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WAYNE LEACH  ▪  MICHAEL NICHOLLS  ▪  MICHAEL TOMASINI
BEN STONE, Executive Director

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Summit State Bank
Vantreo Insurance
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13. MOODY’S FORECAST RISKS
EXECUTIVE SUMMARY

The Sonoma County Economic Development Board is pleased to present the Winter 2018 Local Economic Report. Our research partner, Moody’s Analytics, provided the data for this report. For additional information, questions, comments, or suggestions, please contact us at (707) 565-7170 or visit www.sonomaedb.org.

HIGHLIGHTS

The October wildfires had a blurred effect on employment. Projections for the next five years of employment growth are significantly lower than the previous five years of growth (18.1% growth from 2012-2017 versus 4.2% growth from 2017-2022). However, it’s not clear that this projected slowdown in growth is caused by the wildfires; Moody’s Fall 2017 5-year projection was pegged at 4.5%. Sonoma County is ranked 207 of 409 metro areas in the U.S., placing it at below the national average and slightly behind its group of comparative areas. But as the chain reactions of the wildfires play out over 2018 (both economically negative, such as displacement, and positive, such as increased economic stimulation), these projections may change to fit Sonoma County’s reality.

Sonoma County remains in the mid-expansion phase of the business cycle, with labor markets tight and production output increasing. The county’s wineries, craft breweries, and food manufacturing are still drivers of industry with newcomer industries like outdoor recreation and health & wellness surging with higher-than-average growth. Sonoma County’s Gross Metropolitan Product is currently $26.3 billion, with 12.2% growth expected over the next five years. Still, productivity lags the state average, with Sonoma County industry generating $85,607 per worker to California’s $98,475. Impediments to productivity and Gross Metropolitan Product growth will be contingent on labor availability, cost of doing business, and commercial property development.

The county’s “unfavorable age structure” will be an inhibitor to future growth if trends continue. Roughly a fifth of all residents are 65+, with another 15% within 10 years of retirement age. This is contrasted by a smaller proportion of the youth population (0-19), which currently accounts for about a quarter of total population. Overall population growth has slowed. 2012-2017 experienced a 2.8% growth in population while 2017-2022 is projected to see just a 1.1% increase. Net migration in Sonoma County is experiencing the same decline in growth as population; only 1,900 net migrants are estimated to settle in Sonoma County over the next five years.
**SONOMA COUNTY CA**

**METRO COMPARISON**

<table>
<thead>
<tr>
<th></th>
<th>EMPLOYMENT GROWTH RANK 2016-2018</th>
<th>RELATIVE COSTS LIVING 2016-2021</th>
<th>VITALITY RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Best=1</td>
<td>Worst=400</td>
<td>Best=1</td>
</tr>
<tr>
<td>Sonoma County</td>
<td>223</td>
<td>(3rd quintile)</td>
<td>130%</td>
</tr>
<tr>
<td>Santa Barbara County</td>
<td>196</td>
<td>(3rd quintile)</td>
<td>129%</td>
</tr>
<tr>
<td>Santa Cruz County</td>
<td>177</td>
<td>(2nd quintile)</td>
<td>144%</td>
</tr>
<tr>
<td>Sacramento MSA</td>
<td>153</td>
<td>(2nd quintile)</td>
<td>108%</td>
</tr>
<tr>
<td>Monterey County</td>
<td>209</td>
<td>(3rd quintile)</td>
<td>119%</td>
</tr>
</tbody>
</table>

**BUSINESS CYCLE STATUS**

- **Strengths & Weaknesses**
  - **Strengths**
    - World-class wineries and craft breweries serve as a magnet for tourism.
    - Leader in organic food production.
    - Diverse climate draws outdoor enthusiasts.
  - **Weaknesses**
    - Limited land availability for new wineries and commercial construction.
    - High costs relative to emerging tech hubs.
    - Unduly tight labor market.
    - Unfavorable age structure.

**Forecast Risks**

- **Risk Exposure 2017-2022**
  - **Upside**
    - Consumers embrace organic foods with even greater enthusiasm.
    - Marin biotech firms expand in Sonoma.
    - Greater trade with East Asia boosts medical device and wine industries.
  - **Downside**
    - Declining housing affordability further discourages in-migration.
    - More wine enthusiasts flock to the Pacific Northwest.

