A New Chapter
(Turning to the Long-term Challenges)

June 23, 2017
The Economy Has Been Slow for a Decade ...

Real U.S. GDP growth (percent change from four quarters earlier)

Sources: Haver Analytics; U.S. Department of Commerce; NBER Macroeconomic database. Updated through 2017 Q1.
... for Reasons That Don’t Often Matter ...

Counterfactual GDP paths (billions of chained 2009 dollars)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
... Like Demographics

Actual and working-age population (percent change annually)

Sources: Haver Analytics; Census. Updated through January 2017.
I. The Economy Is Back On Its Feet ...

Unemployment (percent of the labor force)

... Weighing Hidden Unemployment Too

Unemployment (percent of the labor force)

This One Knew the Story Best

Initial applications for unemployment benefits (thousands, weekly)

And That’s Why the Fed Is Pivoting

Core PCE inflation (% ch from 12 months earlier)  Unemployment (% of the labor force)

Note: The green band denotes where the FOMC mandate lies for unemployment and inflation.

II. Our Living Standard Is Still Climbing

Real GDP per capita ($ 2009)   Real GDP per capita growth (annualized % ch since 1947)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2016 Q4.
III. But Slow Is Problematic for the Future

Real U.S. GDP growth (percent change from four quarters earlier)

Historical Average to Date Since 1900

Current Assumption

Sources: Haver Analytics; U.S. Department of Commerce; NBER Macroeconomic database. Updated through 2017 Q1.
2% Growth Does This

Long-term revenue and spending projections (percent of GDP)

Sources: Haver Analytics; Congressional Budget Office. Updated through 2016.
3.5% Growth Does This

Long-term revenue and spending projections (percent of GDP)

If Federal Revenues Remain at the Historical Average of 18.1% of GDP

Sources: Haver Analytics; Congressional Budget Office. Updated through 2016.
Update on the State of the Global Economy

Why Did GDP Slow?

Does Slow GDP Matter

1) Behind the slowdown: demographics
2) Slow GDP didn’t prevent economic recovery
3) Demographic drags down stand in the way of rising living standards
4) Slow GDP makes it harder to pay for historically-based promises

Long-term Challenges and Policy Implications

1) Call for supply side (not demand side) stimulus
   ▪ Infrastructure investment
   ▪ Tax reform, relief, simplification
   ▪ Regulatory review
2) Health care reform (P.S. ACA is about coverage more than reform)

Conclusion: Implications for Markets

▪ Low inflation and financial balance imply extra innings in store
▪ Innovation is disruptive but enriching
▪ Globalization (industrial revolution in the developing economies) benefits all
The Global Economy
Growth: Synchronized Recovery

Real GDP in selected regions (percent change from four quarters earlier)

Sources: Haver Analytics; International statistical sources; U.S. Department of Commerce; J.P. Morgan. Updated through 2017 Q1.
Slack: Actual Vs Potential Growth Gaps ...

Output Gap, actual less potential real GDP (percent of potential real GDP)

Note: Potential growth assumptions in parentheses.
Sources: Haver Analytics; International statistical sources; U.S. Department of Commerce; J.P. Morgan. Updated through 2017 Q1.
Core inflation in selected regions (percent change from 12 months earlier)

Note: Japan introduced a consumption tax in 1989, setting it at 3 percent. It raised this to 5 percent in April 1997 and then to 8 percent in April 2014. Plans to raise the tax to 10 percent in October 2015 have been put on hold.

Source: U.S. Department of Commerce. Updated through November 2016 (Japan and U.S.) and November 2016 (EU-28).
Living Standards: Out of Sorts

Relative real GDP per capita (ratio to U.S. real GDP per capita, 2009 dollars, PPP basis)

Sources: Haver Analytics; World Bank; JPMorgan Chase & Co. Updated through 2017 Q1.
Why Is GDP Slow?
Real U.S. GDP growth (percent change from four quarters earlier)

Sources: Haver Analytics; U.S. Department of Commerce; NBER Macroeconomic database. Updated through 2017 Q1.
... It’s a Big Break From Historical Trends

Real U.S. GDP growth (percent change from four quarters earlier)

Historical Average to Date Since 1900

Current Assumption

Sources: Haver Analytics; U.S. Department of Commerce; NBER Macroeconomic database. Updated through 2017 Q1.
(1) Demographics

