

## Global Money Notes #11

### Repatriation, the Echo-Taper and the €/ \$ Basis

CONTRIBUTOR

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The view that the repatriation of U.S. corporations' offshore cash balances will lead to a stronger U.S. dollar and tighter money markets is wrong, in our opinion. It is wrong because offshore cash balances are in U.S. dollars already and are invested mostly in one to five-year U.S. Treasuries and term debt issued by banks.

The move from a global to a territorial tax system marks an inflection point in fixed income markets. The territorial system marks the end of corporations' decades-long habit of putting surplus cash accumulating offshore into bonds. As the corporate bid for U.S. Treasuries and bank debt disappears, yields, swaps spreads and banks' term funding costs could see upward pressure.

In a year where Treasury supply will increase significantly, that's bad enough. But things can get worse: if corporate treasurers add to that supply by selling their roughly \$300 billion hoard of U.S. Treasury notes, rates could move big. In fact, we believe this corporate "echo-taper" could be worse than the Fed's taper...

That's because we know that the U.S. Treasury will re-issue the Treasuries the Fed no longer buys as bills, not notes, and so the Fed's taper won't add a lot of duration back into the bond market. That's not the case with the echo-taper.

The echo-taper reminds us of China's occasional sale of its Treasury holdings when SAFE defends the yuan. There is always an element of surprise to these sales that leaves a typical trail: higher yields and wider swap spreads as dealers deal with "indigestion". If the pace of the echo-taper is surprisingly fast, flows on the back of repatriation may well feel like SAFE dumping bonds...

A wave of M&A transactions on the back of corporate tax reform this year is something to watch for as a factor that could speed up the pace of repatriation.

Debt buybacks could drive similar dynamics. If U.S. corporations buy back their reverse Yankee debt, that will involve the tear-up of €/ \$ cross-currency swaps. That, combined with our [view](#) that the increase in Treasury bill supply this year (on the back of the Fed's taper and the Treasury normalizing its cash balances) will tighten the front-end, points to a steeper €/ \$ cross-currency basis curve.

Timing the pace of repatriation will be key to trade these themes successfully.

The data sources needed to source alpha change over time. Watching the Fed's open market operations was a thing of the 1980s. Watching FX reserves was a thing of the 1990s. Watching the HQLA portfolios is a thing of the present. Now we have to add watching the portfolios of the iconic firms of the present...

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The view that the repatriation of U.S. corporations' offshore cash balances will lead to a stronger U.S. dollar and tighter money markets is wrong, in our opinion. It is wrong because offshore balances are in U.S. dollars already and only a small portion is invested in money market instruments.

Offshore balances were invested in the money market a decade ago, but as they grew, corporate treasurers added more risk. [Corporate cash pools](#) became corporate bond portfolios, similar to how China's FX reserves were first invested in U.S. Treasury bills and then notes as reserve accumulation took on epic proportions.

You don't run trillions the way you run billions: size forces you to diversify.

Years of QE and a decade at the zero-bound also forces you to diversify.

Words matter...

In our discourse about corporate tax reform, we should replace the concepts of "cash balances" with "bond portfolios" and "repatriation" with "distribution".

Cash balances are not hallmarks of an era where corporations are net providers of funding – where firms have positive operating cash flows and need to invest their surplus cash. If surplus cash accumulates faster than the need for long-term capital outlays, it tends to gravitate toward the *bond* market, not the money market. The gravitational pull of bonds is even stronger if one knows that, barring tax reform, high corporate tax rates in the U.S. will keep surplus cash balances accumulating offshore in limbo for many years to come, and if aggressive monetary easing keeps yields on cash low and curves historically steep.

*Bonds*, not cash...

Throughout our analysis, we'll refer to offshore *savings* instead of offshore cash balances. Savings is a neutral term, similar to how FX reserves is a neutral term. Both terms are agnostic as to how funds are being invested. In the current context, savings is a more fitting term than cash balances, as the bulk of offshore savings are invested in bonds, not cash. The term "cash" narrows our analytical perspective. The term "savings" broadens it.

Repatriation is also a misnomer. Repatriation is a relevant concept only in a *tax* context – moving money from offshore tax havens back to the U.S. – not a financial markets context. From a financial markets perspective, the bulk of offshore savings are onshore already – in U.S. Treasuries and agency debt, securitized assets and in corporate and bank debt.

In the past, offshore savings could not be distributed to shareholders without generating a tax liability. Tax reform just changed that. Past earnings are now subject to a low tax rate, enabling the release of billions in savings that have been trapped offshore for years. Money will change tax borders, not financial borders. Eurodollars won't become U.S. dollars.

*Distribution*, not repatriation...

This issue of *Global Money Notes* has six parts to it. Part one provides an overview of corporate tax reform. Part two describes which corporations have amassed the most offshore savings. Part three describes how offshore savings are invested. Part four describes the main funding strategies used to distribute offshore savings to shareholders in the past, and the legacy of these strategies – funded bonds portfolios. Part five describes what will happen to these funded bond portfolios under the new tax regime, and highlights some potential cross-market impacts. Finally, part six concludes our analysis.

## Part 1 – Settling the Past, Plotting the Future

Corporate tax reform has two parts – settling the past and plotting the future.

Settling the past refers to dealing with the stock of offshore earnings that U.S. corporations never paid taxes on to the U.S. government. Under the new rules, offshore earnings that have been reinvested in operating activities will be taxed at an 8% rate, and offshore earnings that have been reinvested in financial instruments would be taxed at a higher 15.5% rate. Paying taxes on the stock of offshore earnings is *mandatory*, meaning that taxes apply whether offshore earnings are “repatriated” – that is, distributed to shareholders – or not.<sup>1</sup>

Essentially, settling the tax bill on the stock of offshore earnings will buy U.S. corporations the *option* to distribute offshore savings *if, when and at the pace at which* they want to.

The tax bill that got triggered on January 1, 2018 is payable over a leisurely eight years, and corporations may distribute their offshore savings faster than they pay the tax bill that in principle allows them to do so. Higher interest rates over the coming years should erode the present value of the tax bill, making tax reform a gift that will keep on giving.

