronics and retail sectors capturing the lion's share of funds from U.S. and Canadian businesses. However, large Mexican firms have begun to push north. In the last decade, Mexico's "Multilatinas"—large conglomerates specializing in agriculture, food manufacturing,

building materials and telecommunications—have established a growing presence in the U.S. and Canada, with Mexico's Grupo Bimbo emerging as a key player in the U.S. packaged foods and baked goods sector.

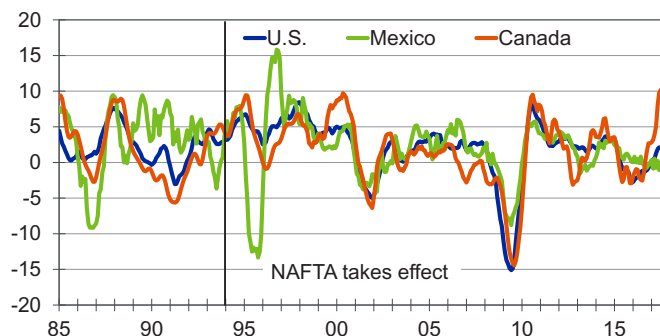
Against the yardsticks of trade and investment, NAFTA's economic benefits are manifold. However, the pact's effect on jobs, incomes, and overall economic growth is harder to measure, in large part because the implementation of NAFTA has coincided with the broader global push to lower tariffs and break down barriers to financial flows. Still, most economic studies find that NAFTA has had a small but positive effect on aggregate incomes and net job creation.¹ And while difficult to chalk up to NAFTA alone, the decades since the pact's signing have witnessed a broad decline in goods prices, which has played an important role in elevating incomes (see Chart 2).

Despite NAFTA's achievements, the agreement has drawn criticism in the U.S. and Canada for its alleged role in the decline of manufacturing jobs. NAFTA critics point to the large trade deficit as testament to the slide in factory jobs since the pact's signing (see Chart 3). However, the balance of trade

¹ See Gary Clyde Hufbauer, Cathleen Cimino, and Tyler Moran, "NAFTA at 20: Misleading Charges and Positive Achievements," Peterson Institute for International Economics Research Paper PB14-13, May 2014; and Lorenzo Caliendo and Fernando Parro, "Estimates of the Trade and Welfare Effects of NAFTA," National Bureau of Economic Research Working Paper No. 18508.

Chart 1: NAFTA Nations Move in Lockstep

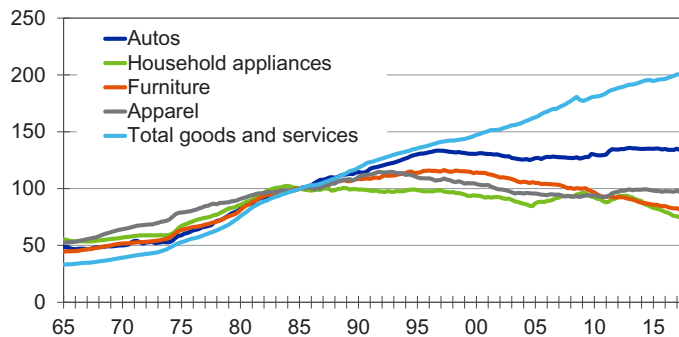
Industrial production, % change yr ago, 3-mo MA



Sources: BEA, INEGI, Statistics Canada, OCED, Moody's Analytics

Chart 2: Consumers Reap Lower Prices

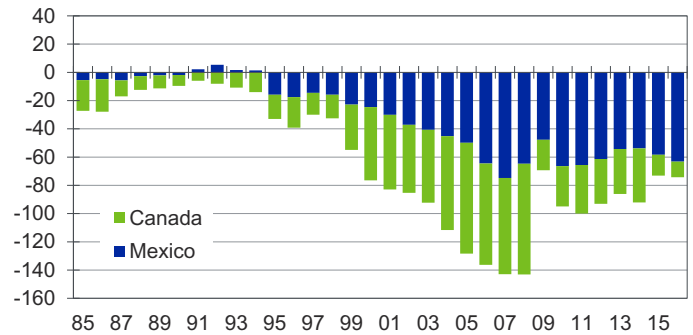
PCE deflator, 1985Q1=100



Sources: BEA, Moody's Analytics

Chart 3: U.S. NAFTA Deficit Stabilizes

U.S. goods trade balance, \$ bil, with...



Sources: Census Bureau, Moody's Analytics

is at best an incomplete measure of gains and losses, since it does not capture welfare gains from firm specialization. And while Mexico has certainly benefited from its comparative advantage as a source of low-cost labor, Mexican manufacturing employment has increased only marginally in the past two decades. Rather, increased automation in all three countries has limited the need for labor, driving down manufacturing employment in the U.S. and Canada and resulting in meager gains in Mexican factory employment.

Indeed, although U.S. manufacturing employment is a third below its pre-NAFTA peak, U.S. factory output has increased by more than half since 1994. A similar relationship holds for factory output and employment in Canada. And while the U.S. continues to run sizable trade deficits with Mexico and Canada in goods, the growing U.S. trade surplus in services has helped narrow the overall trade gap. Trade in services—a broad category of economic activity that includes intellectual property, financial intermediation and information technology, among others—has risen rapidly over the past decade and has improved the overall trade balance with both Mexico and Canada. After factoring in services, the U.S. trade gap with Mexico narrows considerably, while the balance of trade with Canada in both goods and services has entered in the black.

Despite improvement in the overall U.S. trade balance with both Mexico and Canada, the Trump administration has moved forward with its pledge to renegotiate NAFTA, vowing to shrink trade deficits and to strike

a better deal for U.S. workers. Since the first round of negotiations kicked off in August, the delegations have logged tangible progress on digital trade, telecommunications, and incentives for small businesses.

However, talks have grown more contentious following U.S. demands for greater domestic content in the auto industry. Autos and parts are the largest component of the U.S. goods deficit with Mexico and make up a sizable share of the goods deficit with Canada. The U.S. proposal for increased national and regional content, aimed largely at reducing the deficit, has stirred firm pushback from Mexico and Canada, which consider a further tightening of content rules to impose undue costs on their domestic auto industries.

