

# Investing in investment: Capex and financial markets

## Multi-asset implications

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### IN BRIEF

- Why has U.S. business investment spending grown slowly during the current expansion vs. previous cycles, and apparently weakened on a secular basis? And does the future hold more weak capital expenditure (capex), which could weigh on productivity growth, manufacturing activity, equity markets and long-term interest rates?
- We rule out business caution and an “asset-light” New Economy as explanations for recent weak investment spending. Rather, we find capex to be around its equilibrium level, evolving in line with structurally weaker growth drivers, such as slower labor force expansion and demand for capital goods—consistent with our Long-Term Capital Market Assumptions.
- Our outlook is upbeat, balancing several countervailing trends: One, the composition of the U.S. economy has evolved toward less investment-intensive sectors. Two, investments in intellectual property will continue to support overall investment. Three, a narrowing U.S. current account deficit will raise the U.S. capital share to more closely align with the economy’s demand.
- We also expect cyclical distortions to normalize, including two years of idiosyncratic headwinds to capex dissipating after precipitous energy price declines. The end of those distortions, and currently elevated corporate profitability, recently underpinned a modest capex rebound.
- The main beneficiaries of these trends include equity investors in manufacturers, which are overrepresented in equity markets, where we expect an earnings boost. And since capex is trade-intensive, its rise supports export-dependent emerging market (EM) economies.

**INVESTMENT SPENDING IN THE U.S. HAS GROWN SLOWLY DURING THE CURRENT EXPANSION, RELATIVE TO PREVIOUS CYCLES.** Against the backdrop of a disappointing lack of vigor in the overall economy, this apparent caution has captured significant attention. Sustained weakness in capital expenditure, by the business sector in particular, can harm the economy in the long term by reducing productivity growth. And since business investment spending often generates activity for the manufacturing sector, which is disproportionately represented in the equity market, a downturn in capex can create problems for investors, too. Diagnosing the investment spending problem can shed light on the economy’s prospects, as well as on the outlook for financial markets.

In this paper, we approach the investment spending question from two angles—multi-decade secular trends and factors unique to the current cycle. Among our conclusions: In our judgment, U.S. investment spending has evolved broadly in line with its drivers during the current cycle and has not deviated significantly from its equilibrium level. In that sense, we do not find a large shortfall to be made up in coming years, nor do we ascribe a major explanatory role to business caution.

We see some reasons for optimism. Idiosyncratic factors have weighed on capex in the past two years, including the energy price collapse and a downturn in the homebuilding and transportation equipment sectors. As these factors are beginning to abate, a modest near-term bounce in capex is already underway. Structural changes in the economy (among them slower labor force expansion and developed economies' shift to less capital-intensive industries, propelling much global capital stock to emerging regions) have indeed pushed down investment over the long run. Yet some possible future paths for the U.S. economy might produce a renewed rise in business investment spending as a share of GDP.

Finally, we observe that U.S. capex and globalization are interconnected. As the means of production can now be located nearly anywhere in the world, the U.S.'s share of the global capital stock need not match its share of total spending, and overcapacity elsewhere—such as in China—can weigh on U.S. business investment spending. At the same time, the rate of globalization itself depends on capex. The slump in global trade during the current expansion partly reflects the lower contribution from shipments of capital goods, which are relatively trade-intensive. An uptick in capex thus represents a necessary condition for globalization to re-accelerate.

For investors, our findings on capex trends carry long- and short-term implications. Moderate growth in business investment spending is part of the well-established story behind the J.P. Morgan Asset Management Long-Term Capital Market Assumptions: Structurally slower economic growth is associated with muted prospects for asset returns. Some argue that the economy is inevitably becoming “asset-light,” with little need for capital spending. We do not share that outlook given the high investment intensity of intellectual property. While the nature of IP investment is dissimilar to traditional brick-and-mortar spending, it is not light on investment writ large.

While our conclusions make us skeptical that capex prospects will benefit enormously from policy change (e.g., deregulation), we nonetheless expect a pickup in investment spending during the coming year or so. The results would reinforce the recent strengthening in manufacturing and corporate earnings. If, however, new U.S. policies were to disrupt trade flows, such a scenario would imply significant downside risk to economic activity because of the internationalization of manufacturing capacity.

## EQUILIBRIUM DRIVERS OF INVESTMENT SPENDING

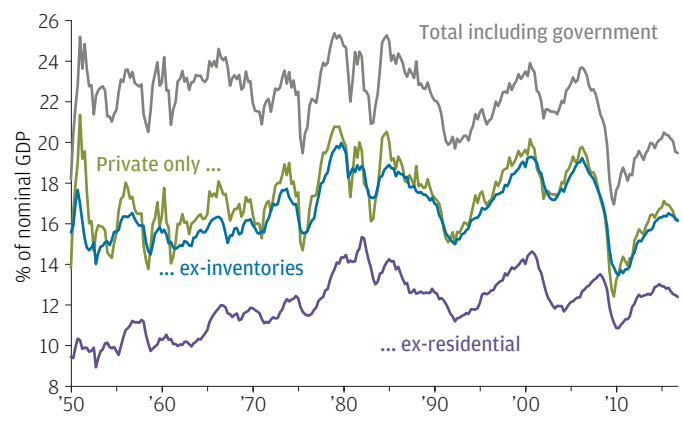
Has there been some change in business decision-making or the nature of the economy that would explain why business investment spending has grown slowly during the current expansion and apparently has weakened on a secular basis? Or are recent capex trends consistent with weaker underlying drivers of growth—weaker labor force and productivity trends?

Our examination of long-run trends in investment spending considers two different definitions of it: (1) total U.S. investment, including not only business capital expenditure but also private residential construction and a significant portion of government spending; and (2) U.S. capex alone. Looking at the first, broader concept, we observe a progressive decline in total U.S. investment spending as a share of nominal GDP since the mid-1980s. From the early 1950s to the 1980s, it held quite steady at around 23%. From the mid-1980s to the present, it has declined. Today, with the economy operating near potential, total investment spending accounts for less than 20% of GDP (**EXHIBIT 1**).