Plotting the future refers to moving from a worldwide tax system to a territorial tax system. Under the territorial system, corporations would be able to distribute offshore savings in exchange for paying a token amount – a distribution “toll” charge.<sup>2</sup> What this means is that in the future, corporations will no longer have the incentive to invest surplus cash in bonds – they’ll be able to distribute them to shareholders right away. Decade-long cycles of accumulation, bond buying and lobbying for tax holidays would become a thing of the past.

Under the territorial system, *free cash flow* will flow more freely across tax jurisdictions. Under the worldwide system, the free flow of offshore free cash flow was blocked by the “Great U.S. Tax Wall”. The territorial system serves up a wrecking ball to that wall: as the U.S. is building walls on its geographic borders, it is eliminating walls on its tax borders – embracing protectionism on the one hand, and tearing down liquidity silos on the other.

The market impact of “dealing with the past” and “plotting the future” is likely to be small.

Paying about \$200 billion in back taxes over eight years on \$2 trillion in offshore earnings will barely leave a trail in funding markets. Paying an extra \$25 billion a year in taxes won’t overwhelm either corporations or funding markets: corporations have ample liquidity to pay such an amount (see [here](#)), and if corporations chose to finance the payment of taxes, issuing an extra \$25 billion in commercial paper a year won’t overwhelm funding markets – money funds will welcome the supply from cash-rich firms that are better rated than banks.

Unshackling the flow of free cash flow will enhance global corporations’ liquidity profile, which should be positive for investment grade (IG) credit spreads and equities. But *everything* is positive for IG credit and equities these days – the liquidity-enhancing impact of moving from a worldwide to a territorial system is a drop in a sea of positive sentiment.

<sup>1</sup> The repatriation tax holiday of 2004 was different. Back then, a repatriation tax was triggered only if a corporation chose to bring home offshore savings. This time a tax liability will be triggered whether a corporation gives money back to shareholders or not.

<sup>2</sup> The territorial tax system comes with a global minimum tax of 10.5%. Corporations can distribute offshore earnings if they pay at least this rate. Corporate tax rates in Ireland (the globe’s IP haven) are 12.5%. The 2.0% difference is the distribution toll charge.

But if paying taxes and moving to a territorial system won't have a sizeable market impact, what will? Dealing with the balance sheet legacy of the worldwide tax system will; that is, the dismantling of the bond portfolios that corporations amassed over the past decade, and the roll-back of the strategies that have been used by corporate treasurers to fund them.

These flows should impact U.S. Treasury yields, swap spreads, banks' term funding spreads and the longer-end of the €/€ cross-currency basis curve. We explain how in three steps: first we tally offshore savings, and then we look at how savings are invested and funded.

## Part 2 – Behind Every Great Fortune...

Since the repatriation tax holiday of 2004, U.S. corporations have amassed over \$2 trillion in offshore *earnings*.<sup>3</sup> But not all of these offshore earnings can be distributed. \$1 trillion have been reinvested in business expansion via investments in PP&E, R&D and M&A<sup>4</sup> and are hence stuck in illiquid assets. Offshore *savings*, i.e., offshore earnings parked in liquid assets that are potentially available for distribution, are a more “modest” \$1 trillion.<sup>5</sup>

This \$1 trillion in offshore savings belongs to the 150 firms in the S&P 500 ex financials (henceforth the “universe”) that provide a precise disclosure of their offshore savings. This amount represents the upper bound of how much money these firms will distribute.

This gigantic pool of savings is also the corporate analogue of China's FX reserves, and, to paraphrase Balzac, behind every great fortune, there is a macroeconomic “crime” – mercantilism in the case of governments, and tax arbitrage in the case of corporations.

Figure 1 breaks down the offshore savings of these 150 firms by industry, skew and name. By industry, information technology (IT) and healthcare dominate offshore savings. But these standard industry classifications hide some important detail. Within IT for example, hardware dominates, accounting for \$350 billion in offshore savings. Software accounts for a smaller \$275 billion. Within healthcare, *all* \$200 billion in offshore savings are accounted for by pharmaceutical companies. Industrials and branded consumer staples account for the bulk of the remaining \$150 billion in offshore savings.<sup>6</sup>

The distribution of offshore savings is skewed not only across industries but also firms. The top ten names control over \$600 billion in offshore savings, the next ten \$125 billion, and the next ten about \$70 billion. The bottom 120 names control just over \$150 billion. The distribution of corporate savings is thus strikingly similar to the global wealth pyramid: just as the richest 10% of households worldwide control 80% of global wealth (see [here](#)), the richest 10% of U.S. corporations control close to 80% of offshore corporate savings.

Apple, Microsoft, Cisco, Oracle, Alphabet and Qualcomm (enablers of the digital economy) dominate the top ten, followed by pharmaceutical giants J&J, Pfizer, Amgen and Merck. Apple's savings pool is off the charts: at the end of 2016, its size was over \$200 billion. Microsoft's pool is a distant second: at the end of 2016, its size was just over \$100 billion. The remaining IT names in the top ten control offshore savings pools of about \$50 billion on average, and

<sup>3</sup> As of fiscal year-end March, 2017 U.S. corporations had \$2,225 billion in offshore earnings.

<sup>4</sup> Property, plant and equipment, research and development, and mergers and acquisitions.

<sup>5</sup> As of fiscal year-end March, 2017 U.S. corporations had \$1,128 billion in offshore savings.

<sup>6</sup> Industrials control \$50 billion in offshore savings, led by GE, United Technologies, Honeywell International and Caterpillar. Branded consumer staples control \$40 billion in offshore savings, led by Coca-Cola, PepsiCo Inc. and Procter & Gamble Co.

the pharma names in the top ten control savings pools of \$30 billion on average. The size of the savings pools managed by the next ten names is \$10 billion on average, and the size of the savings pools managed by the next ten names is \$5 billion on average. The remaining 120 names control savings pools that are just over \$1 billion on average – about one-third of these names control offshore savings of less than \$1 billion.