Moody's Analytics believes that this gap can be bridged by a more modest tightening of NAFTA's regional content rules that creates room for all sides to increase exports. While there are other flash points—most notably U.S. opposition to NAFTA's dispute settlement mechanism and the U.S. delegation's insistence on a five-year expiration clause—Moody's Analytics feels that an agreement on autos will open the door to a broader deal.

To assess the potential upside from a new NAFTA as well as the potential fallout from a NAFTA breakup, the Moody's Analytics U.S., Canada and Mexico models, as well as their respective subnational counterparts, are used to evaluate three possible outcomes of the current negotiations.

In the first scenario, it is assumed the three sides reach a successful deal on a

new NAFTA. Moody's Analytics considers this to be the most likely outcome of the negotiations. In the second scenario, the U.S. withdraws from NAFTA, while Canada and Mexico remain in the deal. Trade between the U.S. and Mexico reverts to most favored nation status, while trade relations between the U.S. and Canada reset to the prior Canada-U.S. Free Trade Agreement, or CUSFTA.

A third scenario is also considered, in which a NAFTA breakup is followed by a series of escalating tariffs that culminates in a regional trade war. This scenario is based on threats by President Trump to withdraw from current free trade agreements and impose punitive tariffs on Mexico and major U.S. trade partners.

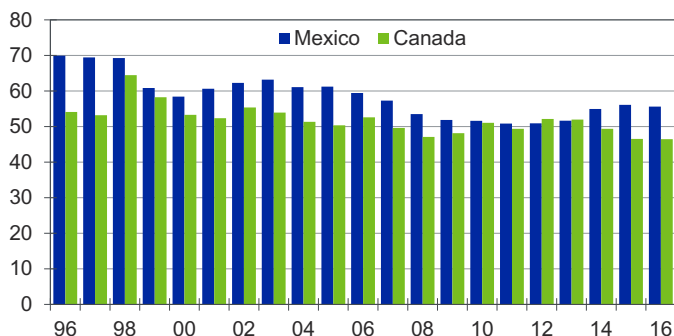
The models are simulated over a 10-year horizon beginning in 2018. The country models and their subnational counterparts have been used to evaluate a plethora of fiscal and monetary policies implemented during the financial crisis as well as various trade and immigration policies.

Scenario 1: NAFTA 2.0

In the first scenario, Moody's Analytics assumes that Mexico and Canada agree to a modest increase in U.S. and regional content in the automotive industry, paving the way to a final deal. Outside of more stringent content rules in the automotive industry, the deal incorporates only modest modifications to the existing agreement. This assumption is consistent with the stated objectives of the three negotiating teams.

Chart 4: Fewer Exporters Use NAFTA...

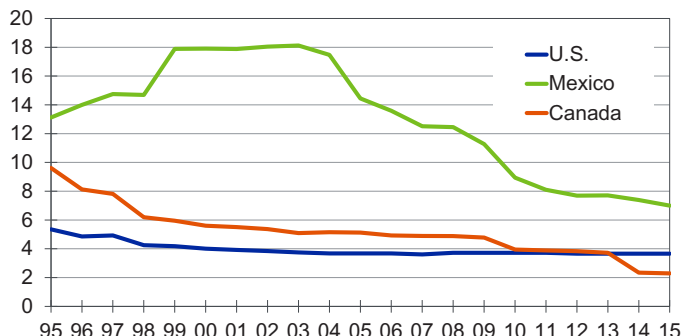
U.S. imports by country, % that qualify for NAFTA preferences



Sources: Census Bureau, Moody's Analytics

Chart 5: ...As External Tariffs Fall

Tariff rate, most favored nation, simple mean, all products, %



Sources: World Bank, Moody's Analytics

Assumptions

Moody's Analytics assumes that a new NAFTA requires that at least 35% of the value of autos built in Mexico or Canada for export to the U.S. originate in American-made parts or raw materials. Additionally, it is assumed that 70% of a vehicle's total value must originate in at least one of the three NAFTA member countries.

While this content rule is less strict than the recent U.S. proposal, which calls for a minimum of 50% U.S. content and no less than 85% total regional content, the rule proposed here raises the odds of compliance. More often than not, when regional content rules are high and external tariffs low, participants in regional trade agreements opt to pay the tariff rather than overhaul existing supply chains.

Indeed, the share of U.S. imports from Canada and Mexico that enter the U.S. with NAFTA trade preferences has fallen significantly in the past two decades (see Charts

4 and 5). The decline has been concentrated in the electronics and household appliance industries, which derive their comparative advantage from low-cost labor and import a high share of components from Asia. By contrast, most autos imported into the U.S. receive NAFTA preferences.

The high share of auto trade conducted under the framework of NAFTA is confirmed by data on model and make compiled by the National Highway Traffic Safety Administration, which breaks out value shares by country of origin for all cars sold in the U.S. According to the NHTSA, not only do most autos imported from Canada and Mexico comply with NAFTA's current content rule, which requires that at least 62.5% of the value of a new vehicle originate in at least one of the three member countries, but the U.S. content of cars built in Canada or Mexico is relatively high. For most automakers, the average U.S. content of cars built in Canada or

nadian exports to the U.S. While Mexico- or Canada-based automakers may choose to incorporate more U.S.-made parts, this does not necessarily entail a fall in auto exports. Rather, to meet U.S. and regional content rules, automakers such as Volkswagen and Nissan that currently opt to produce engines and transmissions outside of North America could shift production to any of the three NAFTA countries, enabling Canada and Mexico to benefit from the new agreement.

Increased regional integration—in particular in energy and telecommunications—would likely bring larger gains to the three countries. However, important developments such as the U.S. shale revolution and Mexico's landmark energy reform have largely transpired outside of the framework of NAFTA and current talks do not seek major changes in these industries. Therefore, the new content rule for autos is the sole assumption in this scenario.