In other words, the economy's overall investment intensity has fallen. Narrowing in on business capex in isolation, we see less of a decline in its share of GDP (**EXHIBIT 2**, next page). Nonetheless, capex has grown more sluggishly than usual during the current expansion. These trends raise the aforementioned question: Has business decision-making, or has the nature of the economy, changed? After looking into secular and near-term drivers, we think not.

### The U.S. economy has become somewhat less investment-intensive in recent years

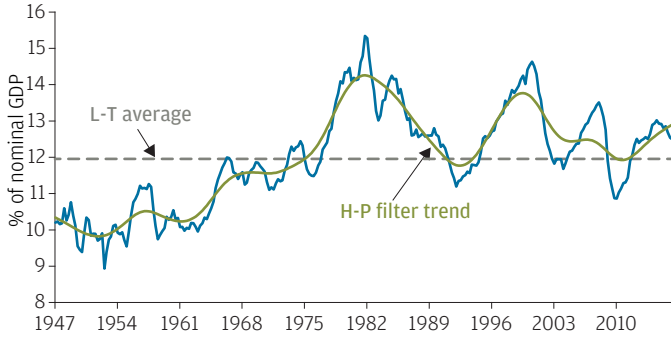
EXHIBIT 1: TOTAL U.S. INVESTMENT SPENDING (% OF NOMINAL GDP)



Source: U.S. Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Solutions; data as of April 25, 2017.

**The business capex share of GDP in isolation has not fallen significantly**

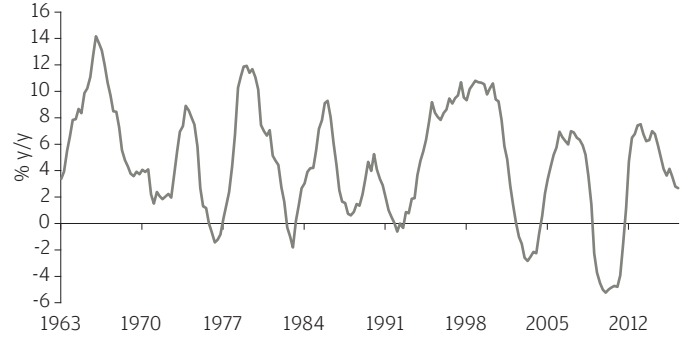
EXHIBIT 2: U.S. PRIVATE NONRESIDENTIAL FIXED INVESTMENT (% OF NOMINAL GDP)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

**Business capex has grown relatively slowly in this expansion**

EXHIBIT 3: U.S. PRIVATE NONRESIDENTIAL FIXED INVESTMENT (% Y/Y, 3-YR MOVING AVG)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

**Capex from businesses' perspective**

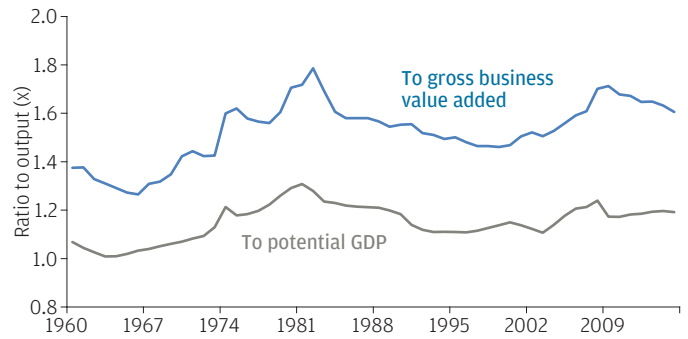
We have noted that U.S. business capex has grown more slowly during the current expansion than in most past cycles. Measured on a three-year moving average basis, growth in private non-residential fixed investment (the U.S. national accounts' name for capex) peaked at 7.5% in early 2013, compared with a more typical cyclical top in double-digit territory, and it has dropped off significantly since, even as the overall economy has avoided recession (EXHIBIT 3). As with most other parts of the economy, capex fell sharply during the Great Recession, underscoring its relatively muted upturn. But this slowdown looks reasonable once we consider firms' objectives in a weaker growth environment.

First of all, firms presumably target not any particular growth rate of investment spending but rather the level of the capital stock, which determines their ability to meet demand via production. Here no anomaly seems evident. The business capital stock stands slightly above its long-run average, relative to output, as measured either by gross business value added (essentially, private sector output excluding housing) or by estimated potential GDP (EXHIBIT 4).<sup>1</sup> Indeed, over the past several decades, the growth rates of the capital stock and gross business value added have moved closely in tandem (EXHIBIT 5). The relative sluggishness of business investment spending, then, seems to reflect an endogenous reaction to slower economic growth overall.

<sup>1</sup> The more relevant denominator in this setting is gross business value added, which captures the output generated by the private nonresidential capital stock, but this ratio will fluctuate cyclically. The use of potential GDP instead smooths the ratio, but potential GDP includes housing and government activity, which are not products of the business capital stock.

**The capital stock does not look low relative to the economy**

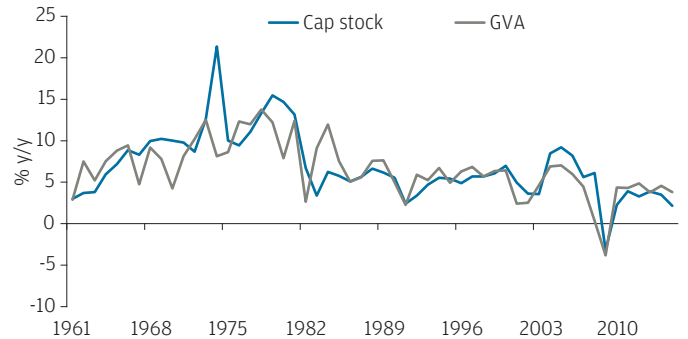
EXHIBIT 4: U.S. PRIVATE NONRESIDENTIAL CAPITAL STOCK, RATIO TO OUTPUT (X)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of 2015.