**MOODY’S RATING**

Aa2

**Strengthening Resilience**

- Recent Performance. Sonoma County is finding its footing as damages wrought by October wildfires, the most destructive in recent history, begin to fade. Total payroll employment declined slightly in October as tourists to wine country canceled visits, causing employers in the important hospitality industry to put a hold on hiring and to pare back part-time staff.

- Still, employment trends in recent months are positive, with total payroll gains in the months before the fires closely tracking those of midsize metro areas Santa Barbara, Sacramento, Santa Cruz and Monterey. While an outsized share of county jobs is on the pay scale’s lower end, a tight job market pushes up wages for all workers: Per-worker wage and salary disbursements are rising among the fastest in all California metro areas.

- Despite the decline in visitation and tourist spending in recent months, foreign markets remain a pillar of support. In contrast to most California metro areas, exports have risen steadily over the past two years as county wineries and electronics makers ramp up shipments to China and other emerging markets.

- California’s coastal areas have experienced significant declines in affordability over the past three years and Sonoma County is no exception. Despite rising house prices, labor shortages have kept homebuilders from meeting demand. The resulting squeeze on inventories has limited options for buyers and kept prices on the rise, contributing to a decline in home sales.

- Resilience. Sonoma County will advance cautiously over the next few quarters as hotels, wineries, and other goods producers repair fire-related damage, but rebuilding efforts will not go unrewarded. Hotel bookings and revenues fell sharply in the wake of the Tubbs fire, which consumed much of downtown Santa Rosa, but most vineyards and wineries were spared and many have already begun to welcome back visitors. As disposable incomes rise in the West and the nation, rising tourist visits to wine country will enable the county to make up most of the economic output lost in the wake of the fires.

- While winners and hospitality operators will face greater competition from wineries in the Pacific Northwest, Sonoma’s allure as a world-class destination for wine, cuisine and craft beer will draw a broader range of food and beverage enthusiasts. Diverse outdoor recreational opportunities and a host of holistic health centers will be a further boon: Destination spending on wellness treatments has risen nearly twice as fast as overall travel spending in recent years.

- **Risks rising.** Bedrock winemaking and tourism will recover, but the loss of several thousand housing units to the Tubbs fire poses considerable risk to the outlook. Affordable housing units were in short supply before the blazes, and the destruction of approximately 3% of the county’s housing stock will put additional upward pressure on house prices. A more severe decline in affordability would put a dent in labor force growth.

- In-migration to Sonoma County has slowed in tandem with declining affordability, and at the current rate of construction, it will be at least two years before housing units lost in the blazes are replaced. Longer term, the rising incidence of drought and adverse climate conditions could deal a setback to the wine and agriculture industries at the core of Sonoma’s industrial base.

- **Sonoma County will regain its step as rising tourist visits buoy its pivotal winemaking and tourism industries. However, rising land and labor constraints will apply restraint. Longer term, world-class wineries, breweries, and restorative care centers will enable the county to match California’s other midsize metro areas in job and income gains.**

**ANALYSIS**

**MOODY’S ANALYTICS / Précis® U.S. Metro / November 2017**
EMPLOYMENT AND INDUSTRY

TOP EMPLOYERS
- Kaiser Permanente 2,640
- Graton Resort & Casino 2,000
- St. Joseph Health System 1,578
- Keysight Technologies 1,300
- Safeway Inc. 1,200
- Medtronic CardioVascular 1,000
- Amy's Kitchen 987
- Sutter Santa Rosa Regional Hospital 936
- Wells Fargo 916
- Lagunitas Brewing Co. 900
- Jackson Family Wine 800
- Cyan 700
- Wal-Mart Stores Inc. 650
- Hansel Auto Group 600
- AT&T 600
- Lucky 550
- Santa Rosa Community Health Centers 523
- Pacific Gas and Electric Co. 500
- Petaluma Acquisitions 455
- Chilistone Construction Co. 425


ENTREPRENEURSHIP

EMPLOYMENT IN NEW COMPANIES, % OF TOTAL

- Sonoma County 92
- California 201
- U.S. 100

Sources: Census Bureau, Moody's Analytics, avg 2010-2014

EXPORTS

- Product $ mil
  - Food and kindred products ND
  - Chemicals 146.6
  - Primary metal manufacturing ND
  - Fabricated metal products ND
  - Machinery, except electrical 184.3
  - Computer and electronic products 422.2
  - Transportation equipment ND
  - Miscellaneous manufacturing ND
  - Other products 270.6
- Total 1,194.3