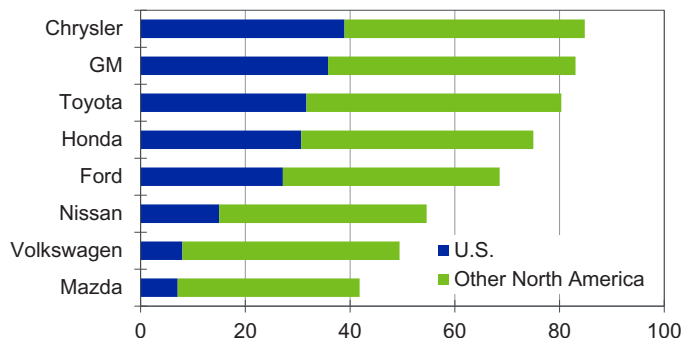
Economic impact

The adoption of a stricter content rule in autos would not meaningfully change the macroeconomic outlook for the three NAFTA countries, because the U.S. content of North American vehicles is already high, and because the marginal increase in content would barely shift the needle on U.S. factory production and employment.

On a static basis, the implementation of a 35% content rule would raise total U.S. exports to Mexico by \$2.8 billion, or just 1.2%, while lowering the overall trade gap by only 4%. The implementation of a 50% content rule is more difficult to assess, as it would

Chart 6: U.S. Content Already High

Content origin, auto imports from Canada and Mexico, %



Sources: Automakers, NHTSA, Mexican Auto Industry Assn., Moody's Analytics

Table 1: NAFTA 2.0

	2017	2018	2019	2020	2021	2022	Avg annual growth, % 2017-2022
Real GDP							
U.S. (2009\$ bil)	17,076.8	17,578.7	17,986.6	18,175.4	18,627.3	19,082.1	2.2
% change	2.2	2.9	2.3	1.1	2.5	2.4	
Canada (2009C\$ bil)	1,852.9	1,900.0	1,933.0	1,966.8	2,008.8	2,051.7	2.1
% change	3.2	2.5	1.7	1.8	2.1	2.1	
Mexico (2008 MXN bil)	14,742.0	15,106.6	15,437.7	15,863.4	16,339.6	16,861.9	2.7
% change	2.1	2.5	2.2	2.8	3.0	3.2	
Employment (mil)							
U.S.	146.4	148.7	150.2	150.2	151.2	152.8	0.9
% change	1.5	1.6	1.0	0.0	0.6	1.1	
Canada	16.2	16.4	16.4	16.5	16.6	16.7	0.6
% change	1.7	0.8	0.5	0.7	0.6	0.6	
Mexico	52.3	52.5	52.7	53.1	53.6	54.1	0.7
% change	1.2	0.4	0.6	0.7	0.9	1.0	
Unemployment rate (%)							
U.S.	4.4	3.9	3.9	4.7	4.9	4.9	
Canada	6.4	6.5	6.6	6.6	6.6	6.7	
Mexico	3.5	3.6	3.8	4.0	4.0	4.0	
Consumer price index							
U.S. (1980-1982=100)	244.9	250	256.9	264	270.4	276.5	2.5
% change	2.0	2.1	2.8	2.7	2.4	2.3	
Canada (2002=100)	130.2	132.1	134.6	137.3	140.2	143.1	1.9
% change	1.4	1.4	1.9	2.0	2.1	2.0	
Mexico (H2 Dec 2010=100)	127.1	133.7	139.5	145.1	151.2	157.2	4.3
% change	6.0	5.2	4.3	4.0	4.2	4.0	
Real incomes							
U.S. (median household, 2009\$)	52,445.6	52,833.9	53,143.2	53,268.9	53,542.0	53,997.0	0.6
% change	1.3	0.7	0.6	0.2	0.5	0.9	
Canada (median family, 2013C\$)	63,403.7	63,501.1	63,561.4	63,579.8	63,635.7	63,780.1	0.1
% change	0.4	0.2	0.1	0.0	0.1	0.2	
Mexico (per capita disposable, 2008 MXN)	80,022.1	83,804.4	85,443.8	86,168.0	87,265.4	88,745.9	2.1
% change	0.4	4.7	2.0	0.9	1.3	1.7	
Stock prices							
U.S. (S&P 500)	2,417.9	2,498.4	2,322.1	2,416.1	2,698.5	2,933.1	3.9
% change	15.6	3.3	-7.1	4.0	11.7	8.7	
Canada (S&P/TSX Composite Index)	15,387.1	15,537.4	14,804.5	15,720.4	17,470.7	18,925.8	4.2
% change	9.6	1.0	-4.7	6.2	11.1	8.3	
Mexico (IPC Stock Index)	49,177.7	52,183.4	53,038.7	56,838.5	61,923.4	65,779.5	6.0
% change	7.9	6.1	1.6	7.1	9.0	6.2	
Monetary policy rate							
U.S. (federal funds rate, %)	1.0	1.9	3.4	3.7	3.4	2.8	
Canada (Bank of Canada overnight target rate, %)	0.7	1.7	3.2	3.5	3.3	3.1	
Mexico (Banxico bank funding target rate, %)	6.7	5.4	4.6	4.4	4.3	4.3	

Source: Moody's Analytics

likely require significant changes to existing supply chains that would test the expansion capacity of U.S. factories. However, assuming that the additional production could be accommodated, pushing U.S. content to 50% would raise U.S. exports to Mexico by just \$5.8 billion, or about 3%, while lowering the

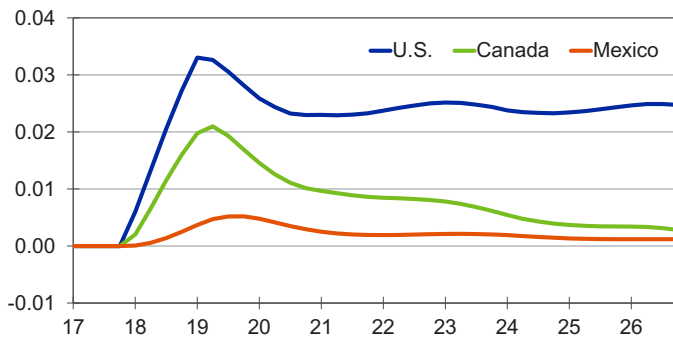
overall goods deficit by less than 10%. The implementation of a 35% and 50% content rule for Canadian auto imports yields similar results on a static basis.