**Capital has grown in line with business output**

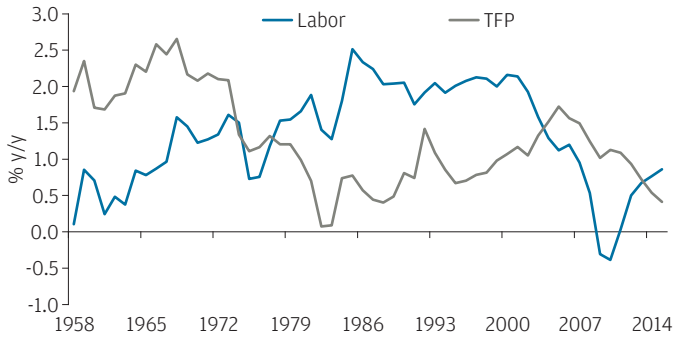
EXHIBIT 5: U.S. PRIVATE NONRESIDENTIAL CAPITAL STOCK AND GROSS BUSINESS VALUE ADDED (% Y/Y)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of 2015.

**Likely long-run drivers of capex have decelerated**

EXHIBIT 6: U.S. LABOR INPUT AND TOTAL FACTOR PRODUCTIVITY (% Y/Y, 10-YR MOVING AVG)



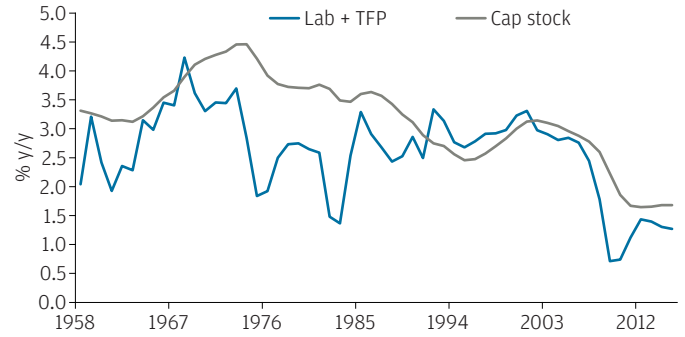
Source: Bureau of Labor Statistics, Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of 2015.

The traditional growth-accounting framework breaks economic output and growth into three components: the labor force (more precisely, hours worked); the capital stock (or, rather, “capital services”) and a residual known as total factor productivity (TFP). TFP, which includes everything not captured by the other two components, likely reflects over the long haul the pace of technological change. Estimates calculated by the Bureau of Labor Statistics suggest that growth rates of both the labor input and TFP have slowed in recent years (EXHIBIT 6). In simple terms, if “every worker needs a machine,” slower growth in the labor force should translate into slower growth in capital spending: Fewer workers need fewer machines. Meanwhile, an apparent slowdown in technological change, captured in the TFP figures, puts further downward pressure on capital spending by limiting the growth in each worker’s productive capacity—and thus the incentive to provide her with additional “machinery.” When combined, the slowing of these two growth drivers tracks the path of the business capital stock fairly well (EXHIBIT 7).

Looked at in this way, the current expansion’s weaker investment spending growth rate appears not as a separate anomaly but as part and parcel of the widely appreciated slowdown in potential economic growth, driven primarily by demographic changes (slowing labor force expansion as the population ages) and secondarily by the slump in productivity growth. Projections for trend rates of growth—including those that underlie J.P. Morgan’s Long-Term Capital Market Assumptions—have generally fallen in recent years. For example, our estimate of potential growth in the U.S. now stands at 1.75%, a far cry from the growth attained during most of the postwar era. Weaker investment spending growth reflects this phenomenon.

**The capital stock has expanded in line with labor and technology**

EXHIBIT 7: U.S. PRIVATE NONRESIDENTIAL CAPITAL STOCK AND GROWTH DRIVERS (% Y/Y, 10-YR MOVING AVG)



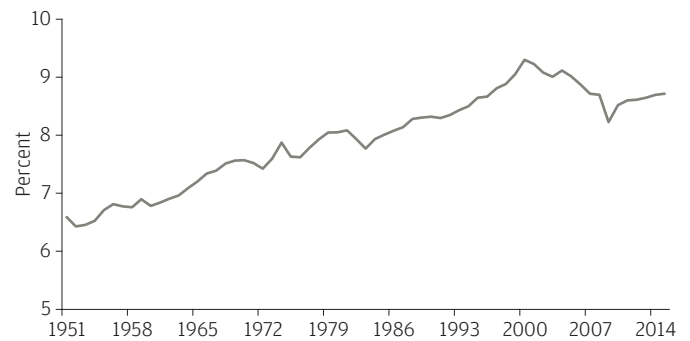
Source: Bureau of Labor Statistics, Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of 2015.

**Slower depreciation points to lower capex**

Another factor reinforcing this capital stock story is that the depreciation rate has slowed, from a peak around the year 2000. The capital stock results from two flows: the inward flow of new capital generated by investment spending and the outward flow of capital as it depreciates and falls out of use. For most of the postwar era, the U.S. capital depreciation rate, measured as a percentage of the capital stock, trended upward (EXHIBIT 8). This phenomenon owed to the increasing prevalence within the capital stock of intellectual property, for which the depreciation rate is higher than for equipment or structures, and to a trend toward faster depreciation for intellectual property itself as software, which grows quickly

**The rate of capital depreciation has slowed after an earlier uptrend**

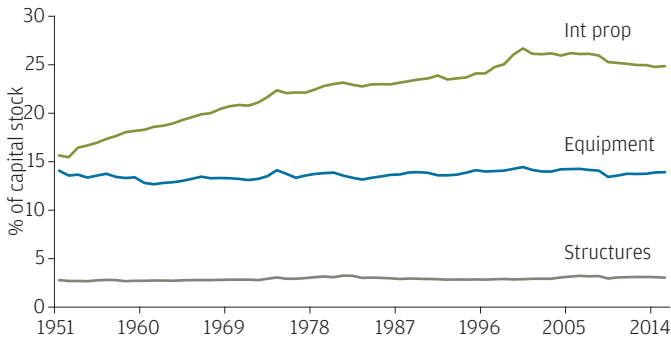
EXHIBIT 8: U.S. CAPITAL DEPRECIATION RATE (%)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of December 31, 2015.

Software has driven depreciation trends

EXHIBIT 9: U.S. CAPITAL DEPRECIATION RATE BY TYPE (% OF CAPITAL STOCK)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of December 31, 2015.

obsolescent, took on greater importance (EXHIBIT 9). For any desired level of the capital stock, a faster depreciation rate necessitates more gross investment spending—the concept captured in the national accounts data. More rapid depreciation thus contributed, at the margin, to the investment boom of the 1990s. More recently, depreciation has slowed, partly reflecting changes in the composition of investment spending and also owing to a somewhat longer service life for intellectual property. In turn, less depreciation implies less need for new investment spending to hold the capital stock where firms are targeting it, helping to account for weaker capex in the current cycle.