Destinations $ mil
- Africa 4.9
- Asia 477.4
- European Union 216.7
- Canada & Mexico 291.4
- South America 11.9
- Rest of world 191.9
- Total 1,194.3

% of GDP 4.0
Rank among all metro areas 220

Sources: BEA, International Trade Administration, Moody’s Analytics, 2016

PRODUCTIVITY

REAL OUTPUT PER WORKER, $
- Sonoma County 85,607
- California 98,475
- U.S. 86,500

Sources: BEA, Moody’s Analytics, 2015

BUSINESS COSTS

- Total
- Unit labor
- Energy
- State and local taxes
- Office rent

Source: Moody’s Analytics

HIGH-TECH EMPLOYMENT

- Sonoma County 8.6
- U.S. 6,937.1

HOUSING-RELATED EMPLOYMENT

- Sonoma County 23.8
- U.S. 13,565.7

LEADING INDUSTRIES BY WAGE TIER

NAICS Industry
- 6221 General medical and surgical hospitals 0.7
- 6211 Offices of physicians 0.7
- 5511 Management of companies and enterprises 0.7
- 2382 Building equipment contractors 1.0
- 7225 Restaurants and other eating places 1.1
- 4451 Grocery stores 1.7
- 2382 Building equipment contractors 1.0
- 4451 Grocery stores 1.7
- 7225 Restaurants and other eating places 1.1

Source: Moody’s Analytics, 2016

Gross output per worker, $
SKILLS MISMATCH

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than HS</td>
<td>12.3%</td>
</tr>
<tr>
<td>High School</td>
<td>16.6%</td>
</tr>
<tr>
<td>Some College</td>
<td>36.5%</td>
</tr>
<tr>
<td>Associate's</td>
<td>13.3%</td>
</tr>
<tr>
<td>Bachelor's</td>
<td>11.8%</td>
</tr>
<tr>
<td>Graduate</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

PER CAPITA INCOME

- Sonoma County CA: $56,503
- California: $56,374
- U.S.: $49,246

Sources: Census Bureau, ACS, Moody’s Analytics, 2015

ECONOMIC DISENFRANCHISEMENT

- Index: 2016
- Rank*
  - Gini coefficient: 0.45
  - Palma ratio: 3.0
  - Poverty rate: 9.2%

*Most unequal=1, Most equal=401

HOUSING BY INCOME, %

- 0-19,999: 20%
- 20,000-39,999: 25%
- 40,000-59,999: 20%
- 60,000-74,999: 15%
- 75,000-99,999: 10%
- 100,000-124,999: 5%
- 125,000-149,999: 2%
- 150,000-199,999: 1%
- 200,000+: 0%

Sources: Census Bureau, ACS, Moody’s Analytics, 2015

COMMUTER FLOWS

- Residents who work in Sonoma County: 83.2%
- Workers who live in Sonoma County: 91.7%

GENERATIONAL BREAKDOWN

<table>
<thead>
<tr>
<th>Generation</th>
<th>Population by Generation, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Z</td>
<td>0-4</td>
</tr>
<tr>
<td>Millennial</td>
<td>5-9</td>
</tr>
<tr>
<td>Gen X</td>
<td>10-19</td>
</tr>
<tr>
<td>Baby Boom</td>
<td>20-24</td>
</tr>
<tr>
<td>Silent &amp; Greatest</td>
<td>25-34</td>
</tr>
</tbody>
</table>

Sources: Census Bureau, Moody’s Analytics, 2015

EDUCATIONAL ATTAINMENT

<table>
<thead>
<tr>
<th>Education Level</th>
<th>% of Adults 25 and Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; High School</td>
<td>12</td>
</tr>
<tr>
<td>Some college</td>
<td>21</td>
</tr>
<tr>
<td>High School</td>
<td>35</td>
</tr>
<tr>
<td>College</td>
<td>20</td>
</tr>
<tr>
<td>Graduate school</td>
<td>13</td>
</tr>
</tbody>
</table>