However, to fully assess the impact of the content rule, the Moody's Analytics U.S., Canada and Mexico models are simulated

over the entire 10-year period, allowing imports to respond endogenously to the change in U.S. exports. As might be expected, the forecast for output, job and income growth in the three countries is nearly unchanged from the existing baseline (see Chart 7 and Table 1). This result stems from the fact that

Chart 7: New NAFTA Not a Big Change

Real GDP, deviation from baseline, %



Sources: BEA, Statistics Canada, INEGI, Moody's Analytics

the increased content amounts to less than a tenth of a percent of total U.S. goods exports and a similarly small share of Mexican and Canadian imports. The three countries' trade balances are little changed as well, because of the relatively small shift in trilateral trade and because of positive import elasticities for the three countries, which, all else equal, bring about a rise in imports when exports rise.

Assessments of regional content based on the Organisation for Economic Co-operation and Development's Trade in Value Added database suggest that the payoff from a stricter content rule would be greater for U.S. auto producers and parts makers. According to OECD figures, the U.S. content share in autos is well below that reported by NHTSA, which means that Mexican and Canadian purchases of U.S. parts would need to rise more to satisfy the 35% content rule. However, the additional increase in exports based on trade in value-added statistics would still be small relative to the total value of U.S. goods exports. Therefore, the OECD's content estimates would not meaningfully change the results.

Scenario 2: NAFTA breakup

In the second scenario, Moody's Analytics assumes that talks between the three countries reach a breaking point, prompting the U.S. to withdraw from NAFTA.

Assumptions

This scenario assumes that trade between the U.S. and Mexico reverts to World

Trade Organization rules. Under the WTO, tariffs are based on the most favored nation principle, which requires countries to offer the same tariff preferences to all trade partners outside of bilateral or multilateral agreements. Trade relations between

the U.S. and Canada revert to the U.S.-Canada Free Trade Agreement, which took effect in 1988 and phased out most tariffs for manufactured goods. Despite the U.S. exit from NAFTA, consumer prices do not meaningfully rise, both because U.S. tariffs for autos and electronics—the two largest categories of Mexican imports—are already low, and because U.S. wholesalers could source agricultural goods from other countries with which the U.S. holds free trade agreements, such as Chile and Peru. Prices for agricultural commodities produced largely in Mexico, such as avocados, could rise by as much as 10%, but it is assumed that consumers as a whole react by substituting to lower-cost fruits and vegetables.

Likewise, Moody's Analytics assumes that U.S. grain, meat and produce exporters are able to find other export markets. This assumption may be overly optimistic with respect to U.S. corn, soybean, and pork producers, which count Mexico as a major market.

NAFTA's importance as an institutional framework for cross-border trade and investment would mean that any U.S. exit would send tremors through financial markets as firms and financial market participants anticipate increased costs and the potential loss of export markets.

Although NAFTA rules require six months' notice for a party to withdraw from the agreement, the assumption is that financial market participants react immediately to the pact's collapse. News of the U.S. withdrawal sends U.S., Mexican and Canadian stock

prices lower, while financial market volatility and bond yields spike. The plunge in Mexican stock prices pushes the Mexican peso lower, and the currency depreciates by nearly 10% versus the dollar. The Canadian dollar is little changed.

As trade flows resume under the aegis of the WTO and the expected shock to supply chains and consumer prices fails to materialize, equity and other asset prices begin to recover and are close to the baseline by the second quarter of 2019. The peso gradually appreciates and recovers most of its pre-breakup value.

Economic impact

Job, income and output growth slows substantially in the aftermath of a NAFTA breakup (see Charts 8 and 9 and Table 2). Heightened uncertainty and the increase in financial market volatility hurt businesses' ability to plan for the future, and the three economies slow as businesses postpone equipment upgrades and plans for expansion. Despite the U.S. imposition of tariffs on a range of Mexican goods, the depreciation of the peso offsets the increase in U.S. import prices. On whole, consumer prices rise less quickly than the current baseline for the three countries as the economies grow at rates below their potential. However, recession is averted, and the three economies recover rapidly in the latter half of 2018 as the financial market shock dissipates. By the end of the year, job, income and output growth in the three countries resumes its prior course.

While all three economies slow in the first few quarters of the breakup, Mexico's economy is relatively worse off, given doubts raised over the viability of its export-oriented growth model, which is heavily reliant on trade with the U.S. As a relatively closed economy, the U.S. economy experiences less of a slowdown. Canada's economy is more exposed to global trade, but its economy slows least, given that it retains comparable market access to the U.S. and trades little with Mexico.