The “accelerator” model and corporate behavior

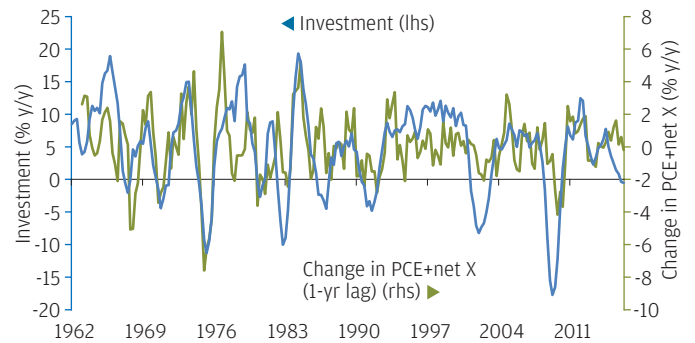
In judging capex against the behavior of the economy in steady state (equilibrium conditions), we can examine relationships that go beyond the capital stock. One such connection finds expression in the so-called accelerator model of investment spending, a model long used as a workhorse by economists that links growth in business investment, with a lag, to changes in the growth rates of other demand components: consumption and net exports. In other words, firms invest more when they see improvements in the trend of demand for their products, whether at home or abroad, and cut capex when they observe disappointing drops in domestic and international consumer spending.

While intuitive and parsimonious, accelerator models have never enjoyed spectacular success in describing actual investment data. Still, a simple version of the accelerator does

capture the broad contours of U.S. investment spending in recent decades (EXHIBIT 10). When this model is fit on pre-crisis data (1963–2007) and applied to post-crisis inputs, it shows no convincing deviation in the path of investment, compared with earlier patterns (EXHIBIT 11). To be sure, actual investment spending has undershot the model fit more recently, but this shortfall seems due to idiosyncratic drivers we address in the next section. The underlying trend has not diverged to a degree significant enough to suggest a change in corporate behavior.

The accelerator model broadly captures investment swings

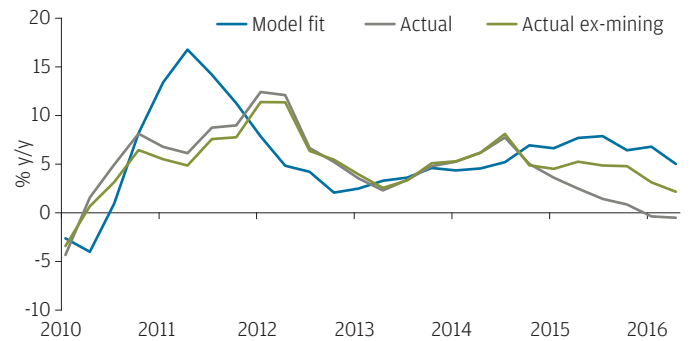
EXHIBIT 10: U.S. PRIVATE FIXED INVESTMENT AND DEMAND ACCELERATION (% Y/Y)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

The model does not suggest an anomaly at present

EXHIBIT 11: U.S. FIXED INVESTMENT AND ACCELERATOR MODEL FIT ON 1963-2007 (% Y/Y)



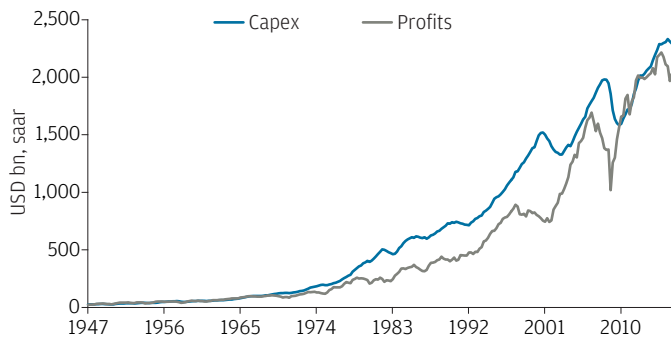
Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

## Investment spending and elevated corporate profits

A different approach relates investment spending to corporate profits. Presumably, greater profits boost companies' ability to spend and might also boost their willingness to do so (by pointing to a high return on investment). Indeed, over time, capex in the U.S. has evolved broadly in line with corporate profits (EXHIBIT 12). At the moment, the ratio of investment to profits, while higher than in the immediate post-recession era, stands slightly below its long-term average and significantly behind its 1980s peak (EXHIBIT 13). While perhaps mildly suggestive of a cautious stance by corporates, the depressed ratio may also owe to the elevated profit margins that have generally characterized recent years (and, in a related development, led to the large-scale accumulation of cash on corporate balance sheets).

### Over time, capex has risen in line with profits

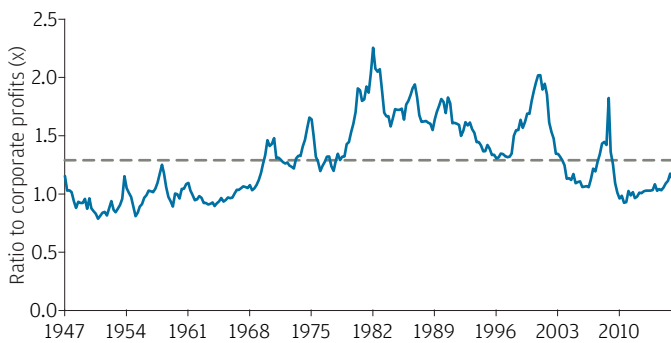
EXHIBIT 12: U.S. PRIVATE CAPEX AND CORPORATE PROFITS (USD BN, SAAR)



Source: Haver Analytics, Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

### Capex currently looks slightly low relative to earnings

EXHIBIT 13: U.S. PRIVATE CAPEX, RATIO TO CORPORATE PROFITS (X)



Source: Haver Analytics, Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

This tour of equilibrium conditions as they relate to business investment spending brings us to one main conclusion: Recent capex trends look consistent with underlying drivers. What do these trends portend for a capex forecast? On the favorable side, currently elevated corporate profitability suggests solid underpinnings for investment spending over time. Less helpfully, the fact that capex does not appear anomalously low (which would have been consistent with excess caution by firms) means that no quick fix, through a boost in sentiment, seems likely to increase capex significantly. While the new U.S. administration's proposed deregulation drive may continue to improve corporate sentiment, it may struggle to move the needle when it comes to overall business investment spending.