This is what we know about the distribution of *disclosed* offshore savings.

There are some corporations that don't disclose offshore savings, but that does not mean they don't have any. To have a more precise estimate of potential distribution flows, we need to estimate the volume of *undisclosed* offshore savings as well. We can derive this in two steps.

First, by calculating the *total* (that is onshore and offshore) savings of the 100 names in the universe that disclose only offshore earnings but not offshore savings, and then examining the distribution of the savings of these 100 names by size buckets.

Second, by applying to these totals some rules of thumb derived from the offshore share of the total savings of the 150 names that disclose foreign savings plus some adjustments.

Thus, the total (that is onshore and offshore) savings of the 100 names in the universe that disclose only their foreign earnings but not their foreign savings is circa \$250 billion.

Figure 2 breaks down this \$250 billion in total savings by industry, skew and name. Vehicle manufacturers dominate, with \$50 billion in total savings.<sup>7</sup> Energy companies and healthcare (dominated by Medtronic PLC) follow, with about \$40 billion in savings each, followed by information technology and industrials with \$20 billion in total savings each.<sup>8</sup>

The top ten names control \$130 billion in savings, the next ten control about \$30 billion, and the next ten control \$20 billion. The average size of the pools controlled by the top ten, the next ten, the next ten and the lower 70 are \$13, \$3, \$2 and less than \$1 billion, respectively. No name here belongs to the league of the top ten in the previous segment, and the concentration of savings is also less pronounced here than in the prior segment.

Why?

Corporations that rely on booking revenues derived from intellectual property (IP) assets in tax havens are more efficient at shielding earnings from the IRS than firms that don't (IP assets range from the integration of design and hardware into a phone to the formulas of blockbuster drugs). This explains the greater concentration of savings in the first segment.

Compared to the first segment, the second segment of the universe is less reliant on IP assets – there ain't no “killer” apps, brands, codes, designs or formulas in the auto, energy, industrial and medical equipment manufacturing sectors. The strategy to book revenues generated by a portfolio of IP assets in tax havens is not easy to apply in these industries.

<sup>7</sup> General Motors Co.'s savings include the finance receivables of its finance arm, which inflates our measure of offshore savings.

<sup>8</sup> Vehicle manufacturers include General Motors Co. and Ford Motor Co. Energy companies include Chevron, Exxon Mobil, Occidental Petroleum and ConocoPhillips. Healthcare is dominated by Medtronic PLC. IT includes IBM and Texas Instruments. Industrials include FedEx and Paccar. Consumer discretionary (ex entertainment) includes Target, Best Buy and Home Depot.

That said, corporations in these industries found other ways to manage down their taxes: [inversions](#) and ways of booking domestic revenues offshore became common strategies. But no matter how aggressive their use of these strategies, firms in the second segment simply couldn't shield earnings with the efficiency of those that book IP assets offshore. This explains the low concentration of savings in the second segment, relative to the first.

Of the \$250 billion of total savings in the second segment, savings pools with an average size of \$1-5 and \$10-30 billion make up roughly \$100 billion each, and savings pools with an average size of less than \$1 billion and \$5-10 billion make up about \$25 billion each.

Applying the offshore share of total savings of similarly sized pools from the first segment yields about \$150 billion in additional offshore savings.<sup>9</sup>

Risks are that this \$150 billion in additional savings overstates the truth, because the names in this segment have a more limited scope to shield earnings relative to the names in the first. To account for this, we adjust down by a fourth the offshore share of total savings derived from the first segment, which yields a smaller \$100 billion in offshore savings.

There are a further 150 corporations in the universe with total savings of circa \$300 billion. But these names don't disclose any foreign earnings, and if there ain't no foreign earnings there ain't no foreign savings. We omit this segment of the universe from our analysis.

Thus, in total, \$1.1 trillion in savings are likely to be distributed *at most*.

The top ten firms account for \$600 billion of these savings and the top 30 for \$800 – *three-fourths* of the total!

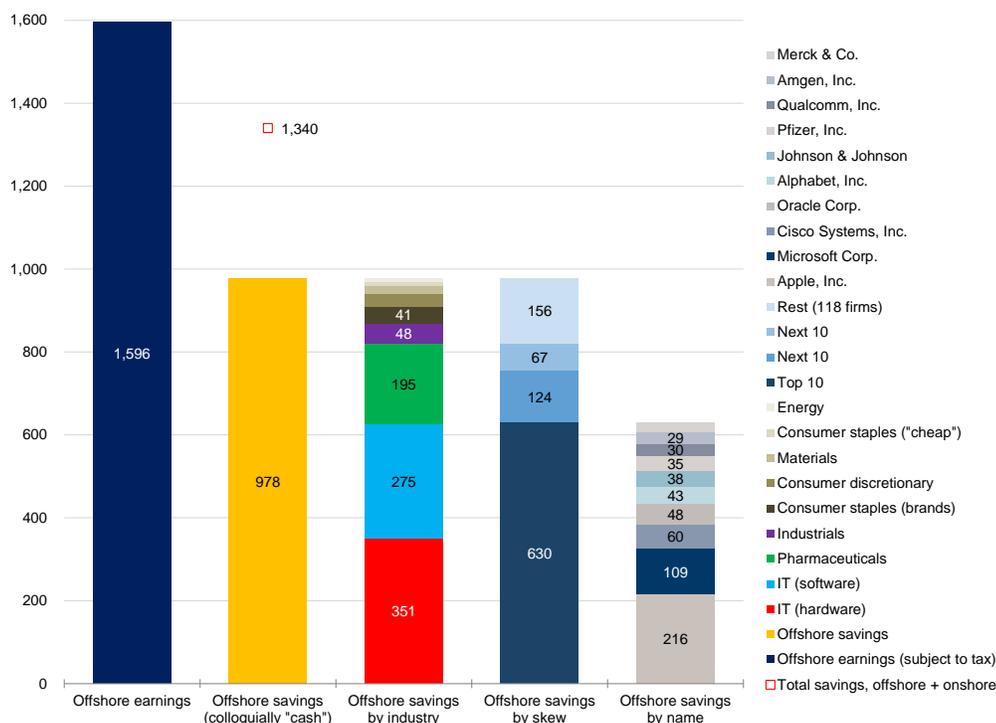
In the next section, we examine how the ten most wealthy firms (henceforth the top ten) invest their savings and whether the cash versus bonds mix in investment portfolios varies by the size of corporate savings pools. Does Microsoft run money the way Apple does? Does the rest of the top ten run money like Apple and Microsoft do? Does the next ten run money like the rest of the top ten? Does the bottom ten run money like the next ten?