Despite financial market jitters, there is no enduring blow to regional trade or

Table 2: NAFTA Breakup

	2017	2018	2019	2020	2021	2022	Avg annual growth, % 2017-2022
Real GDP							
U.S. (2009\$ bil)	17,076.8	17,474.0	17,932.9	18,179.7	18,624.3	19,064.4	2.2
% change	2.2	2.3	2.6	1.4	2.5	2.4	
Canada (2009C\$ bil)	1,852.9	1,890.6	1,928.7	1,966.9	2,007.8	2,049.0	2.0
% change	3.2	2.0	2.0	2.0	2.1	2.1	
Mexico (2008 MXN bil)	14,742.0	15,034.6	15,246.2	15,750.4	16,272.8	16,818.9	2.7
% change	2.1	2.0	1.4	3.3	3.3	3.4	
Employment (mil)							
U.S.	146.4	148	149.6	150.2	151.2	152.7	0.8
% change	1.5	1.1	1.1	0.4	0.6	1.0	
Canada	16.2	16.3	16.4	16.6	16.6	16.7	0.6
% change	1.7	0.7	0.6	0.8	0.6	0.5	
Mexico	52.3	52.4	52.6	53	53.5	54.1	0.7
% change	1.2	0.3	0.4	0.8	1.0	1.0	
Unemployment rate (%)							
U.S.	4.4	4.4	4.2	4.7	4.9	4.9	
Canada	6.4	6.6	6.7	6.6	6.6	6.7	
Mexico	3.5	3.7	4.1	4.1	4.1	4.1	
Consumer price index							
U.S. (1980-1982=100)	244.9	250.1	257.1	264.1	270.6	276.6	2.5
% change	2.0	2.1	2.8	2.7	2.4	2.3	
Canada (2002=100)	130.2	132.2	134.6	137.2	140.1	143.0	1.9
% change	1.4	1.6	1.8	1.9	2.2	2.0	
Mexico (H2 Dec 2010=100)	127.1	134	139.4	144.5	150.5	156.5	4.2
% change	6.0	5.4	4.0	3.7	4.2	4.0	
Real incomes							
U.S. (median household, 2009\$)	52,445.6	52,704.1	53,042.2	53,220.4	53,495.7	53,947.6	0.6
% change	1.3	0.5	0.6	0.3	0.5	0.8	
Canada (median family, 2013C\$)	63,403.7	63,432.6	63,505.1	63,564.3	63,621.9	63,755.3	0.1
% change	0.4	0.1	0.1	0.1	0.1	0.2	
Mexico (per capita disposable, 2008 MXN)	80,022.1	83,112.7	84,694.9	85,786.0	86,999.9	88,532.1	2.0
% change	0.4	3.9	1.9	1.3	1.4	1.8	
Stock prices							
U.S. (S&P 500)	2417.9	2423	2348.2	2449.4	2723.1	2948.2	4.0
% change	15.6	0.2	-3.1	4.3	11.2	8.3	
Canada (S&P/TSX Composite Index)	15,387.1	15,147.6	14,977.0	15,884.5	17,557.1	18,941.1	4.2
% change	9.6	-1.6	-1.1	6.1	10.5	7.9	
Mexico (IPC Stock Index)	49,177.7	42,558.3	49,958.3	54,926.8	60,096.2	64,277.8	5.5
% change	7.9	-13.5	17.4	9.9	9.4	7.0	
Monetary policy rate							
U.S. (federal funds rate, %)	1.0	1.6	3.1	3.5	3.3	2.7	
Canada (Bank of Canada overnight target rate, %)	0.7	1.5	2.9	3.4	3.3	3.1	
Mexico (Banxico bank funding target rate, %)	6.7	5.3	3.8	4.1	4.5	4.4	

Source: Moody's Analytics

overall economic growth, since external tariffs for manufactured goods are low and because consumers are able to substitute away from more expensive food products. Although Mexican manufacturers face new tariffs for goods exported to the U.S., the country retains its advantage as a source of

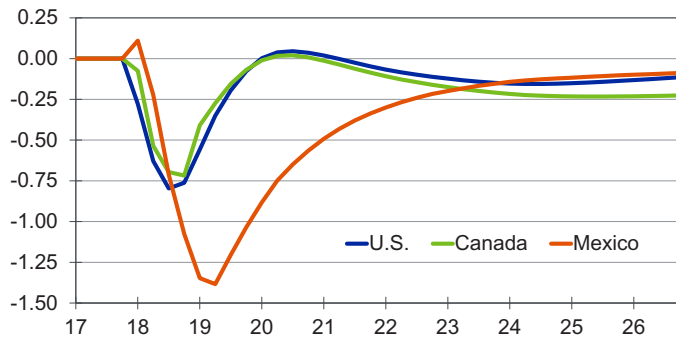
low-cost labor. The combination of stagnant Mexican wages and peso depreciation offsets any increase in the cost of Mexican-made vehicles and electronics from the imposition of U.S. tariffs. The three countries find other trade partners for agricultural commodities, but Mexico remains a net importer

of U.S. natural gas and refined products, boosting U.S. energy exports. The integration of U.S. and Canadian energy markets continues unabated.

The three economies' rebound in the latter half of 2018 is conditioned on an orderly transition to trade under WTO and CUSFTA

Chart 8: Growth Weakens in Breakup...

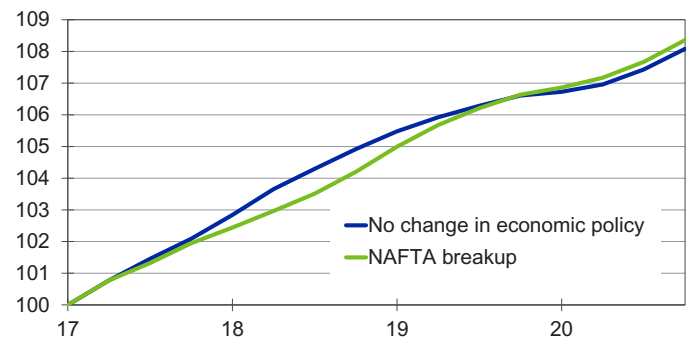
Real GDP, deviation from baseline, %



Sources: BEA, Statistics Canada, INEGI, Moody's Analytics

Chart 9: ...But the Three Economies Adapt

North America combined real GDP, 2017Q4=100



Sources: BEA, Statistics Canada, INEGI, Moody's Analytics

rules and assumes no retaliatory or punitive measures are taken following the breakup. Should the dissolution of NAFTA stir acrimony and trade-based retaliation, economic conditions could rapidly deteriorate and put North America's long-run economic growth prospects in peril.

Scenario 3: NAFTA trade war

In the third scenario, the U.S. withdrawal from NAFTA is followed by a series of escalating tariffs. The Trump administration judges that the reversion to WTO rules in regards to Mexico and the reimplementation of CUSFTA in regards to Canada are insufficient to satisfy its campaign pledges to reduce the trade deficit and bring manufacturing jobs back to the U.S.

The failure of multiple, unrelated legislative efforts and sliding poll numbers convince President Trump that he needs to take executive action to meet his stated goals and shore up the support of his political base.

Assumptions

In the third scenario, Moody's Analytics assumes that a NAFTA breakup is followed by retaliatory measures, culminating in U.S. tariffs of 25% on Mexican and Canadian imports. Mexico and Canada retaliate in kind against the U.S. but do not retaliate against each other.

The assumption of a 25% tariff is consistent with threats President Trump has made in the past. The president has threatened a 20% tariff against all Mexican goods to fund his proposed border wall. He has

warned of a 35% tariff against the products of companies that outsource jobs to Mexico.² Tangentially, he has threatened a 45% tariff against China.³

A 25% tariff represents a reasonable estimate given these prior statements. Legally speaking, the International Emergency Economic Powers Act of 1977 grants the president the power to use tariffs during a national emergency. The definition of emergency is sufficiently vague to allow a multitude of circumstances to qualify.

