

# Client Quarterly

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## Rise of the Robots: Is Any Job Safe?

The world appears to be enjoying its broadest economic expansion in more than a decade, and about 80% to 90% of the global economy is considered to be at full employment. Do we really have to worry about robots replacing workers?

Recent published studies from the estimable environs of Oxford University and the Massachusetts Institute of Technology claim that by 2023 automation will have taken over 47% of the current jobs in the U.S., 69% in India, and 77% in China. Others think that may be a bit of an overreach.

Using Department of Labor statistics, the economic research team at Putnam Investments makes the historical observation that “*jobs* don’t get automated away, *tasks* do.” They say today’s typical job involves more tasks than ever. Across some 18,000 work activities, they identify 41 discreet tasks categorized as either basic, repetitive, or advanced.

Human progress is a long-running saga of automation and organization taking on those basic and repetitive tasks. The process drives jobs toward a richer mix of advanced activities, including designing, refining, strategizing, and managing client and co-worker relationships.

Nevertheless, artificial intelligence (AI) is advancing into areas we have associated with distinctly human capabilities. Economists at BCA Research recently went looking for hard evidence that the displacement effect of new technologies is any stronger than in the past.

They do confirm that robot capabilities have improved significantly, while quality adjusted costs have plummeted. According to the International Federation of Robotics (IFR), robots used in industry are approaching two million units, hav-

ing grown about 10% per year since 2010. Automakers represent 45% of that total with another 17% deployed in the computer and electronics sectors. Most of the balance is used in producing metals, chemicals, and electrical/electronic appliances.

Japan was an early leader in deploying robotic technology, consistent with its prominence in autos and electronics and slow growth in its working age population. However, Japan’s stock of robots has actually fallen off the past 20 years. Over that same period, China saw the sharpest increase in the sheer number of industrial robots, and U.S. deployment has climbed steadily.

A more telling measure is a country’s robot *density*: the number of such devices per 10,000 people employed in manufacturing. By that gauge, the clear leader is South Korea with over 600 robots per 10,000 manufacturing workers, followed by Germany and Japan above 300, and the U.S. with about 200. China’s current robot density at about 75 is just over the average of the 23 countries in the IFR’s database.

That still leaves the question of whether robots’ expanding capabilities will drive greater worker displacement and a broader deflation effect. If so, we would expect to see rising unemployment and productivity (output per hour worked) and stagnating real wages. But so far, the rise of robots has been accompanied by a *recovery* in employment, rather *weak* productivity gains, and mostly recently, real wage *gains*.

News reports that show robots performing human-like actions on the factory floor may heighten our sense of impending job displacement. But the folks at BCA Research see robots as “just another chapter in a long history of automa-

## Reviewing Tax Changes While the Year’s Still Young

Passage of the *Tax Cuts and Jobs Act* in the waning days of 2017 may have felt like a rush job. But the Act’s core elements were nearly a decade in the making, thrust into the realm of political reality by the 2016 election. The *corporate* tax changes may be most transformative, as the prevailing corporate rate falls from 35% to 21%, and the U.S. transitions to a territorial rather than global system for taxing profits.

Those changes are designed to boost U.S. attractiveness to global capital investment. Since the Act’s passage, a host of major companies have announced employee bonuses, wage and benefit enhancements, and/or U.S. expansion plans. Many economists boosted estimates for near-term growth, and the market rally saw another leg up.

Long-term effects will be hotly debated, but for now, we turn to the changes that may affect your *personal* tax and investment planning.