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<thead>
<tr>
<th></th>
<th>1947 to 2007</th>
<th>2007 to 2017</th>
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<tbody>
<tr>
<td>Real GDP</td>
<td>3.43</td>
<td>1.27</td>
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<tr>
<td>Real GDP Per Hour</td>
<td>1.75</td>
<td>0.76</td>
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<tr>
<td>Aggregate Hours (Nonfarm Payrolls)</td>
<td>1.65</td>
<td>0.50</td>
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Memo:
If Productivity Had Not Slowed ...  
Real GDP Growth Would Be: 3.43 2.25

And Real GDP Would Be This Much Higher ($ billions)  
$1,582
Or, Because Real GDI Grew This Much More than GDP  
$543
The Missing Real GDP Might Be:  
$1,039

<table>
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<tr>
<th>Nonfarm Business Output</th>
<th>3.68</th>
<th>1.42</th>
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<td>Real Output Per Hour</td>
<td>2.28</td>
<td>1.08</td>
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<tr>
<td>Hours</td>
<td>1.36</td>
<td>0.34</td>
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Sources: Haver Analytics; U.S. Department of Commerce; U.S. Department of Labor. Updated through 2017 Q1 (GDP) and April 2017 (hours).
Population 55 years of age or older (percent of the population) vs. (thousands)

Percentage of the U.S. population (left scale)

Thousands of people (right scale)

... Slows the Working-age Population ...
... and So Labor Force Growth

Labor force and the working age population (percent change annually)

Sources: Haver Analytics; Federal Reserve Board; U.S. Treasury. Updated through September 2015.
(2) “Measured” Productivity

Counterfactual GDP paths (billions of chained 2009 dollars)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
(3) Metrology

- Exponential growth of purchases of energy products at big-box retailers, not fully accounted for when translating retail sales into estimates of real consumer spending and GDP, masks the true (inflation-adjusted) level of consumer spending when energy prices rise or fall. (Solution: more frequent Census surveys).

- Exponential growth of e-commerce, encouraged by promotions like free shipping as the industry develops this new retail frontier, temporarily reduces the market value of consumer activity. Shareholders implicitly subsidize these promotions, because equity investors are assigning high values to companies like Amazon even though they have generated few profits so far. Imputations don’t factor in this subsidy. (Solution: introduce a new imputation)

- Exponential growth of free or inexpensive content on mobile platforms that is financed with advertising dollars (intermediate product). (Solution: use an imputation to represent this value)

- Outlays for services provided by the GIG (‘sharing’) economy may be more difficult to track than employment and that may account for some of the widening gap between aggregate income and aggregate spending. (Solution: expand consumer surveys)

- Advances in microprocessor performance may not be fully reflected in the hedonic price indexes that are used to track quality improvements in I-T products, because the advances in performance continue in reality, if not in the price index readings.

- The push for better health outcomes at lower prices—away from the standard fee-for-service model—adds to the complexity of controlling for quality changes in health care metrics.
Nominal GDP versus nominal GDI (ratio to 2009 Q2)

Nominal GDI rises 3.9% annualized

Nominal GDP rises 3.7% annually

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
Real GDP versus real GDI (ratio to 2009 Q2)

Real GDP rises 2.1% annually

Real GDI rises 2.3% annually

Real GDI has increased by $129 billion more than real GDP so far in the recovery.

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
Worry When Imputations Are One Reason

Contribution to real GDP (pct pts, dev from pre-2005 level)  Real GDP (% vs previous qtr)

Household PCE Services, Deviation from long-run average contribution to GDP, 3 year average

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2016 Q1.
Does Slow GDP Matter?
It Didn’t Stop Economic Recovery
Jobless “Claims” Know the Story Best ...

Initial applications for unemployment benefits (thousands, weekly)

Initial applications for unemployment benefits (thousands, weekly)

“Underwater” Is a Distant Memory ...

Household income and house prices (January 2000 = 100)

Sources: U.S. Dep. of Commerce; CoreLogic; U.S. Department of Commerce. Updated through 2017 Q1.
U.S. house prices and nominal income (January 2000 = 100)

Note: The red zone represents an estimate (about $85 billion in spring 2017) of the aggregate amount of remaining underwater mortgages, before chargeoffs.

The scenario above assumes that house prices rise 4.5% annually in the future.