Mexican leaders recoil against the new tariff and, faced with domestic political pressures ahead of the 2018 general elections, retaliate in kind with a 25% tariff on U.S. imports. The retaliation is consistent with statements by Mexican Secretary of Economy Ildefonso Villarreal, who has stated that his country will take fiscal measures to neutralize such actions.⁴

The aggressive U.S. tariff draws Canada and Mexico into a closer alliance. In solidarity with Mexico and in an attempt to encourage Trump to rescind the tariff, Canada implements its own 25% tariff on Ameri-

can goods and services. Canada's actions have the opposite effect, further provoking the U.S., which in turn levels a 25% tariff against Canada.

The increasingly antagonistic actions send shivers through financial markets. Participants panic as fears of further escalation of the trade war spread. The S&P 500 index falls 20% by the end of 2018. Stock market volatility soars, surpassing levels from the 2001 dot-com crash, but stays below its 2008 peak. Corporate bond yields spike as perceptions of risk escalate and investors flock to safer assets.

The tariffs bleed into prices for consumer goods and services, pushing U.S. CPI growth to 3.5% in 2018, compared with 2.1% in the first scenario. Exports and imports for the U.S., Canada and Mexico are adjusted based on the volume of trade between the nations, size of the tariffs, and price elasticities of traded goods. Expectations for Mexican growth are also lowered to reflect the ensuing decline in business and consumer confidence.

Economic impact

The heavy-handed U.S. tariff and ensuing retaliations drag all three countries into recession, with GDP declining for four consecutive quarters in each country (see Charts 10 and 11 and Table 3). The U.S. experiences a peak-to-trough GDP decline of 0.6%. Consumption sags as the acceleration in inflation erodes real incomes. The spike in financial market volatility and borrowing rates, combined with heightened uncertainty over the

2 Justin Sink and Nacha Cattan. "Trump Floats 20 Percent Border Tax as Mexico Feud Deepens," Bloomberg News, January 26, 2017. <https://www.bloomberg.com/news/articles/2017-01-26/trump-may-fund-border-wall-with-20-percent-tax-on-mexico-imports>

3 Maggie Haberman. "Donald Trump Says He Favors Big Tariffs on Chinese Exports," The New York Times, January 7, 2016. <https://www.nytimes.com/politics/first-draft/2016/01/07/donald-trump-says-he-favors-big-tariffs-on-chinese-exports/>

4 Patrick Gillespie, "Mexico warns Trump on tariffs: We'll respond 'immediately'," CNN Money, January 14, 2017. <http://money.cnn.com/2017/01/14/news/economy/donald-trump-mexico-tariffs-response/index.html>

Table 3: NAFTA Trade War

	2017	2018	2019	2020	2021	2022	Avg annual growth, % 2017-2022
Real GDP							
U.S. (2009\$ bil)	17,076.8	17,214.1	17,233.7	17,576.4	18,130.0	18,658.0	1.8
% change	2.2	0.8	0.1	2.0	3.2	2.9	
Canada (2009C\$ bil)	1,852.9	1,873.1	1,877.4	1,927.5	1,979.8	2,029.8	1.8
% change	3.2	1.1	0.2	2.7	2.7	2.5	
Mexico (2008 MXN bil)	14,742.0	14,811.4	14,639.5	15,164.1	15,815.8	16,476.8	2.2
% change	2.1	0.5	-1.2	3.6	4.3	4.2	
Employment (mil)							
U.S.	146.4	146.2	144.1	145.1	147	149.3	0.4
% change	1.5	-0.2	-1.4	0.7	1.3	1.6	
Canada	16.2	16.3	16.3	16.5	16.6	16.7	0.6
% change	1.7	0.6	0.0	0.9	0.8	0.7	
Mexico	52.3	52.3	52.1	52.5	53.2	53.8	0.6
% change	1.2	0.1	-0.3	0.8	1.2	1.2	
Unemployment rate (%)							
U.S.	4.4	5.3	7.3	7.5	7.1	6.6	
Canada	6.4	6.8	7.3	7.0	6.8	6.7	
Mexico	3.5	3.9	4.8	4.9	4.7	4.6	
Consumer price index							
U.S. (1980-1982=100)	244.9	253.4	261.6	268.5	274.5	280.2	2.7
% change	2.0	3.5	3.2	2.6	2.3	2.1	
Canada (2002=100)	130.2	135.3	140.1	143.0	146.1	149.0	2.7
% change	1.4	3.9	3.5	2.1	2.1	2.0	
Mexico (H2 Dec 2010=100)	127.1	138.8	147.2	153.3	159.7	166	5.5
% change	6.0	9.2	6.1	4.1	4.2	4.0	
Real incomes							
U.S. (median household, 2009\$)	52,445.6	51,913.4	51,674.1	51,967.2	52,364.6	52,962.5	0.2
% change	1.3	-1.0	-0.5	0.6	0.8	1.1	
Canada (median family, 2013C\$)	63,403.7	63,138.0	62,938.9	63,020.1	63,172.3	63,404.1	0.0
% change	0.4	-0.4	-0.3	0.1	0.2	0.4	
Mexico (per capita disposable, 2008 MXN)	80,022.1	80,773.7	80,234.8	81,726.1	84,085.5	86,439.7	1.6
% change	0.4	0.9	-0.7	1.9	2.9	2.8	
Stock prices							
U.S. (S&P 500)	2417.9	2032.6	1971	2089.1	2376.8	2619.6	1.6
% change	15.6	-15.9	-3.0	6.0	13.8	10.2	
Canada (S&P/TSX Composite Index)	15,387.1	13,169.3	13,359.2	14,517.6	16,503.0	18,223.2	3.4
% change	9.6	-14.4	1.4	8.7	13.7	10.4	
Mexico (IPC Stock Index)	49,177.7	37,499.9	37,679.3	47,316.9	54,160.3	59,050.0	3.7
% change	7.9	-23.7	0.5	25.6	14.5	9.0	
Monetary policy rate							
U.S. (federal funds rate, %)	1.0	1.6	3.5	2.6	1.7	1.1	
Canada (Bank of Canada overnight target rate, %)	0.7	1.5	3.1	2.8	2.3	2.1	
Mexico (Banxico bank funding target rate, %)	6.7	5.4	2.2	2.4	4.0	4.9	

Source: Moody's Analytics

future of government policy, diminishes private investment. Comparably sized percentage declines in U.S. exports and imports result in a slight improvement in the trade balance, but this phenomenon is a function of the large preexisting deficit and not a result of meaningful economic improvement.