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<sup>9</sup> Based on the disclosures of the 150 names that do provide a breakdown between total savings versus offshore savings, corporations with total savings of <\$1, \$1-5, \$5-10 and \$10-30 billion kept 65%, 56%, 57% and 63% of total savings offshore. Corporations with total savings of \$30+ billion kept 81% of total savings offshore. Apple and Microsoft kept over 90% offshore.

**Figure 1: The Wealth of Corporations (1)**

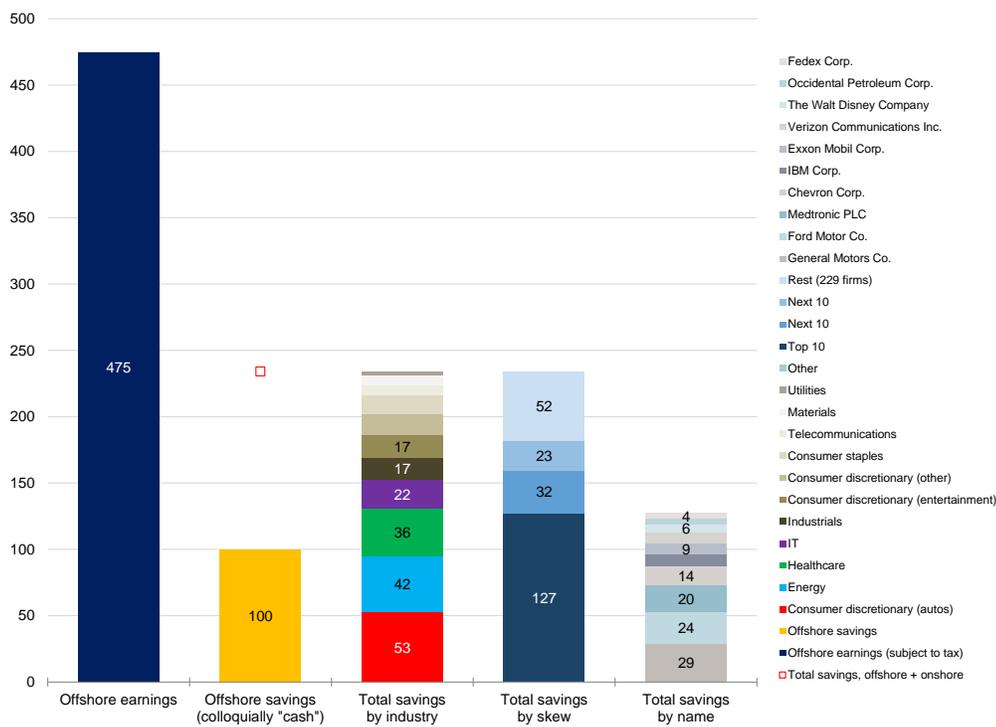
\$ billions, as of December 31<sup>st</sup>, 2016



Source: HOLT®, Credit Suisse

**Figure 2: The Wealth of Corporations (2)**

\$ billions, as of December 31<sup>st</sup>, 2016



Source: HOLT®, Credit Suisse

## Part 3 – Bonds, Not Cash

Given that about a half of offshore corporate savings are controlled by the top ten, we examine their investment portfolios first.<sup>10</sup> To obtain the data for this part of our analysis, we have tediously hand-picked twenty years of data on major investment categories – cash, cash equivalents, bonds and equities – and ten years of data on bond investments. The source of the data are the top ten's SEC filings. Because not all firms disclose the details of their investments (some provide limited detail, some provide granular stuff), we had to find the lowest common denominator for investment types and maturity buckets. As such, the charts below represent a *unique dataset* that has not been assembled before.

Figure 3 shows the total savings of the top ten over time by major investment category. Because corporations only provide a breakdown of investments for *total* savings, but not offshore savings, we can only plot total savings by investments, but not offshore savings. That said, cross-referencing Figure 3 with Figure 1, we can see that about 90% of the top ten's total savings are held offshore, and so, for the most part, the investment details shown below reflect the investment details of the top ten's *offshore* investment portfolios.

Figure 3 shows that the rise in the top ten's savings took off right after the financial crisis –total savings went from just over \$100 billion in 2008 to over \$700 billion by end-2016 (the dark blue line). All of this increase came from offshore savings, not onshore savings, and nearly all of this increase was invested in *bonds* (the orange line), not cash. The top ten's holdings of cash and cash equivalents (the light blue and red lines, respectively) barely increased, and given that combined they account for only 10% of total savings, they likely reflect the top ten's *genuine* liquidity needs. Thus, the excess appears to be in the bond segment of these corporate investment portfolios and not the cash segment...