Sources: Haver Analytics; CoreLogic; U.S. Department of Commerce. Updated through 2017 Q1.
Cured Outside the Household Sector...

U.S. nominal consumer spending share (ratio to nominal GDP)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
... Which Now Enjoys Strong Balance Sheets

Household net worth (trillions of dollars)  
(ratio to disposable income)

1 Excludes the value of real estate in excess of what would have been a normal alignment to household income.

Sources: Haver Analytics; Federal Reserve Board; U.S. Department of Commerce. Updated through 2016 Q4.
The Auto Industry Benefited First

U.S. light vehicle sales (millions at an annual rate)

P.S. It Still Enjoys Pent-up Demand ...

U.S. light vehicle sales (millions at an annual rate)

... and a Delayed Millennial Transition

Licensed 20-year olds (percent of the population)                                    Drivers (thousands)

Sources: Haver Analytics; Federal Highway Administration. Updated through 2015.
The Slow Home Building Recovery ...

Real residential investment (billions of chained 2009 dollars)

... Mostly in the Single-Family Sector ...

Housing starts (thousands of units at a seasonally adjusted annual rate)

Housing starts (thousands of units at a seasonally adjusted annual rate)

With Multis Helped by Pent-up Demand ...

... Is Mostly About the Young Adult Issue ...

Housing starts and household formation (thousands of units, seasonally adjusted ar)

... and Not Financial Conditions

Mortgage qualifying terms and mortgage rates (ratio of qualifying loan to income)

Note: The mortgage loan amount that an average borrower could be expected to qualify for at prevailing mortgage rates, expressed as a multiple of a household’s annual income. The calculation assumes that the sum of the principal, interest, property tax, and mortgage insurance payments do not exceed one-third of a borrower’s income.

What happens to the multiple if mortgage rates rise from 4.0% to 5.5%:
If income grows at recent trends
All else the same

Sources: Haver Analytics, Census Department. Updated through 2017 Q1.
P.S. Housing’s Contribution ...

Contribution of residential investment to GDP (percentage points over the most recent 4 quarters)

Sources: Haver Analytics; U.S. Department of Commerce; CBO. Updated through 2017 Q1.
... Is Not Just About Housing Starts ...

Selected components of residential investment (billions of nominal dollars)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
... and Home Improvement Is on the Rise

Home improvement outlays (percent of total nominal residential investment)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2017 Q1.
All That Brought Us Back Home ...

Unemployment (percent of the labor force)

Unemployment (percent of the labor force)


... Within Sight of Full Employment

U-3 plus one half the excess number of involuntary part-timers plus 20- to 45-year olds who left the job market during the recession and haven't yet returned
We’re Home When All Discouraged Return

Participation rate by selected age groups (% of the respective population)

Real GDP (2009 dollars)       Household net worth (ratio to disposable income)

Sources: Haver Analytics; U.S. Department of Commerce; Federal Reserve Board. Updated through 2017 Q1 (GDP per capita) and 2016 Q4 (net worth).
Wage Trends Sort Of Agree ...

Average hourly earnings (annualized percent change over the period shown)

Percent change from 12 months earlier
Annualized percent change from three months earlier

Private sector hourly compensation (percent change from four quarters earlier)

Sources: Haver Analytics; U.S. Department of Labor. Updated through 2017 Q1.
The federal deficit (billions of dollars over the most recent 12 months) (percent of nominal GDP)

Sources: Haver Analytics; U.S. Department of Commerce; CBO. Updated through 2016 Q3.
Credit Spreads Agree

Noninvestment grade debt yield less 10-year Treasury yield (basis points)

Sources: Haver Analytics; Federal Reserve Board; J.P. Morgan. Updated through April 14, 2017.
And the Fed’s Pivot Confirms All

Core PCE inflation (% ch from 12 months earlier)  Unemployment (% of the labor force)

Note: The green band denotes where the FOMC mandate lies for unemployment and inflation.

Only a Few (1.7 Million) Are MIA

Participation rate of 20- to 45-year olds (% of the respective population)

New Goal ... Holding High Ground

<table>
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<tr>
<th>Cycle Bottom</th>
<th>Cycle Peak</th>
<th>Duration</th>
<th>Months</th>
<th>Years</th>
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<td>Mar 2001</td>
<td>120</td>
<td>10.00</td>
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Shortest Cycle

Longest Cycle

Sources: Haver Analytics; National Bureau of Economic Research.
“Normal” for the Fed Means ...