## CHANGING STRUCTURE OF THE ECONOMY

As we pivot toward a forward-looking view of capex, it will help to provide a more nuanced look at the underlying mechanics of investment spending at an economy-wide level. In the following two sections, our objective is to gauge the trajectory of several important trends for capex, building toward a view of where overall spending is going.

For starters, we take a more granular look at U.S. industries. There are two ways that overall investment can go up or down: (1) The composition of industries can shift toward those that are more or less capital-intensive; or (2) capital intensity can change within industries. In the U.S., shifts toward less capital-intensive industries explain about half of the secular decline in investment spending since the mid-1980s. Fixing industry weights at 1980 levels would raise private investment as a share of GDP by nearly 2 points (EXHIBIT 14, next page).

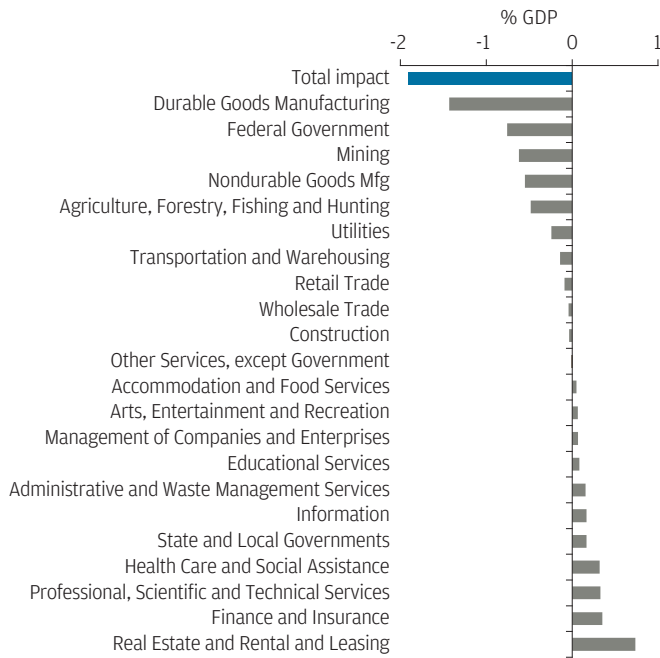
Since that time, growth of the capital-light U.S. tertiary sector—services such as retail, entertainment and health care—has far outpaced, and grown proportionally larger than, the primary and secondary sectors, including agriculture, mining and manufacturing. Undoubtedly, the gradually shrinking share of manufacturing in particular has been aggravated by the outsourcing of factory production to China and other emerging economies, though de-industrialization has been well underway since the 1950s. These historical trends, of shifting industry composition and the overall decline of investment spending's share of GDP, are common to most of the developed world and generally show a connection with higher output per capita. Canada and Australia, where commodity extraction remains a substantial share of the economies, are notable exceptions.



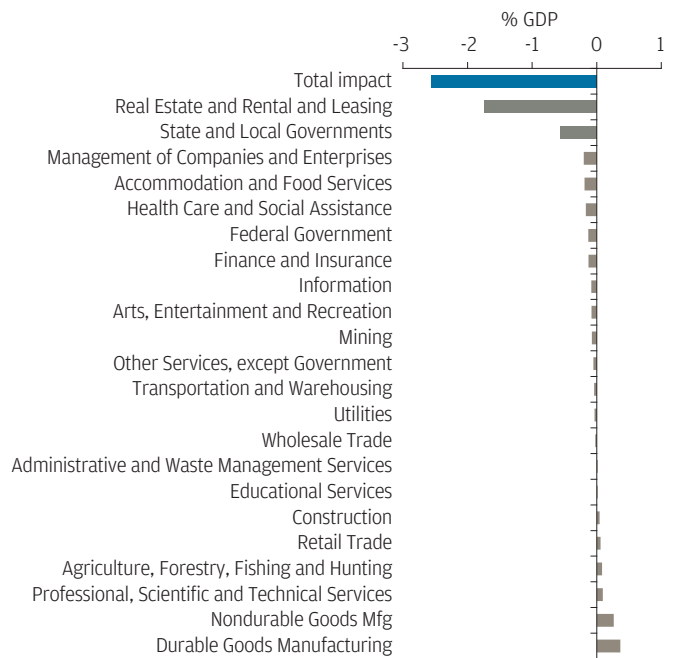
Economy-wide investment intensity is driven by changing industry mix and changes within industries

EXHIBIT 14: ECONOMIC MIX SHIFT EFFECT ON CAPITAL SPENDING (% OF GDP)

14A: INDUSTRIAL MIX SINCE 1980



14B: CAPITAL INTENSITY WITHIN INDUSTRIES SINCE 1980



Source: U.S. Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Solutions; data as of April 25, 2017.

Capex and the “New Economy”

One popular narrative is that capital-light service industries include “New Economy” activities such as software development and biotech research. This could not be less true. The research and development required to create intellectual property today is no less an investment than the factories and heavy equipment of yesteryear. Each is an up-front cost that will pay dividends over the long run, and each makes the same demand for money to finance that cost—regardless of whether the resulting wage income accrues to a construction worker or to a programmer. Indeed, the sum of all capital consumed—intellectual property, equipment and structures—relative to net value added is higher for the information sector than for manufacturing. The difference is that unlike the manufacturing sector of the 1950s, which employed nearly one in three American workers (vs. about 8.5% today), science and technology makes up a much smaller share of the U.S. economy. For instance, only 1.4% of employees today work in the federal category “computer systems design and related services.” If there is a problem with high-tech sectors, it is not that they are too much of our economy. Rather, it is that they are not enough of it.