### Rates and Thresholds

The Act makes only slight changes in the personal income tax rate structure. Generally, the six brackets above the 10% rate edge down a point or two, while the thresholds to reach those rates bump higher. The top marginal rate drops

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tion.” Precise comparisons of major technological advances are difficult, but the Harvard Business Review has estimated that robots contributed about 0.36% of the 2.5% annualized productivity growth from 1993

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## Of Bitcoin, the VIX, and Bull Markets

Three years ago, the *Quarterly* took a look at the emerging virtual currency, Bitcoin. And 18 months ago, we zeroed in on the VIX, an index designed to gauge expected stock market volatility. These two esoteric and otherwise unrelated phenomena took their respective turns in the limelight this past quarter, emblematic of excesses that can trap the unwary in frothy, fast-moving markets.

In 2017, Bitcoin's price had climbed from \$1,000 to \$6,000 by mid-November. But that merely set the stage for the real moon shot to \$19,000 by mid-December, followed by a swift, jagged tumble back to the \$7,000 level by early February. This intriguing experiment in a "currency" free from bank or government sponsorship had become an overnight, over-crowded trade. It is axiomatic that many more "investors" suffered the two-month roller-coaster ride than the initial ten-month climb.

Meanwhile, those historically low levels of market volatility discussed in the Fall 2016 *Quarterly* persisted long enough to promote another over-crowded trade – leveraged bets that the VIX would remain in the cellar. Then came the stock market's 10% drop in just eight trading days, followed by a 6% recovery the following week.

That whipsaw caught a host of sophisticated investors, including pension funds, university endowments, and hedge funds, on the wrong side of an apparent shift in trend. Some individual investors took losses in exchange traded funds (ETFs) created expressly to short the VIX, i.e., bet on a continuation of *low* volatility.

Whether virtual currencies can rival the dollar or other major currencies is highly debatable, but many see its underlying block chain technology as potentially transformative for all manner of payments by creating an immutable, verifiable transaction ledger. Meanwhile, the prudent use of options on the VIX

## It Seems We've Heard This Song Before

This quarter's Investment Performance Review (see below) presents a seemingly normal array of numbers compared to the market gyrations of the past several weeks. That table purposely eschews periods shorter than a year, as too much focus on short-term results is a well-known trap and a long-term investor's worst enemy.

Shifting sentiment on a range of issues finally brought on the kind of day-to-day market volatility we had *not* missed. In rapid succession investors had to digest a spate of negativity on leading tech companies, a sickening mass shooting at a Florida high school, a new Fed chairman's reading on the economy and interest rates, and the president's announcement of surprisingly stiff tariffs on imported steel and aluminum.

None of these developments is unprecedented, nor are they the

proverbial "black swans" that markets can't be expected to anticipate. They simply tended to reinforce the view that stocks were already priced for perfection in a world that suddenly looked far from perfect.

Perceptions tend to change more quickly than the underlying fundamentals. But are those new perceptions simply overwrought, or are they a belated awakening to truly troubling realities? These are the questions that *make* markets, amplifying both risk and opportunity.

So, back to the numbers, and especially that 10-year column. As it happens, the starting point of *that* decade was just a few months past the high water mark of a five-year stock rally and on the eve of one of the roughest 12 months in modern market history. Nevertheless, with diversification and a little patience, things didn't work out too badly. ■

Investment Performance Review	TOTAL RETURN * (dividends and capital gains reinvested)			
	--- Annualized through March 6, 2018 ---			
Selected Mutual Fund Categories *	1 yr.	3 yr.	5 yr.	10 yr.
Large-Cap Stocks (Blend)	15.7 %	10.0 %	12.8 %	9.0 %
Mid-Cap Stocks (Blend)	10.8	6.5	11.5	8.7
Small-Cap Stocks (Blend) †	9.8	8.0	11.1	9.2
Foreign Stocks (Large Blend) †	18.9	6.3	6.4	2.9
Diversified Emerging Markets †	27.8	8.8	4.4	2.9
Specialty Natural Resources †	11.6	4.6	1.9	0.6
Specialty Real Estate †	- 5.6	0.9	5.2	6.1
Cons. Allocation (30-50% Equity)	6.0	3.8	4.9	5.1
Long-Term Bond	4.2	2.7	3.8	6.4
World Bond †	6.2	2.6	1.3	3.1
High Yield Taxable Bond †	3.1	3.8	4.0	6.7
Long-Term Municipal Bond	3.4	2.4	2.5	4.2

\* Source: Morningstar. Past performance is NOT indicative of future results.  
† Small-cap stocks, high-yield (lower rated) bonds, and sector-specific funds may exhibit greater price volatility than the stocks of larger, established companies and/or more broadly diversified funds. Securities of companies based outside the U.S. may be affected by currency fluctuation and/or greater political or social instability.