Nominal federal funds rate and core inflation (percent)

Sources: Haver Analytics; U.S. Department of Commerce; Federal Reserve Board. Updated through March 2017 (inflation) and April 24, 2017 (federal funds rate).
... 1% to 2% Percentage Points Over Inflation

Nominal federal funds rate and real federal funds rate (percent)

Sources: Haver Analytics; U.S. Department of Commerce; U.S. Department of Commerce; Federal Reserve Board. Updated through February 2017 (inflation) and April 7, 2017 (federal funds rate).
The Futures Markets Has the Rough Idea

Forecasts of the federal funds rate (percent)

Diamonds identify the FOMC members' individual forecasts (orange diamond is the median FOMC forecast)

Dashed black open circles identify the Glassman forecast

Red solid squares identify the market forecast (December eurodollar futures less 1/8 point after 2017)

Implied steps in 2017:

- 3
- 2
- 1
- 0

Sources: FRB; Bloomberg. Updated through March 15, 2017 (FOMC) and May 26, 2017 (futures).
Balance Sheet Normalization Still to Play …

Federal Reserve liabilities (billions of dollars)

Sources: Haver Analytics; Federal Reserve Board. Updated through May 10, 2017.
... the Fed’s and Others

Assets held by key central banks (trillions of dollars)

Sources: Haver Analytics; Federal Reserve Board; ECB; Bank of Japan; Sveriges Riksbank. Updated through June 10, 2016.
CBs Absorbed Most New Debt

Global debt outstanding (trillions of dollars)

It’s Not Choking Our Living Standard
Climbing to New All-time Highs

Real GDP per capita ($ 2009)  Real GDP per capita growth (annualized % ch since 1947)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2016 Q4.
Insights from Japan’s Story ...

Real GDP (ratio to 2007 Q4)

Sources: Haver Analytics; U.S. Department of Commerce; selected international agencies. Updated through 2017 Q1.
... About Growth and Living Standards

Real GDP per capita (ratio to 2007 Q4)

Sources: Haver Analytics; U.S. Department of Commerce; selected international agencies. Updated through 2017 Q1.
But It Will Make Promises Expensive
2% Growth Does This

Long-term revenue and spending projections (percent of GDP)

Sources: Haver Analytics; Congressional Budget Office. Updated through 2016.
3.5% Growth Does This

Long-term revenue and spending projections (percent of GDP)

Sources: Haver Analytics; Congressional Budget Office. Updated through 2016.
And Exposes a Flawed Health Care System

Healthcare spending by selected sectors (percentage of GDP)

Sources: Haver Analytics; Congressional Budget Office; Centers for Medicare and Medicaid Services. Updated through 2015 (national health expenditures) and 2016 (federal health expenditures).
All Leading to a Structural Imbalance and ...

The federal deficit (billions of dollars over the most recent 12 months) (percent of nominal GDP)

Sources: Haver Analytics; NBER recession; U.S. Treasury; CBO. Updated through February 2017.
... Debt Ratios that Would Be Hard to Ignore

Federal debt (ratio to GDP)

Sources: Haver Analytics; Federal Reserve Board; U.S. Treasury. Updated through November 2016.
Coverage Is Not Health Care Reform

Promoting competition in the provider and insurance industries.

Back away from the employer-provided health insurance model:

- Promote greater personal responsibility by health care users
- Evolve towards full lifespan insurance coverage, not just birth to retirement

Tax benefits for health insurance coverage

- Health savings accounts combined with high-deductible plans

Lifetime insurance coverage

Tort reform

Government-provided minimum safety net, like Social Security
CONCLUSION
(Markets Live by Economic Reality/Possibility, Not Politics)
Pro-Growth “Feel” Alone Lifts Markets …

Wilshire 5000 index (percent change from selected points)

Sources: Haver Analytics; Dow Jones. Updated through June 2, 2017.
... Creating Wealth and a Self-Fulfilling ...

Value of household equity portfolios (billions of dollars)

Sources: Haver Analytics; Dow Jones; Federal Reserve Board. Updated through June 2, 2017.