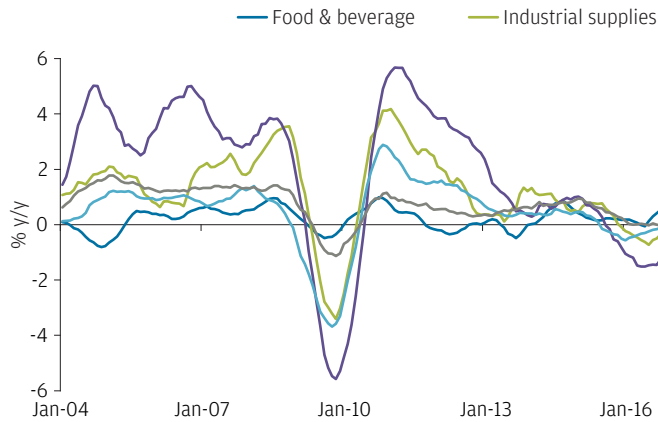
The influence of rising land values

Most of the variation in investment intensity within industries is cyclical, with one notable exception: private sector real estate. Here investment intensity has declined progressively for as long as the U.S. Bureau of Economic Analysis has kept records (at least since the 1950s). Population growth and urbanization, combined with greater productivity in construction methods (reducing costs) have meant that over time, a significantly higher share of the rent of a residential or office building can be attributed to the value of the land—which generates nothing tangible—than to any structural improvement upon it. The price of improved real estate has grown far faster than the price of construction; profit margins for the real estate industry have expanded accordingly. Ultimately, most of the net decline in overall investment intensity due to changing intensity within industries comes down to private real estate. The government sector, including public real estate, accounts for most of the rest. These developments essentially reflect statistical artifacts more than meaningful changes in the functioning of the economy or in private sector decision-making.

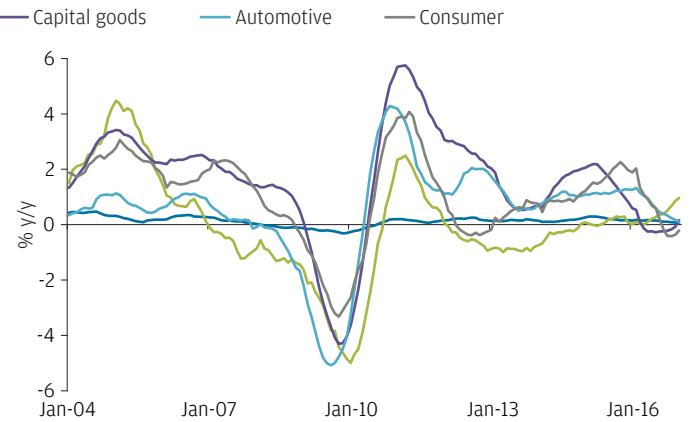
Capital goods flows are highly pro-cyclical

EXHIBIT 15: U.S. TRADE GROWTH BY SECTOR

15A: U.S. REAL EXPORT GROWTH (%Y/Y)



15B: U.S. REAL IMPORT GROWTH (%Y/Y)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016.

THE INTERNATIONAL ANGLE

A final perspective on secular investment drivers links U.S. capex trends to the rest of the global business investment complex. Our first observation is that the deceleration in capex has been closely connected to the recent slowing in the globalization process. As many observers have noted, the trade intensity of global growth (i.e., the ratio of international trade to global GDP) fell dramatically after the global financial crisis and since then has only recovered tepidly. Many explanations have been advanced to explain this change in the dynamic of the globalization process, but flagging demand for capital goods is prominent among them. As shown in **EXHIBIT 15**, real capital goods trade is highly pro-cyclical and an outsize contributor to the variance of overall export and import flows. As a result of its sensitivity to growth, capex trade has been an important transmission mechanism between slowing trend growth in the U.S. and trade intensity. In other words, as capex has moderated in line with overall economic activity, U.S. trade intensity has followed suit.

What are our expectations from here? While we anticipate some of the cyclical headwinds capex has been facing to abate, the fact that U.S. trend growth will continue to wane makes it less likely that U.S. trade intensity, and the overall rate of globalization, will revert to their pre-crisis levels.

Shifting production from developed economies to emerging markets

Globalization and the deepening of global trade links over the long run are behind another, somewhat more subtle, influence on the U.S. capex story. The fact that the U.S. runs a trade deficit implies that the level of domestic capital need not be as high as it once was to satisfy the domestic demand of the U.S. economy. Over the past three decades, the U.S. has farmed out a portion of its capital needs to its developed market (DM) trade partners and more recently to China.

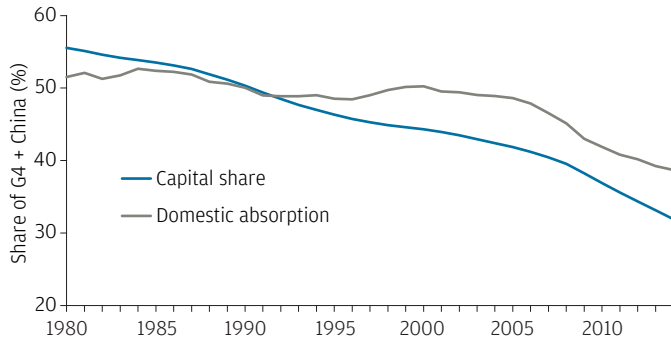
The U.S. is a net importer of production capacity and associated capital utilization from the rest of the world. There is nothing inherently wrong with this outcome, given the welfare gains from international trade, although it is not possible for the U.S. to run a trade deficit forever. But the very persistent trade deficit over recent decades has allowed U.S. demand to effectively punch above the U.S. capital stock's weight.

To illustrate this point, we look at data on the level of the capital stock in five major economies—the U.S., Japan, Germany, UK and China—and examine how the geographic composition of capital has evolved over time. For one, the U.S. share of the capital stock has declined steadily, from 55% of the five countries' total in 1980 to 32% in 2014. The shrinkage is accounted for in large part by China's industrial development over that period, which bolstered Chinese trend growth and capital accumulation.