Sources: Census Bureau, ACS, Moody’s Analytics, 2016

POPULATION BY AGE, %

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Population by Age, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>1-4</td>
<td>0</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
</tr>
<tr>
<td>15-19</td>
<td>0</td>
</tr>
<tr>
<td>20-24</td>
<td>0</td>
</tr>
<tr>
<td>25-29</td>
<td>8</td>
</tr>
<tr>
<td>30-34</td>
<td>12</td>
</tr>
<tr>
<td>35-39</td>
<td>12</td>
</tr>
<tr>
<td>40-44</td>
<td>20</td>
</tr>
<tr>
<td>45-49</td>
<td>35</td>
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<tr>
<td>50-54</td>
<td>19</td>
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<td>55-59</td>
<td>12</td>
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<tr>
<td>60-64</td>
<td>12</td>
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<td>65-69</td>
<td>21</td>
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<tr>
<td>70-74</td>
<td>19</td>
</tr>
<tr>
<td>75-79</td>
<td>12</td>
</tr>
<tr>
<td>80+</td>
<td>0</td>
</tr>
</tbody>
</table>

Sources: Census Bureau, Moody’s Analytics, 2015

Migration Flows

- Into Sonoma County CA
  - San Rafael CA: 1,886
  - San Francisco CA: 1,435
  - Oakland CA: 1,303
  - Sacramento CA: 796
  - Los Angeles CA: 599
  - San Jose CA: 544
  - Napa CA: 487
  - Vallejo CA: 440
  - San Diego CA: 362
  - Riverside CA: 294
  - Total in-migration: 15,868

- From Sonoma County CA
  - San Rafael CA: 1,167
  - Oakland CA: 1,009
  - Sacramento CA: 899
  - San Francisco CA: 762
  - Vallejo CA: 533
  - Napa CA: 509
  - Los Angeles CA: 382
  - San Diego CA: 326
  - San Jose CA: 312
  - Total out-migration: 13,809
  - Net migration: 2,059

Sources: Census Bureau, Moody’s Analytics
Powering Forward

BY MARK ZANDI

Recent Performance

The U.S. expansion continues to power forward. Abstracting from the near-term ups and downs in the data, real GDP growth remains just above 2% and job growth at more than 2 million per year. This is about the growth experienced since the expansion began 8½ years ago.

The pace of growth remains firmly above the economy’s potential, and any underutilized resources are being absorbed quickly. Unemployment at just over 4% and underemployment—a broader measure of slack in the job market—at less than 8% are consistent with an economy operating beyond full employment. The last time the job market was this tight was at the peak of the technology boom around Y2K.

Manufacturing utilization rates have also hit a cyclical high, and although they are not as high as in previous cycles, this has to do with the shifting makeup of the nation’s manufacturing base and measurement issues. Aside from high-end multifamily properties, for which new construction has boomed, vacancy rates in real estate markets are also low.

Wage and price pressures have been slow to build despite the tightening markets, but this is changing. Wage growth is accelerating and is closing in on 3%. Producer prices are rebounding, and single-family rental rates are up strongly. Consumer price inflation has yet to revive, but that seems a matter of time.

Christmas cheer

The next test for the economy will be the strength of the Christmas buying season. Consumers have been the strongest and most consistent source of growth in the expansion, accounting for nearly three-fourths of the economy’s rise (see Chart 1). They show no sign of letting up this Christmas.

In addition to the strong job market, consumers are buoyed by their solid balance sheets. They have deleveraged. Total household debt outstanding has hit a new high, but it has been a decade since the previous high, and incomes are much higher. The household debt-to-income ratio is close to a quarter-century low and is stable.

More important, the proportion of after-tax income that households must use to make payments and remain current on their debts has never been lower in the 35 years of available data. Most households have also insulated themselves from rising interest rates by refinancing into long-term fixed-rate mortgages, on which the average coupon is only 4%. A record low one-fifth of household debt has an interest rate that adjusts within a year of a change in market rates.

Credit quality on mortgage and consumer loans is about as good as it has ever been. Mortgage delinquency rates have never been lower, and although credit card delinquency rates are rising, they are still low by any historical standard and the recent increase simply reflects a normalization of credit conditions (see Chart 2).