$3.5 trillion new wealth
... Boost to Consumers and GDP

Cumulative equity cap gains since 1986 ($ billion)  Estimated cont to GDP (pct pts)

Potential to boost GDP by 1.1 pct pts, all else equal

 Sources: Haver Analytics; Dow Jones; Federal Reserve Board. Updated through June 2, 2017.
... and Boosts Business Cap X Intentions

Surveys of anticipated capital expenditures (weighted average of diffusion indexes)

Sources: Haver Analytics; Federal Reserve Banks of Dallas, Kansas City, New York, Philadelphia and Richmond. Updated through May 2017.
Globalization Benefits America, Because ...

Nominal goods and services imports and exports (billions of dollars)

Sources: Haver Analytics; U.S. Department of Commerce. Updated through 2016.
Relative real GDP per capita (ratio to U.S. real GDP per capita, 2009 dollars, PPP basis)

Sources: Haver Analytics; World Bank; JPMorgan Chase & Co. Updated through 2016 Q4.
... By Anyone’s Estimates

Relative real GDP per capita (ratio to U.S. real GDP per capita, 2009 dollars, PPP basis)

Sources: Haver Analytics; CIA; JPMorgan Chase & Co. Updated through 2016 Q4.
Innovation Is Disruptive but ...

Manufacturing employment (millions)        Employment and value added share (percent)

Manufacturing employment (millions)

A Lengthy Business Cycle Holds Promise

Wilshire 5000 (December 31, 1970 = 830.27)  After-tax GDP profits (billions of dollars)

Note: The P/E for the Wilshire 5000 typically approaches 14 times current after-tax GDP earnings when the economy is close to full employment (that excludes the 1997-2001 period when P/E multiples were double the historical norm). In this figure, the Wilshire 5000 P/E reaches 14 times earnings when stock prices (blue shaded area) reach the black line (after-tax earnings). Because market participants take their cue from future earnings, equity valuations rise above current earnings when investors are optimistic about future earnings. The arrows at the bottom mark times when the Fed began to withdraw its stimulative policies.

Shaded area represents after-tax GDP profits (right scale)
Line is the Wilshire 5000 (left scale)

Sources: Haver Analytics; US Department of Commerce; Dow Jones. Updated through 2016 Q3 (profits) and January 13, 2017 (stocks).
Equities Get a New (Global) Sponsor ...

Nominal and real equity market returns (annualized percent change over period shown)

Note: Prior to 1945, the Wilshire 5000 index is extrapolated using the DJIA. From 1945 to 1970 the Wilshire 5000 index is extrapolated using the S&P 500. Prior to 1970, the Wilshire 5000 total return index is derived from the change in the Wilshire index (capital gains) plus 3 percent annually, the average increment owing to reinvested dividends from 1970 through 2016. Sources: Haver Analytics; Dow Jones. Updated through December 2016.
... Bringing a Sequel to This Story

Dow Jones Industrial Average (May 25, 1896 = 40.94, log_{10} scale)

Sources: Haver Analytics; Dow Jones. Updated through February 16, 2017.
Appendix I. The Sunshine State
Smooth Sailing

Jobless claims in Florida (ratio to 2007 Q4 level)

Back to Pre-Recession Levels

Unemployment rate in Florida and the U.S. (percent of the labor force)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Solid (but Moderating) Job Growth

Nonfarm employment in Florida vs the U.S. (percent change from 12 months earlier)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
South Florida Employment Trends

Nonfarm employment in Florida and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Nonfarm employment in Florida and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Southwest Florida Employment Trends

Nonfarm employment in selected Florida cities and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Panhandle Employment Trends

Nonfarm employment in selected Florida cities and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Jacksonville Employment Trends

Nonfarm employment in selected Florida cities and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Economic Conditions Across the State

Nonfarm employment in selected Florida cities and the U.S. (ratio to 2000 Q4 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
Florida Is Pulling Up ...

Nonfarm payroll employment across the nation (ratio to 2007 Q4)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
... From the Deep Hole It Fell Into

Nonfarm employment at the cycle bottom and now (ratio to December 2007 level)

Source: U.S. Department of Labor. Updated through November 2016 (state) and December 2016 (U.S.).
House prices in Florida relative to the nation (ratio to 1995 Q4 level)

Sources: Haver Analytics; FHFA. Updated through 2016 Q3.
House prices in Florida relative to the nation (ratio to December 1995 level)

Sources: Haver Analytics; FHFA; Standard & Poor's / Case-Shiller. Updated through 2016 Q3 (FHFA) and November 2016 (Case-Shiller).