Globalization has allowed U.S. capital to punch above its weight

EXHIBIT 16: THE CAPITAL INTENSITY OF U.S. DEMAND



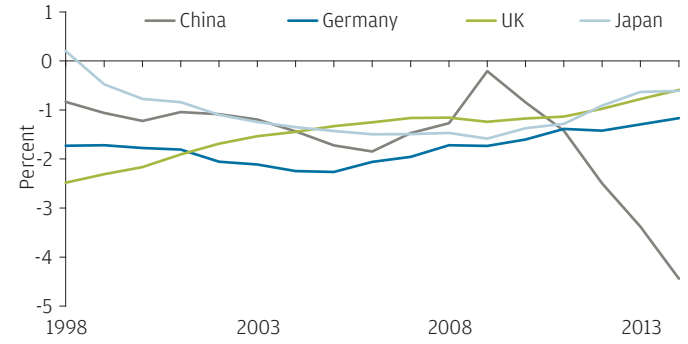
Source: Penn World Table, J.P. Morgan Asset Management Multi-Asset Solutions; data as of March 2017.

What is more informative in relation to U.S. investment rates, though, is the discrepancy between the U.S. capital share and its share of global demand, which we measure using a concept called “domestic absorption.” Absorption refers to expenditures on all final goods and services in an economy regardless of their origin, so it provides a gauge of that economy’s overall demand. The U.S. share of domestic absorption has also been falling over time, but at a slower rate than the capital share, with the divergence between the capital and absorption shares growing alongside the widening U.S. current account deficit, beginning in the early 1990s. By 2014, the U.S. accounted for 39% of overall demand with only 32% of the capital of the five major economies (EXHIBIT 16). We conclude from this observation that the drivers of the U.S. trade deficit have been important determinants of the location of the productive capital servicing U.S. final demand.

From the perspective of the other four economies, there was a fairly even distribution of “excess supply” (the excess of their capital share relative to their demand share) that went toward servicing the U.S. “excess demand” since the late 1990s (EXHIBIT 17). This evenness unwound in the post-crisis era as China’s demand decelerated, causing its excess supply capacity to burgeon. As a result, the narrative around the relative capital accumulation of the U.S. economy has changed significantly in recent years. The persistent and even influence of the current account on the U.S. capital share has been buffeted by a shock to global spare capacity coming from China. This shock, in turn, has put near-term pressure on

Whose capital is satisfying U.S. demand? Other G4 countries and China (especially China) are exporting their excess capacity to the U.S.

EXHIBIT 17: ABSORPTION SHARE MINUS CAPITAL SHARE (%)



Source: Penn World Table, J.P. Morgan Asset Management Multi-Asset Solutions; data as of March 2017.

investment spending in the U.S. and other net importers as well. In the long run, a narrowing U.S. current account deficit will bring the U.S. capital share more closely in line with the economy’s demand, which would be a mild positive influence on U.S. investment spending rates.

CYCLICAL DEVELOPMENTS IN INVESTMENT SPENDING: THE OUTLOOK

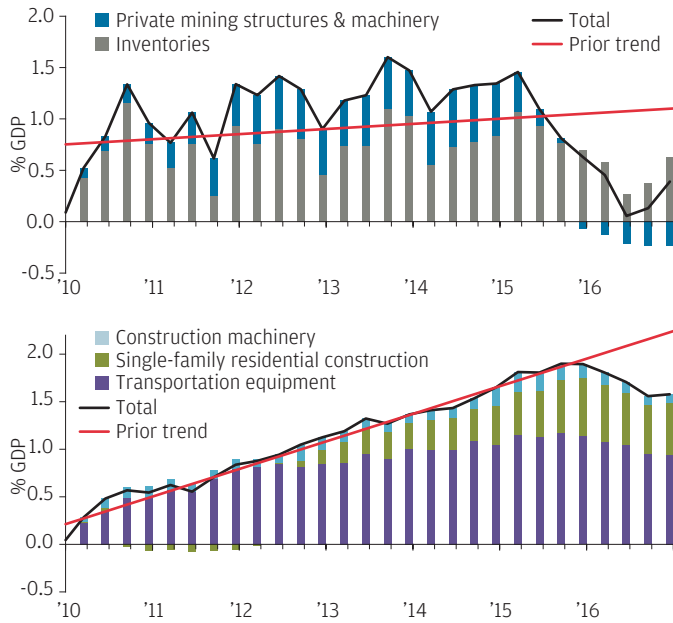
Short-run changes to investment intensity tend simply to be procyclical—shrinking more sharply than consumption during recession and then gradually recovering in share. Yet U.S. investment intensity has declined noticeably since 2015 without the push of a broader slowdown. Weak investment spending these past two years has been uncharacteristic, reflecting idiosyncrasies unrelated to the business cycle. In particular, U.S. energy sector investment spending declined sharply in early 2015 following the collapse of energy prices. At about the same time, the economy also experienced a substantial unwinding of surplus factory inventories. These declines were followed later that year by weakness in residential homebuilding, which persisted as a recovery in that sector began to align supply with demand, and then as mortgage interest rates rose. Transportation equipment, likely linked to slowing global trade rather than domestic factors, also contributed to the headline slowdown.

Importantly, these areas of weakness, though significant, represent only narrow slices of the economy, with idiosyncratic drivers unlikely to persist. Reinstating the prior steady trends

U.S. investment spending was recently hurt by a narrow group of sectors

EXHIBIT 18: U.S. GROSS INVESTMENT CHANGE AND LEVEL (% OF GDP)

18A: INVESTMENT % GDP, CHANGE SINCE Q4 2014 (BOTH PLOTS)



18B: GROSS INVESTMENT (% GDP)



Source: U.S. Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Strategies; data as of April 25, 2017.

in these few sectors would fully reverse the short-term investment slowdown (EXHIBIT 18). Most recently, in the first quarter of 2017, a rebound in total investment spending as a share of GDP began, and it should improve further as the energy sector recovers.