*should be* a useful tool for moderating rather than exacerbating overall portfolio volatility.

The contagious nature of bull markets is not news. Each spawns a peculiar set of "sure bets" and eye-

popping short-term gains. The two examples noted above are the latest illustrations of an old lesson. Outsized gains that promote crowded, time-limited trades often lead, in turn, to outsized portfolio losses. ■

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## Reviewing Tax Changes While the Year's Still Young

from 39.6% to 37%, applied to joint taxable income above \$600,000, or \$500,000 for a singles.

### Investment Income

The law retains favored rates (0% / 15% / 20%) for long-term gains and qualified dividends. The income brackets for those rates are similar to those in effect for 2017. The 3.8% surtax on investment income also was retained. It applies to investment income that is part of adjusted gross income (AGI) over \$250,000 (\$200,000 for singles).

### Pass-through Business Income

If you own a business that flows profits through to your personal tax return (e.g., partnership, LLC, S-corporation, or sole proprietorship), the new law may allow you to deduct up to 20% of that net income. That can lower the top rate on those profits to 29.6% from 37%, a nod to employers who don't benefit from the cut in the corporate tax rate.

However, the deduction adds some complexity. For most personal service professionals the deduction phases out above certain levels of family income, while other limiting factors apply to other businesses. Tax specialists are seeking guidance regarding some ambiguity on these and other aspects of the pass-through deduction.

### Standard Deduction and Personal Exemption

For many, the biggest changes are the near doubling of the standard deduction and repeal of the personal exemption. With a standard deduction of \$24,000 for couples (\$12,000 for singles), some 25 million *more* taxpayers are expected to take the standard deduction, simplifying the process for them *and* the IRS.

Repealing the personal exemption (\$4,050 for 2017), while expanding the standard deduction and child credit, did complicate the reset of tax withholding rates. But Treasury released the new tables in early January, so most employee paychecks reflected the withholding changes by mid-February.

### Changes for Itemizers

The most popular itemized deductions remain, but some new limits apply. The amount of *new* home mortgage debt on which interest is deductible is capped at \$750,000, down from \$1,000,000. The allowance for \$100,000 of added home equity debt is gone. However, the prior limits apply for financing in place *before* the Act's passage.

Most contentious of the Act's provisions is the \$10,000 limit on deducting state and local taxes. Some high-tax-high-earner states may try to restructure their levies to circumvent that limit, creating a new front for state-federal conflict.

Charitable contributions remain deductible, but the larger standard deduction will remove the tax incentive for many donors. The inherent flexibility of charitable giving may facilitate the bundling of deductible expenses into one year, then taking the standard deduction the next.

The Act eliminates the "miscellaneous" expense deduction, which comprised such items as unreimbursed employee travel and entertainment, union dues, tax preparation fees, etc. Relatively few taxpayers benefited from the miscellaneous expense deduction, as it was limited to the amount by which those items totaled more than 2% of AGI.

### Retirement Savings

During final deliberation on the tax bill, some in Congress argued for lowering retirement plan contribution limits. Those proposals failed to get traction, and contribution limits for 2018 were held at 2017's levels or raised modestly.

There is a change bearing on *conversions* of assets from Traditional to Roth IRAs. The Act eliminates the ability to *reverse* a conversion, a valuable backstop when a conversion turned out to have been ill-timed or ill-advised. The change raises the premium on careful analysis of the inherent trade-offs of any proposed conversion.