Lenders have eased up on their standards and credit is flowing freely. Credit-and retail-card lending is back to normal, as is consumer finance lending. Even home-equity lending has come back to life, as higher house prices have increased homeowners’ equity and lenders are more comfortable extending loans. It is also easier to qualify for a first mortgage loan to refinance and purchase a home, although standards are still a bit tight compared with pre-housing bubble historical norms. The only exception is vehicle lending, as vehicle lenders have responded to a weakening in credit quality and have tightened their standards.

Wealth supercharger

Supercharging consumer spending during this expansion has been the wealth effect. This goes to both the rapid rise in asset prices and the sensitivity of households’ willingness and ability to spend in response to changes in their wealth.
The increase in household wealth has been stunning. Since their bottom near the nadir of the Great Recession in early 2009, stock prices have rocketed higher. Based on the Wilshire 5000, the value of all publicly traded stocks has risen from $7.5 trillion to $26 trillion. Over the past 18 months, since the last significant stock market correction, they are up close to 30%, equal to a gain in stock wealth of more than $6 trillion.

The revival in house values has also been impressive. House prices hit bottom in early 2012 after a long, painful 30% crash in prices during the housing bust. Since then, prices have fully recovered and are at record highs. The value of housing owned by households has risen from a low of not quite $16 trillion to about $24 trillion. Over the past 18 months, house prices are up almost 10%, equal to an increase in housing wealth of close to $2 trillion.

The impact of changes in household wealth on consumer spending is evident in the strong inverse relationship between wealth and the personal saving rate (see Chart 3). The simple correlation coefficient between the ratio of household assets to disposable income and the personal saving rate over the past more than 50 years is a strong -0.84. That is, rising asset values are associated with declining personal saving, and thus more consumer spending.

That the relationship remains strong today is clear that over the past five years, during which the assets-to-disposable income ratio has surged close to a record high, the personal saving rate has been halved from 7% to 3.5%. The only other time the personal saving rate was lower was during the housing bubble in the mid-2000s.

Based on econometric analysis, Moody’s Analytics estimates that the wealth effect on total consumer spending is 4.5 cents. That is, for every $1 change in household wealth, consumer spending ultimately changes by 4.5 cents. More than one-fifth of the growth in consumer spending during this expansion, and closer to half the spending over the past year, is thus due to the wealth effect. Wealth effects peak one year after a change in wealth, and they are asymmetric—larger when asset prices are falling than when prices are rising.

Wealth threat

This highlights the significant support the Federal Reserve’s quantitative easing has provided the expansion. One of the principal channels through which QE and resulting lower long-term interest rates impact the real economy is through higher asset prices and the resulting wealth effects. At its peak impact in late 2013, QE reduced 10-year Treasury yields by approximately 100 basis points, lifting stock prices by more than 15% and house prices by almost 10%. The Fed’s QE lifted real GDP growth via the wealth effect. A sustained 20% decline, consistent with a typical stock market correction, would ultimately reduce real GDP by about 70 basis points via the wealth effect. A sustained 20% decline, consistent with a bear market, would result in an economy that is barely growing and at risk of sliding into recession.

The risk of a decline in house prices is much lower, but given that housing in some parts of the economy appears overvalued relative to incomes and rents, the possibility increases that house price growth will slow meaningfully.

The American consumer is key to the U.S. expansion and, given our large trade deficit, the global economy. Fortunately, consumers are enjoying significant tailwinds. However, it is critical that stock and housing values hold their own. The wealth effect is powerful, and declining stock or housing prices could quickly overwhelm all the positives now powering consumer spending. This is not the most likely outlook, but it bears watching.
Forecast Assumptions

BY MARK ZANDI

Monetary policy

The Federal Reserve is expected to steadily normalize interest rates over the remainder of the decade. This will entail three or four 25-basis-point rate hikes each year, with the federal funds rate peaking near 4%. This is just above the Moody’s Analytics 3.4% estimate of the long-run equilibrium funds rate or r-star. The next increase in the funds rate is expected at the December meeting of the Federal Open Market Committee.

Driving the expected normalization in monetary policy is an economy that is operating beyond full employment. Both the unemployment rate at just over 4% and the sub-8% underemployment rate are below our estimates of the natural rate. The labor market is sure to tighten substantially more given that the current pace of job growth is more than double that necessary to employ those coming into the labor force.