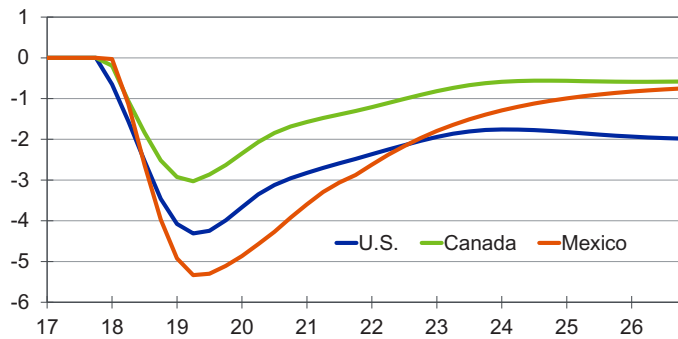
In contrast to the Trump administration's stated policy goal, the recession results in a peak-to-trough payroll employment decline of about 3.3 million. By the time that the job losses cease in the latter half of 2019, unemployment peaks at around 7.5%. The deterioration of the labor market, in addition

to inflation, contributes to the decline in incomes that depresses consumption.

The acceleration in inflation combined with the rise in joblessness puts the Fed in a bind: Hike rates to cool the swell in prices or cut rates to abate the rise in unemployment? Policymakers choose the former option first.

Chart 10: Everyone Hurts in a Trade War

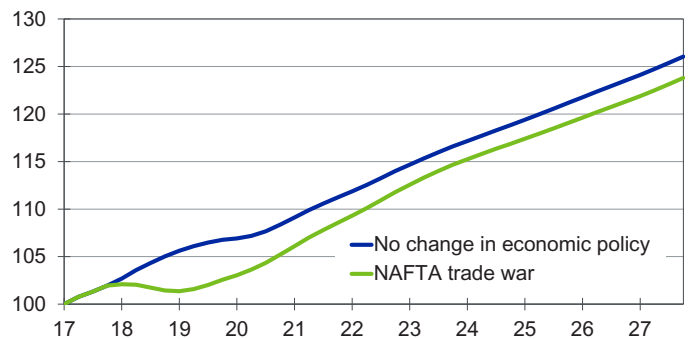
Real GDP, deviation from baseline, %



Sources: BEA, Statistics Canada, INEGI, Moody's Analytics

Chart 11: Trade War Damage Persists

North America combined real GDP, 2017Q4=100



Sources: BEA, Statistics Canada, INEGI, Moody's Analytics

The fed funds rate rises more quickly than in the other scenarios to combat the rise in inflation and peaks in mid-2019. With inflation brought under control, policymakers quickly pivot and slash rates over the ensuing two years in an effort to restore growth.

Canada fares slightly worse than the U.S., suffering a peak-to-trough GDP decline of more than 0.7%. The nation's reliance on trade with the U.S., the destination for 75% of its exports, creates significant exposure to such a trade shock. Compared with the baseline forecast, Canada's trade balance declines by C\$27 billion at an annual rate at its utmost extent in mid-2019. A brief, 10% devaluation of the Canadian dollar helps cushion the blow from the tariff. Furthermore, firms cannot easily untangle their complex cross-border supply chains, restricting their ability to adjust to the tariffs. The 25% tariff, in conjunction with a devalued currency, pushes the consumer price index to a 5.7%

year-over-year increase in the final months of 2018.

Nevertheless, Canada's trade-dependent economy sees unemployment peak at 7.4% in 2019. The lost export and labor income drags on consumption. Similar to the U.S., investment falters as uncertainty and interest rates rise and growth expectations diminish. Faced with the same inflation versus unemployment dilemma, the Bank of Canada is forced to follow a similar course to the Fed, first hiking rates and then pulling them back down.

Mexico suffers the worst blow of the three nations. GDP undergoes a 2.4% peak-to-trough decline. The country's trade balance adheres closely to the baseline forecast as the pronounced declines in exports and imports virtually offset. Also helping to thwart a deterioration in net exports, the Mexican peso depreciates sharply against the U.S. dollar, briefly losing 14% of its value

relative to the baseline. The higher tariff, combined with a weaker currency, pushes the consumer price index to a nearly 11% year-over-year increase in the final quarter of 2018. Private investment in Mexico takes the hardest hit of any GDP component. Foreign investors pull back as trade relations between Mexico and its largest customer deteriorate. The cumulative decline in private fixed investment from the start of 2018 to mid-2019 reaches more than 18%. The drop is not solely the product of foreign retrenchment, but also a weakening in domestic demand. Wage and salary income retreats, eroding private consumption. Unlike the U.S. and Canada, concerns about declining GDP outweigh the unease caused by the burst in inflation and the Bank of Mexico immediately starts slashing rates.

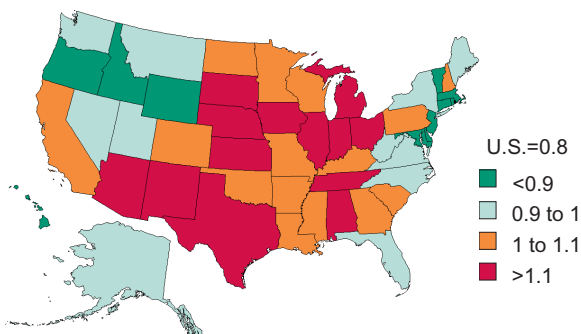
Subnational impacts

A NAFTA breakup would have diverse regional impacts on the U.S., Canada and Mexico. In the U.S., the industrial Midwest, and in particular, the Great Lakes region, would bear the brunt of a NAFTA exit (see Chart 12). While auto manufacturing strongholds Michigan, Ohio, Indiana and Illinois would experience the largest setback, cattle and grain exporting states such as South Dakota, Iowa and Nebraska would likewise slow. Cross-border investment in autos, steel, machinery and agriculture, a linchpin of the Midwest's state economies, would slow or stall in the case of a NAFTA breakup as firms reassess plant upgrades and expansions.