### Education Savings

The Act opens the door to us-

ing tax-free withdrawals for *K-12 private school tuition* from 529 College Savings Plans (up to \$10,000 per year). Previously, only Coverdell Education Savings Accounts (ESAs) offered tax-free savings for K-12. In several respects, 529 Plans are more flexible than ESAs.

### Estate Planning

The *lifetime* exclusion from *federal* estate and gift taxes has roughly doubled, to \$11.2 million for an individual and \$22.4 million for a couple. Also, the annual exclusion for individual gifts has been raised to \$15,000 (per individual) for 2018, and it's set to be indexed for inflation in future years.

### Notes for Seniors

Older taxpayers are less likely to have been itemizers, so many will benefit from a higher standard deduction. Congress kept the added standard deduction for those over 65, set at \$1,600 for singles and \$1,300 for each spouse in a married couple. For many seniors the much higher standard deduction will more than compensate for the elimination of the personal exemption.

If you are over 70½ you may want to consider the opportunity to have IRA withdrawals go directly to qualified charities. Those transfers do *not* count as taxable income but *do* help satisfy required minimum withdrawals; an effective deduction *without itemizing*. It also can help reduce those Medicare premium surcharges tied to higher income.

### ... and for Divorced Couples

The Act eliminates the deductibility of alimony payments, and it also makes those payments non-taxable to the recipient. But it's not quite as simple as that, which prompts one last thought.

### Talk to a Pro, or Two

As we all work through the process of filing our 2017 returns under the *old* law, it is not too early to consider how the new regime affects us for 2018. Your tax and investment professionals can lend a hand. ■



## College Decision Day Draws Near

College decision day (May 1st) is closing in on millions of high school seniors. Financial aid offers from different schools will bear on many of those decisions. So, before those Aid Award letters start rolling in, here are a few preparatory tips.

**Terms of Engagement:** Each school estimates its *COA* (Cost of Attending), including tuition, fees, on-campus room and board, and some indirect costs. Other costs may depend on a student's course

of study, proximity to campus, etc. The *EFC* (Expected Family Contribution) is derived from information submitted on the *FAFSA* (Free Application for Federal Student Aid). A school's total aid offer should equal the *COA minus the EFC*.

**Prepare to Compare:** Financial aid packages differ in how they bridge that *COA-EFC* gap. The College Board advises a close look at the proportion of gifts and scholarships versus subsidized loans or

campus-based work. The Board offers a comparison tool at [www.bigfuture.org](http://www.bigfuture.org). Under "Pay for College," click on "Tools & Calculators," then on "Compare Your Aid Awards."

**Stay in the Game:** Observe the deadline to accept an award. Contact a school's aid office if you have questions, your financial situation has changed, or you want to lobby for a better offer. And remember, financial aid is awarded a year at a time. Some components may be for one year *only* or depend on a student meeting certain conditions. ■

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through 2007, compared to the steam engine's 0.34% annualized contribution from 1850 to 1910, and 0.60% from the information technology revolution from 1995 to 2005.

Using data from the U.S. Department of Labor, the IFR has been able to show modest correlation across different industrial sectors between higher robot density and lower unit labor costs. That may simply be trailing confirmation of the industries in which current robot technology has been most applicable. As for a broad deflationary effect, a comparison of inflation in major industrialized nations has

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not yet shown a correlation with robot density.

Integrated information technology, robotics, and artificial intelligence will continue to assume tasks traditionally done by humans while reshaping and often enriching the jobs we do. It may be foolhardy to claim that any job is immune to being "automated away." But it is estimated that 70% of *today's* occupations require creative thinking, still considered a distinctly human capability, and in the near future more than 80% of jobs will revolve around advanced tasks. Progress certainly can be unsettling, but probably less so than the alternative. ■