Inflation is also expected to steadily accelerate, from under its 2% target as measured by the growth in the core consumer expenditure deflator, to a high between 2.5% and 3% by 2019. Fueling the stronger inflation will be the tight labor market, strong rent growth, and greater medical care inflation. Somewhat higher oil and other commodity prices will offset impacts on inflation of an anticipated modest strengthening of the U.S. dollar.

There is a consensus that the federal funds rate consistent with normalization—the long-run equilibrium rate—has fallen since the crisis, but there is little consensus on how much. The Moody’s Analytics 3.4% estimate of the long-run equilibrium rate is down from over 4% before the crisis. Fed officials believe the equilibrium rate has fallen to just below 3%.

The equilibrium rate is consistent with the sum of the Fed’s 2% inflation target and the economy’s long-run potential growth rate. We estimate the current equilibrium rate to be closer to 2.5%, due to a number of temporary headwinds, including the adjustment to a significant increase in the required capitalization and liquidity of the post-crisis banking system.

Normalization of monetary policy also means that the Fed will allow its balance sheet to diminish. The balance sheet swelled to nearly $4.5 trillion in Treasury and mortgage securities as a result of four rounds of quantitative easing. In a full-employment economy, the Fed’s balance sheet should be closer to $3 trillion. The Fed has begun to right-size its balance sheet by allowing the securities it owns to mature and prepay.

Fiscal policy

The federal government’s fiscal situation has begun to weaken. The budget deficit came in at $666 billion in fiscal 2017, equal to nearly 3.5% of GDP. This is up from less than $600 billion in fiscal 2016. The deficit hit its nadir of $439 billion in fiscal 2015, equal to 2.4% of GDP, which will be the best fiscal performance for the foreseeable future.

After a number of years of austerity, fiscal policy has become a small positive for growth, adding about 20 basis points to per-year real GDP growth for the past three years.

Lawmakers will be busy as the Trump administration pushes its fiscal policy agenda. While this agenda is very uncertain, we are assuming there will be tax cuts costing more than $500 billion over the next decade on a static basis. The majority of the cuts will be to corporate taxes. More government spending on veterans’ benefits and the military is expected, and while more infrastructure spending is not as sure, the president supports it.

There is also the sequester—the across-the-board spending cuts that were suspended as part of the 2013 budget deal. Unless lawmakers make a change, it is set to kick back in with the current fiscal year. The sequester cuts to defense and mandatory entitlement programs likely will be suspended or eliminated, but Republican policymakers will allow the cuts to most nondefense discretionary programs to take effect. Even so, government spending seems set to increase by almost $500 billion over the next decade.

President Trump’s tax and spending policies are assumed to be largely deficit-financed, and thus will add approximately $1 trillion to the cumulative budget deficits over the next decade. The nation’s debt-to-GDP ratio will be more than 2 percentage points higher by the end of Trump’s term than if there were no change in fiscal policy.

U.S. dollar

The real broad trade-weighted U.S. dollar has weakened this year. Behind the recent softness is the stronger global economy. Given the better economic backdrop, the European Central Bank signaled it will soon begin tapering quantitative easing; the next step is to begin normalizing rates, though that is a way off. The Bank of Canada began raising short-term rates, and the Bank of England is signaling its intent to soon adopt a less accommodative monetary stance.

The Trump administration’s political problems and investors’ diminished expectations have contributed to the softer dollar. The dollar is expected to soon stabilize and to appreciate a bit over the next two years as the Federal Reserve normalizes monetary policy.

Energy prices

Oil prices are hovering close to $55 per barrel. U.S. gasoline prices have jumped recently because of Hurricane Harvey and are close to $2.75 per gallon of regular unleaded.

Oil prices will remain volatile but are expected to slowly rise. Underlying this outlook is the sharp pullback in investment in North American shale oil production. OPEC has also moved to curtail production, and higher-cost non-OPEC producers in the North Sea and Arctic are also curtailting investment plans.

The long-run price for oil is estimated to be $55 to $60 per barrel. Brent oil prices should narrow relative to West Texas Intermediate, given the reversal in the Seaway oil pipeline and other projects.