The southern auto-manufacturing belt, composed of South Carolina, Georgia, Alabama and Mississippi, would also experience significant slowdowns, while states along the Mexican border that play a large role in cross-border trade would hurt as well. The Northeast and the Pacific Northwest

Chart 12: U.S. Midwest, South Squeezed

Real GDP, % below baseline, NAFTA breakup



Sources: BEA, Moody's Analytics

Chart 13: Border States Bear Brunt

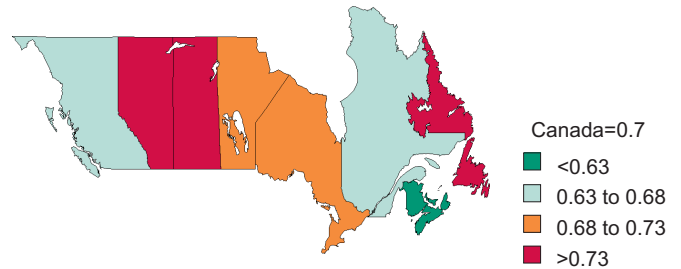
Real GDP, % below baseline, NAFTA breakup



Sources: INEGI, Banxico, Moody's Analytics

Chart 14: Ag, Auto Energy Take Hit

Real GDP, % below baseline, NAFTA breakup



Sources: Statistics Canada, Moody's Analytics

would be less impacted by a NAFTA breakup. Though states along the Canadian border would suffer from a deterioration in trade relations with Canada, Moody's Analytics assumes in the breakup scenario that U.S.-Canada trade is unimpeded.

A NAFTA trade war would have similar regional impacts, with most states entering recession. In particular, states that are heavily reliant on trade with Canada such as Montana, Maine and Vermont, all of which emerge relatively unscathed from a NAFTA breakup, would tip into recession in the case of a regional trade war. Still, the industrial Midwest and farm belt, southern auto producers, and southern border states would bear the brunt of tariff escalations and would experience larger contractions in employment, incomes, and overall economic output.

Fallout from a NAFTA breakup and a broader trade war would be more evenly distributed among Mexican states. However, border states that boast both large manufacturing and professional services industries such as Baja California and Nuevo Leon, home to business capital Monterrey, would experience a larger slowdown in the case of a NAFTA breakup and a deeper recession in the case of a trade war (see Chart 13). A NAFTA breakup would hit Mexico's central states unevenly. While the auto and aerospace triangle of Guanajuato, Aguascalientes, Queretaro, and San Luis Potosi has latched on to Mexico's export-oriented growth model and is more exposed to external shocks, central manufacturing states such as Puebla, Hidalgo, and the State of Mexico, which produce goods primar-

ily for the domestic market, would be hurt less by a NAFTA breakup or trade war.

The aftershocks of a NAFTA breakup would reverberate across Canada (see Chart 14). Ontario, home to Canada's auto industry, would slow substantially in the case of a NAFTA breakup and a subsequent slump in investment, although the province would avert recession given the preservation of trade links under the Canada-U.S. Free Trade Agreement. Canada's energy and agricultural heartland, composed of the provinces of Alberta, Saskatchewan and Manitoba, would experience relatively larger slowdowns in the case of a NAFTA breakup. Despite the continuity of trade under the prior U.S.-Canada free trade agreement, the deceleration in jobs, income, and overall economic activity in the U.S. would be a substantial drag on growth. Diminished regional demand for energy would deal an additional setback to Canada's large energy industry, concentrated in Alberta, Saskatchewan, and Newfoundland and Labrador.

A regional trade war would be even less kind to Canada's farm, manufacturing, and energy-producing provinces. Both Ontario and agricultural and energy-dominated provinces such as Alberta and Saskatchewan would be hit by a significant contraction in U.S. demand for agricultural and industrial goods as well as softer demand for Canadian crude oil and natural gas.

Conclusions

Assuming U.S. negotiators are acting both in good faith and in line with their stated objective of increasing U.S. auto production

and employment, upcoming talks will likely yield a more modest proposal on domestic and regional content that is acceptable to both Mexico and Canada, paving the way to a final deal. A successful renegotiation of NAFTA entails the greatest economic benefit to the treaty's members. Despite dislocations that have occurred in the labor market, NAFTA has benefited a broad coalition of U.S. industries while lowering prices for consumers.

For business leaders in the three countries, life under NAFTA has become the new normal and abandoning the agreement provokes intense fears. However, while a NAFTA breakup would elevate uncertainty and cause firms to postpone or scale back investments in the near term, the three countries would avert recession and would reaccelerate to prior long-run growth rates. Already, close to half of U.S. imports from Canada and Mexico do not use NAFTA trade preferences, and the three countries' low external tariffs limit the fallout from a NAFTA collapse.

Ultimately, NAFTA's most important legacy is its robust institutional framework governing cross-border trade and investment. Should a NAFTA breakup prove less orderly, with increased acrimony inducing the three countries to retaliate, this framework could be impaired, resulting in a collapse in trade and investment flows that leads to a protracted recession and diminishes long-run growth prospects. Indeed, the true danger lies in policymakers' pursuit of barriers to trade intended to benefit a single nation at the expense of others.

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Dr. Zandi conducts regular briefings on the economy for corporate boards, trade associations and policymakers at all levels. He is on the board of directors of MGIC, the nation's largest private mortgage insurance company, and The Reinvestment Fund, a large CDFI that makes investments in disadvantaged neighborhoods. He is often quoted in national and global publications and interviewed by major news media outlets, and is a frequent guest on CNBC, NPR, Meet the Press, CNN, and various other national networks and news programs.

Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360° Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by the New York Times as the "clearest guide" to the financial crisis.

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