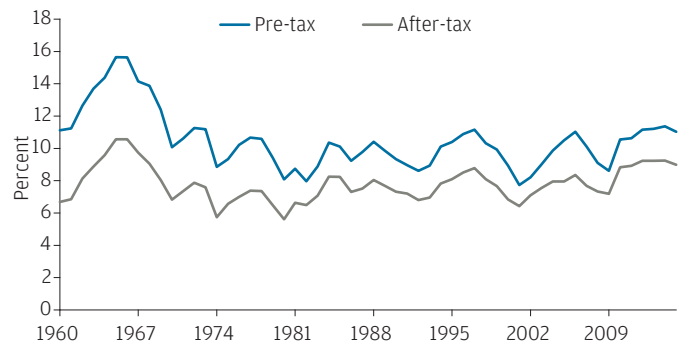
Corporate patterns consistent with investment strength

More generally, two other conditions currently send encouraging signals about the prospects for capex. First, the implied return on capital—that is, the U.S. corporate operating surplus as a percentage of the capital stock—has held up well during the current expansion and currently stands slightly above the long-term average, either before or after taking taxes into consideration (EXHIBIT 19). In other words, companies appear to be rewarded, in profitability terms, for adding to their capital stock by investing. Second, an estimate from U.S. macro-economic data of Tobin’s q, or the q ratio, a concept that compares the equity market’s valuation of installed capital with its replacement cost, stands just above 1 at the moment (EXHIBIT 20, next page). If this measurement is correct, companies are better off boosting capacity by creating it themselves than by buying another company, since high

valuations make the latter course more expensive. While neither of these relationships has historically predicted near-term capex patterns particularly well, both seem consistent with solid investment strength in coming years. Moreover, they join more speculative possibilities—such as the reshoring of U.S. production in certain industries, or the prospect of a fiscal boost to infrastructure investment—in increasing upside risk to the outlook for U.S. business investment spending.

The return on capital looks fairly high

EXHIBIT 19: U.S. IMPLIED RETURN ON CAPITAL STOCK (OPERATING SURPLUS, % OF CAPITAL STOCK)



Source: Haver Analytics, J.P. Morgan Asset Management Multi-Asset Solutions; data as of December 31, 2015.

The equity market suggests companies are rewarded for investing

EXHIBIT 20: U.S. TOBIN'S Q (EQUITY MARKET VALUE/CAPITAL STOCK REPLACEMENT COST)



Source: Haver Analytics, Bureau of Economic Analysis, J.P. Morgan Asset Management Multi-Asset Solutions; data as of June 30, 2016

INVESTMENT IMPLICATIONS

From a financial market perspective, trends in the investment share of GDP relate closely to equilibrium interest rates, given that the aggregate propensity of the economy to save and invest largely dictates the supply of and demand for money.<sup>2</sup> All else the same, a higher investment share implies more demand for borrowing to finance that investment, which, in turn, points to higher real interest rates—a relationship that in the U.S., finds empirical support as far back as data are readily available (EXHIBIT 21).

However, any boost to interest rates through this channel is likely to be modest and occur over an extended horizon. With overall investment spending—cyclical blips aside—not too far from its apparent equilibrium, a persistent surge appears

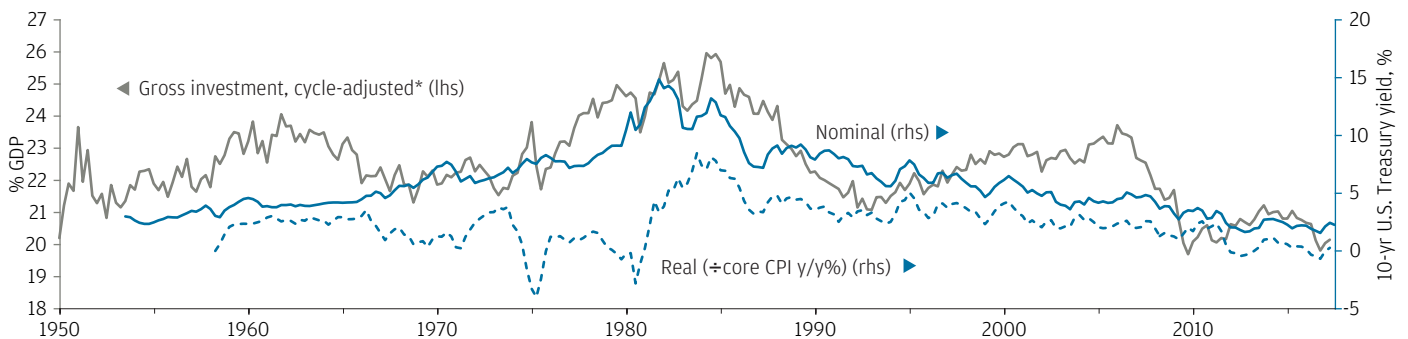
unlikely. For the same reason, shorter-term influences, like possible U.S. regulatory change, seem unlikely to meaningfully stimulate economic investment relative to GDP. Empirically, U.S. longer-term interest rates have broadly tracked nominal economic growth since the 1960s, and our outlook is for structurally slower growth. Technological change may be the most obvious candidate for a pickup in productivity and growth, but that aspect of the economy has not proven amenable to forecasting. Moreover, since credit markets are global in nature, U.S. bond yields depend partly on overseas demand for money; U.S. investment might get a boost, for instance, from producing more goods at home—thereby narrowing the trade deficit—but this would come at the expense of decreased investment overseas, thereby offsetting the impact on domestic interest rates.

The international aspect of capex holds clues to its equity market implications. Because of the high trade intensity of business investment spending, it boosted export-dependent emerging economies during the capex boom of the 1990s and, to a lesser extent, the mid-2000s. More recent sluggishness in capex has deprived emerging market economies of this tailwind, reducing the degree to which they benefit from stronger growth in developed market economies. At the same time, given that business investment spending typically generates manufacturing activity—and that manufacturing is highly represented in the stock market—fluctuations in capex tend to have a disproportionate effect on equities. The apparent reacceleration in business investment underway in early 2017 thus represents a boost for listed corporate earnings. A return, though, to a boom atmosphere for emerging markets likely would require a lasting uptrend in global capex.

<sup>2</sup> Equilibrium interest rates are those prevailing when an economy is operating at its potential and inflation meets the central bank target.

U.S. interest rates have historically tracked the share of investment in GDP

EXHIBIT 21: U.S. INVESTMENT AND TREASURY YIELD



Source: U.S. Bureau of Economic Analysis, Bloomberg, J.P. Morgan Asset Management Multi-Asset Strategies; data as of April 25, 2017.

\*Cyclically adjusted share of GDP removes cyclical component, which is estimated using linear OLS (ordinary least squares) model of the investment share on the CBO-estimated output gap.

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