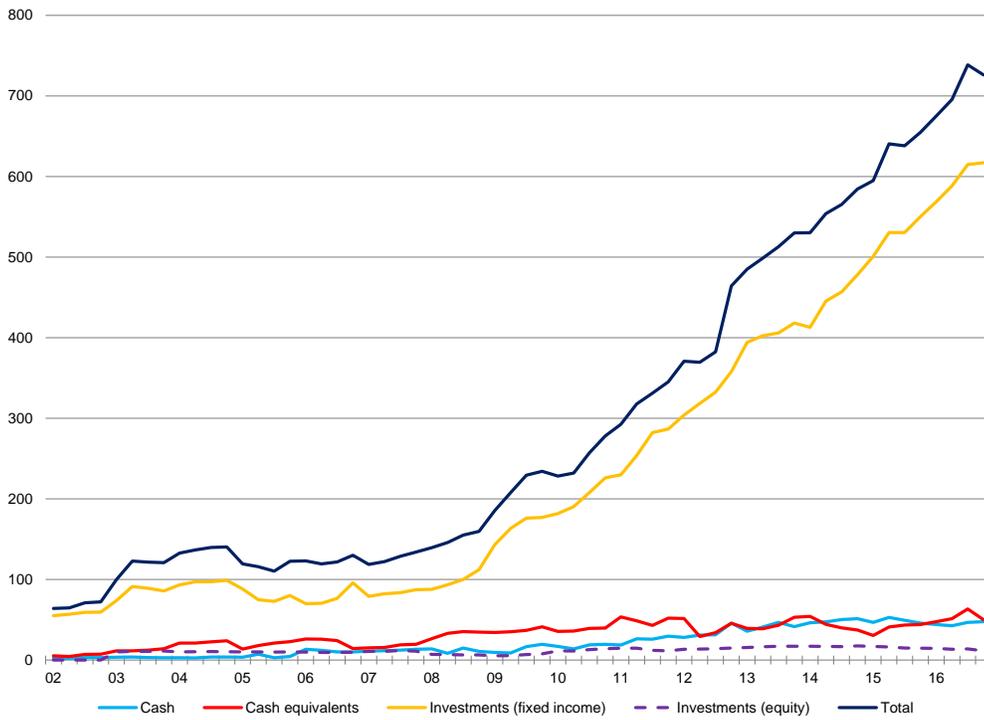
Figure 4 breaks down the top ten's investments in bonds by category. We are only able to provide a complete breakdown going back to 2014. Prior to 2014, some names in the top ten do not provide a detailed breakdown of their bond holdings by type, which explains the gap between the orange line and the stacked areas. Corporate bonds dominate, accounting for 50% of the top tens' investment in bonds, followed by U.S. Treasury and agency debt, which account for a smaller 40%. Mortgage and asset-backed securities are a distant third, with a share of just under 10%. Term money market instruments and supranationals account for 5% of investments, and foreign government bonds account for the final 5% of investments. Foreign bonds *likely* reflect the cash collateral reinvestment leg of FX swaps, where treasurers lend U.S. dollars to earn a premium over Treasury bills – holding foreign government bonds on an outright basis makes little sense given that those issued by sovereigns deemed safe all yield less than U.S. Treasuries (see Figure 5).

Figure 6 breaks down the top ten's investment in bonds by maturity. Some names do not disclose the maturity breakdown of their bond portfolio, which, like before, explains the gap between the orange line and the stacked areas. For the names that provide a breakdown, 70% of their portfolios are in securities that are one to five years in maturity and a smaller 20% are in securities that are less than one year in maturity. The balance is in securities that are longer than five years in maturity. How this maturity breakdown applies

<sup>10</sup> To remind, these names are Apple, Microsoft, Cisco, Oracle, Alphabet, Johnson & Johnson, Pfizer, Qualcomm, Amgen and Merck.

### Figure 3: Behind Every Great Fortune...

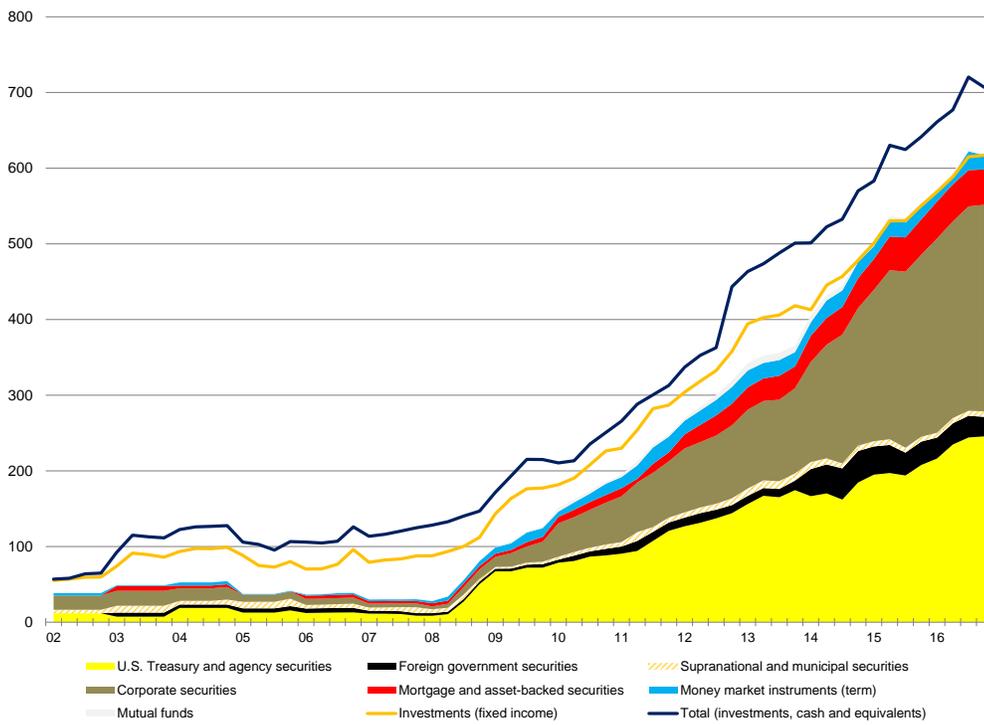
Major investment categories of the top ten, \$ billions