Natural gas prices will remain low for the next decade.
Forecast Risks

BY MICHAEL FERLEZ

**Geopolitical tensions**

Geopolitical tensions outside the U.S. transmitted through international trade, consumer sentiment and financial markets pose an indirect threat to the U.S. economy. The U.K. has begun the formal process of withdrawing from the European Union. Although the dire Brexit scenarios have yet to materialize, much depends on what kind of agreement the U.K. and EU are able to negotiate. Less than cordial terms of a U.K. withdrawal from the European single market would not only disrupt financial markets but also lower the growth outlook in the U.K. and the EU.

Within the euro zone, political uncertainty is once again on the rise. In Germany, Angela Merkel and her Christian Democratic Union secured their fourth term, but their victory was far from convincing, making it more difficult to form a coalition government. Also, for the first time since World War II, a far-right party will hold seats in the Bundestag. Meanwhile, as a barometer for next year’s national election, Italy’s far-right Five Star Movement tallied the second most votes in regional elections held in Sicily. Like Germany and France, Italy is a country without which the EU cannot survive.

Outside of Europe, tensions with North Korea pose an intensifying downside risk. Saber-rattling between the U.S. and North Korea has raised tensions to an unprecedented level. Continued provocations risk upending financial markets, or something much worse.

**Trade and immigration**

President Trump’s strong protectionist stance on immigration and trade, especially anti-China and anti-Mexico trade rhetoric and the desire to renegotiate key trade agreements, poses a significant downside risk to the forecast. Though the baseline forecast does not assume a trade war, it would not be surprising if foreign countries retaliated in kind against U.S. tariffs. Should this scenario play out, growth in the U.S. would fall short of expectations. Immigration adds to uncertainty as undocumented workers leave the country, leading to a contraction in the labor force. Tighter immigration policies, including a proposed plan to limit the number of green cards, would dampen population growth, which is already at its slowest rate since the Great Depression.

**Renewed global growth**

Despite numerous geopolitical risks, the global economy is strengthening and there are reasons to be optimistic that growth will be even stronger in the years ahead. Nearly 10 years after the recession, all the world’s major economies are growing. U.S. growth has accelerated after a sluggish first quarter, and the euro zone is expanding at the fastest rate in two years. South America is on the path to recovery after a two-year recession. Asia will remain the world’s fastest-expanding region, with stabilizing growth in China driving broad-based expansion. Assuming the global economy can avoid serious setbacks, solid economic fundamentals could usher in a period of stronger economic growth.

**China**

A hard landing for China would deal a serious blow to the global economy. Recent economic data from China have been mixed, but the world’s second largest economy has stabilized following turbulence in 2015 and 2016. The Chinese economy expanded by 6.7% in 2016, and only slightly slower gains are expected this year. Growth will decelerate over the medium term as the government attempts to rebalance the economy toward more domestic consumption.

Uncertainty lies in China’s ability to maintain sturdy growth and the impact of its interventions in the foreign exchange market on other global markets. China’s expansion has been supported by a massive buildup in credit that poured into property investments and other projects. This has led to overcapacity in some industries and a frothy housing market. Should property prices tumble, the resulting sharp drop in asset quality in China’s banks could heighten stress in the domestic financial sector, with significant spillover effects on global financial markets. Chinese officials are working to tighten lending standards and rein in the shadow banking system. A policy misstep during this process could have significant impacts on both financial markets and the global economy.

**U.S. fiscal policy**

In September, Trump was able to strike a deal with congressional Democrats to pass a three-month continuing resolution and a suspension of the debt limit for the same amount of time. However, the deal only postpones a potentially bruising fiscal showdown until December. A shutdown during the holidays would do more economic harm than in the fall because of the sheer amount of consumer spending. Once the debt ceiling kicks in again in December, the Treasury will have fewer extraordinary measures at its disposal than in March when the statutory limit was last reinstated. This means that Treasury will be able to stave off the deadline to raise the debt limit only into early to mid-spring at most. Finally, the looming fiscal showdown could distract lawmakers from tax reform in the intervening period.

**Productivity**

Productivity growth has been lackluster in the aftermath of the financial crisis. Since the recession, nonfarm business productivity has averaged a disappointing 1% per annum. The decline in productivity that stems from the pullback in business investment is especially concerning. Restrictions on legal immigration and the accelerated deportation of undocumented workers could affect long-run productivity as well, as immigrants have historically been a key driver of business creation and have played an important role in the tech industry. With the U.S. at or near full employment, unless productivity gains begin to improve, the economy will not deliver on GDP, income, profits, tax revenue and asset returns.