Source: Company data, Credit Suisse

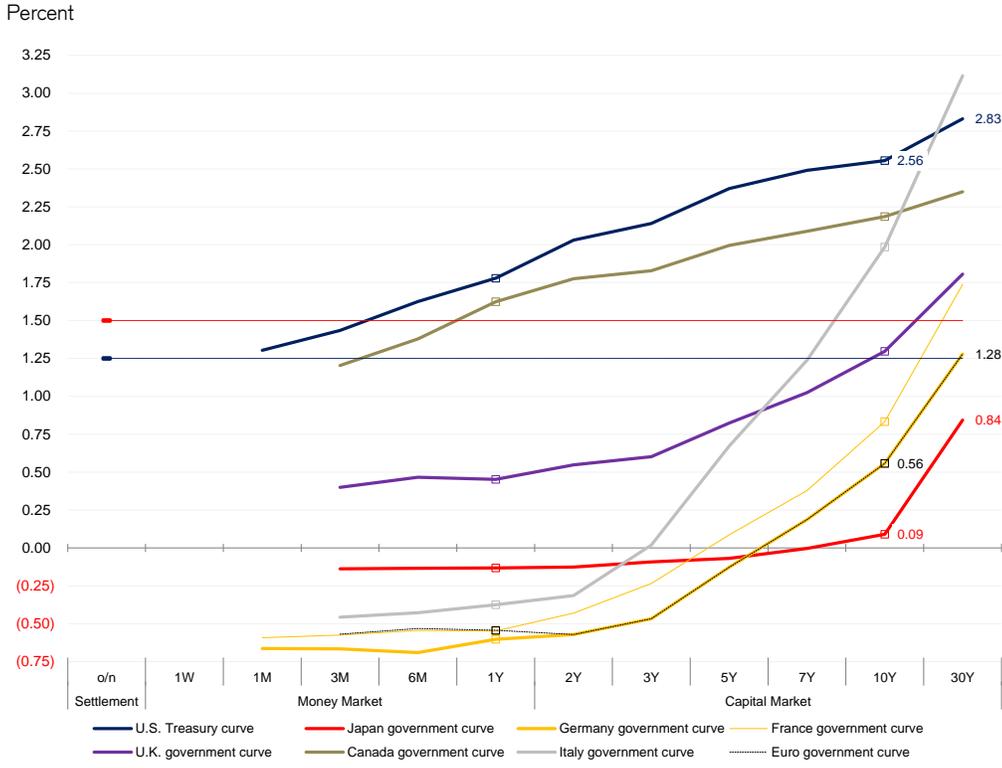
### Figure 4: Bonds, Not Cash

Breakdown of the top ten's bond portfolios by asset-class, \$ billions



Source: Company data, Credit Suisse

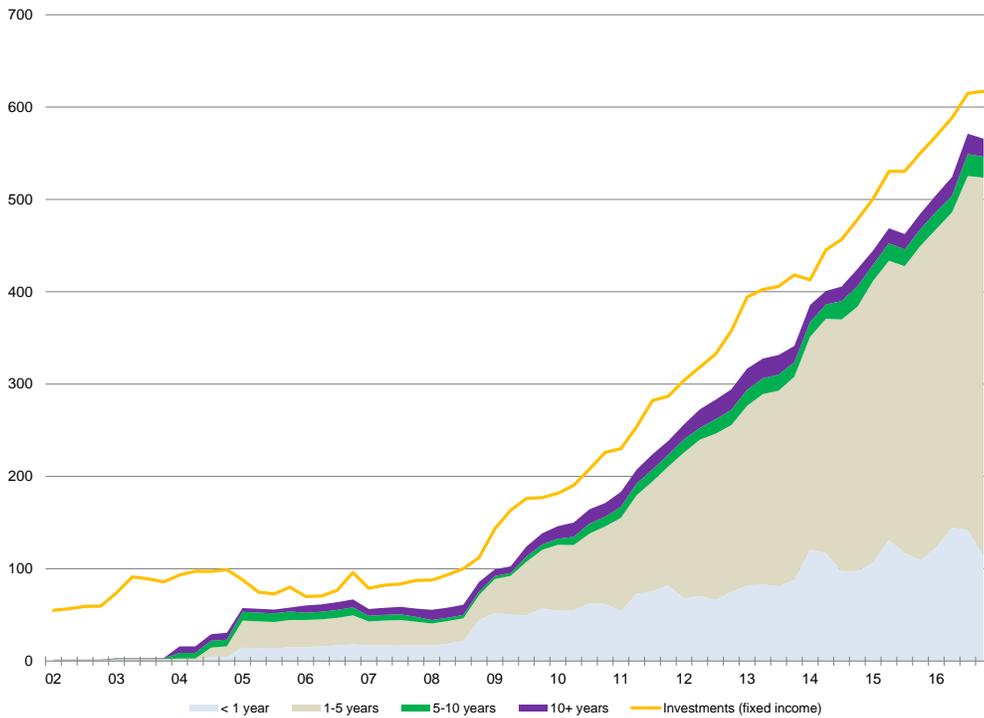
**Figure 5: Why Hold Foreign Government Bonds Outright?**



Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

**Figure 6: Capital Markets, Not Money Markets**

Duration profile of the top ten's bond portfolios, \$ billions



Source: Company data, Credit Suisse

to various types of bonds is impossible to tell, but we can make some educated guesses: term money market instruments and foreign government bonds as part of FX swaps, both of which by definition are less than one year in maturity, account for a quarter of the sub-one year bucket. That means that only \$75 billion of the top ten's \$550 billion in bonds are shorter than a year. The remaining \$475 billion is up to five years in maturity!

\$250 billion of this \$475 billion is in U.S. Treasuries notes, which ain't chump change: for example, if the top ten liquidated their U.S. Treasury holdings this year, markets would have to reckon with an "echo-taper" – \$250 billion on top of the Fed's scheduled \$230 billion (we'll return to the concept of echo-taper and its market implications in section six below).

The top ten disclose neither the sectors nor the names of the corporate bonds they buy, so the riskiness their corporate holdings is a bit of a mystery. But, anecdotally, debt issued by foreign banks accounts for a big share.

The investment mix and duration profile of the top ten's portfolios are quite heterogeneous. Five themes emerge from a firm-by-firm review of their portfolios (see Appendix 1-10).

First, Apple, Oracle, Qualcomm and Amgen keep most of their savings in corporate bonds of one to five years in maturity (see Figure 7 and Appendix).

Apple and Oracle are big enough to make a difference in corporate issuance size and allocations. In fact, they are so big that they set up their own asset management subsidiaries, Braeburn Capital and Delphi Asset Management Corp., respectively, around the corner from each other in Reno, NV (see [here](#)).

Both Braeburn and Delphi go as low as single A rated names and like to buy industrials as well as the dollar-denominated bonds of U.S., Australian, Canadian and Japanese banks, and are selective buyers of the top one or two bank names from the main Eurozone countries and Scandinavian countries.

Second, Microsoft keeps most of its savings in U.S. Treasuries and agency debt, a strategy unchanged since 2009 (see Figure 8 and Appendix 2).

Microsoft appears to periodically shift its portfolio from bonds shorter than a year to bonds of one to five years. Most recently, it did so during prime money fund reform, when it offloaded its sub-one year portfolio of U.S. Treasuries to government funds and used the proceeds to buy long-term U.S. Treasuries. Microsoft's presence in other segments of the bond market is negligible.

Third, Cisco is a bit of a cross between Apple and Microsoft (see Appendix 3). Since 2010, all the growth in its portfolio went into corporate bonds in the one to five year segment. Its U.S. Treasury and agency portfolio shrank and is concentrated in the sub one-year segment. Similar to Microsoft's portfolio, Cisco's presence in other market segments is negligible.

Fourth, Google is the most diversified across asset classes (see Appendix 5). About a half of its portfolio is in U.S. Treasury and agency debt, a fifth is invested in mortgages and asset-backed securities and another fifth in corporate bonds. The rest is in supranationals and FX swaps, where Google *presumably* lends dollars and reinvests FX collateral into foreign bonds.

Google didn't create a Braeburn or Delphi-like asset management operation, and it has historically relied on outside asset managers to run its investments through separate accounts. Given Google's relatively high share of longer-dated investments – it appears to run a lot more duration risk relative to other corporate investment portfolios – the bulk of its holdings of U.S. Treasury securities must be longer than one year in maturity.

Fifth, pharmaceutical giants Johnson & Johnson and Pfizer appear to have relatively volatile investment portfolios (see Appendix 6 and 7).

Johnson & Johnson appears to periodically sell bonds and spend the proceeds – *presumably* on overseas mergers and acquisitions to expand its portfolio of drugs and other products. Its portfolio is dominated by U.S. Treasuries and agency debt with maturities of one to five years.

Pfizer also appears to use its investments for acquisitions periodically. In sharp contrast to the other names, its investment portfolio is dominated by money market instruments. As recently as 2014, FX swaps made up three-fifths of its portfolio and corporate bonds another fifth. By 2017, the size of Pfizer's investment portfolio shrank by a half – *presumably* it was spent on mergers and acquisitions or research and development.

FX swaps accounted for virtually all of this decline, which was probably a contributing factor to the general widening of the €/€ and \$/¥ cross-currency bases in 2015 and 2016 – less real money lending in the FX swap market meant that more of the flow had to go through the books of arbitrageurs, i.e., balance sheet constrained global banks (see [here](#)).

We have all read news articles that showed how the top ten's investment portfolios are bigger than the largest bond funds of the largest asset managers (see for example [here](#)).

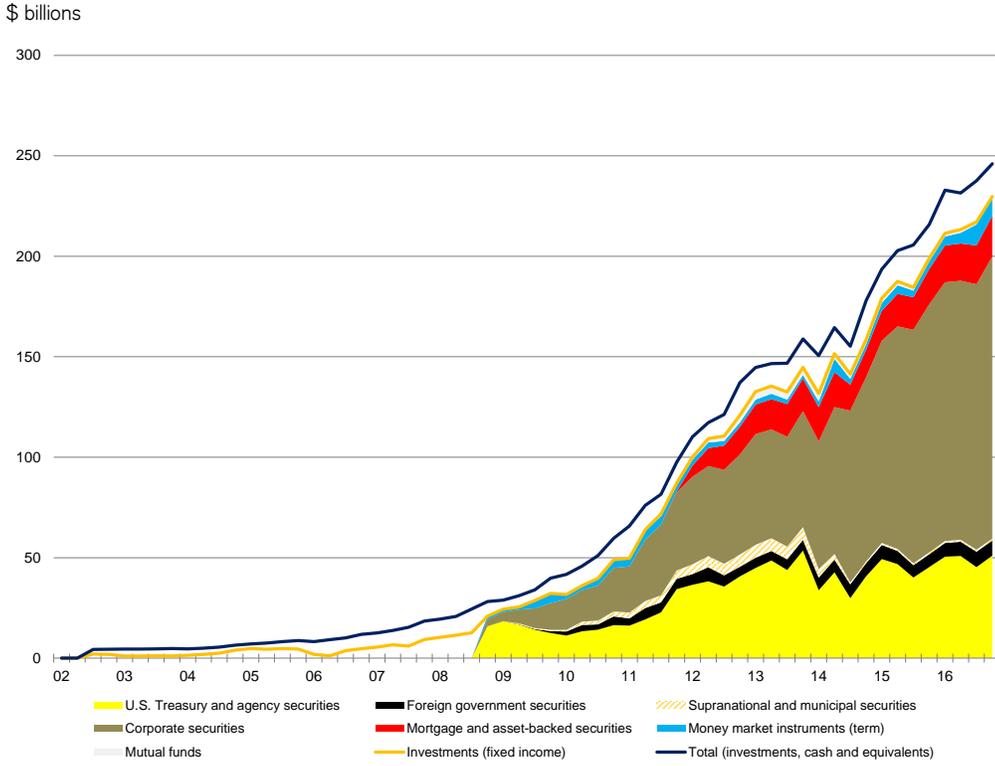
This is also true when we compare the size of the top ten's investment portfolios to the U.S. Treasury (or HQLA, narrowly speaking) and credit portfolios (corporate bonds, RMBS and ABS) of large U.S. banks.

Figure 9 shows that only Citibank has a larger portfolio of U.S. Treasuries than Microsoft, and the software giant's portfolio is twice the size of Bank of America's or J.P. Morgan's. Apple's holdings of U.S. Treasuries is on par with Bank of America's and J.P. Morgan's, and Google and Cisco both hold more U.S. Treasuries than BoNY or State Street.

Thus, global banks and foreign central banks aren't the only captive buyers of Treasuries. U.S. corporations have been captive buyers as well. Their motives of course differ – banks bought for HQLA reasons; foreign central banks bought to manage exchange rates; corporations bought to keep offshore earnings someplace safe till the next tax holiday. Tax reform just killed the captive corporate bid, the implications of which we'll discuss shortly...

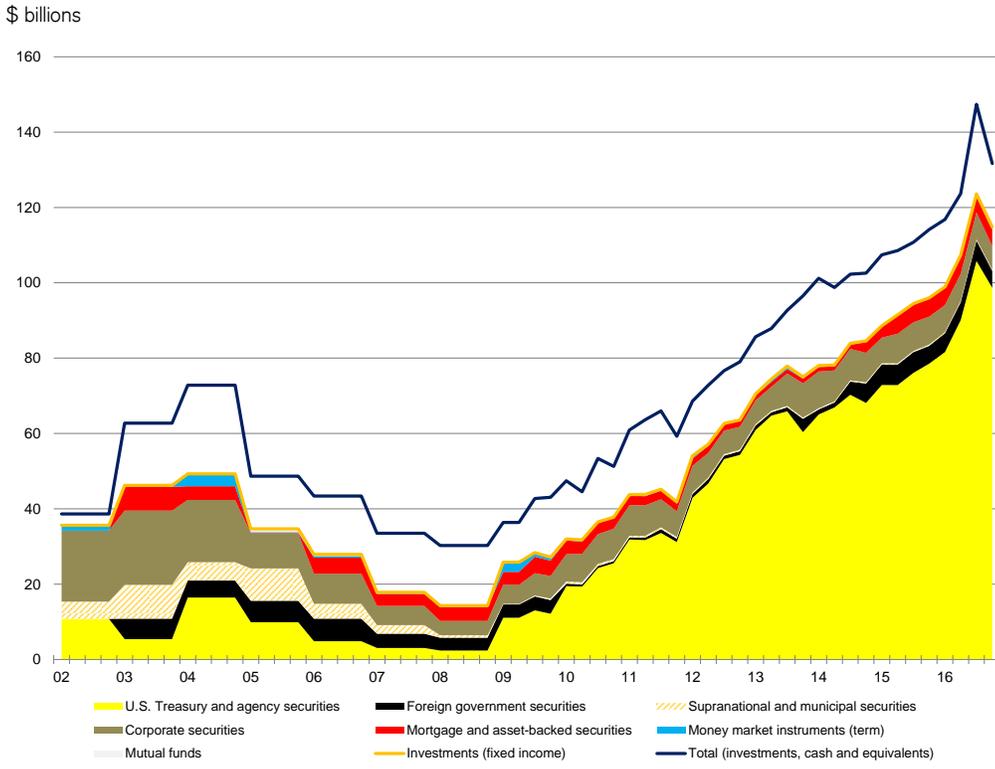
Figure 10 shows that Apple runs a credit portfolio as big as Citibank and J.P. Morgan, but bigger than that of Wells Fargo. Of course the riskiness of corporations' and banks' credit portfolios are different – corporations buy bank debt, and banks buy corporate debt – but the top ten corporate treasurer's contribution to the provision of credit across the global financial system is undeniably large and significant. Consider, that, the combined credit portfolios of Oracle, Cisco and Amgen is a third larger than that of Bank of America!

**Figure 7: Apple Inc.'s Bond Portfolio**



Source: Company data, Credit Suisse

**Figure 8: Microsoft Corp.'s Bond Portfolio**



Source: Company data, Credit Suisse

We next discuss the portfolio details of the remaining 140 names from the first segment of the universe, and the top ten names from the 100 that make up the second segment.

Figure 11 shows that relative to the investment portfolios of top ten, the portfolios of the next ten, the next ten and the bottom 120 names from the first segment of the universe are much more geared toward cash and cash equivalents than bonds. Ditto the portfolios of the top ten names from the second segment of the universe.

Thus, at face value, the portfolios of these less wealthy corporations suggest a very different theme from the one that we identified in the case of the top ten – “cash, not bonds”, not “bonds, not cash”!

In total, it seems that \$600 billion in money markets is exposed to repatriation.

Not so fast...

The bars in Figure 11 plot *total* savings, not offshore savings. Offshore savings are marked with “+” signs. The difference between the top of each bar and “+” equals onshore savings.

As a rule of thumb, U.S. corporations can shift onshore savings offshore without a tax hit, but cannot shift offshore savings onshore without a tax hit.

As such, onshore liquidity is more valuable than offshore liquidity, which in portfolio allocation terms means that corporations tend to keep the most liquid tranche of their portfolios onshore, not offshore. On the flipside, because corporations knew that offshore savings will be in limbo for years – until the next repatriation holiday – they kept the less-liquid part of their portfolios offshore.

Figure 12 is derived by pushing the bars in Figure 11 downward until their top lines up with the position of the “+” sign – by doing this, we are aligning the volume of offshore savings with less liquid investments, consistent with the principles of liquidity management above.

Now we see that bonds dominate not only the top 10, but also the top 30 names in the first segment. The bottom 120 names in the first segment practically don't have any bonds, but their offshore cash balances should be interpreted carefully in the context of repatriation: the \$140 billion in offshore cash balances belong to 120 different firms with an average offshore cash balance of about \$1 billion each.

One should *not* assume that the bottom 120 are like the top 30...

Their offshore cash is *not* excess cash earmarked for distribution – they most likely represent the bottom 120 corporations' genuine liquidity needs offshore.

Out of many (evidently small balances) one (seemingly large pool).

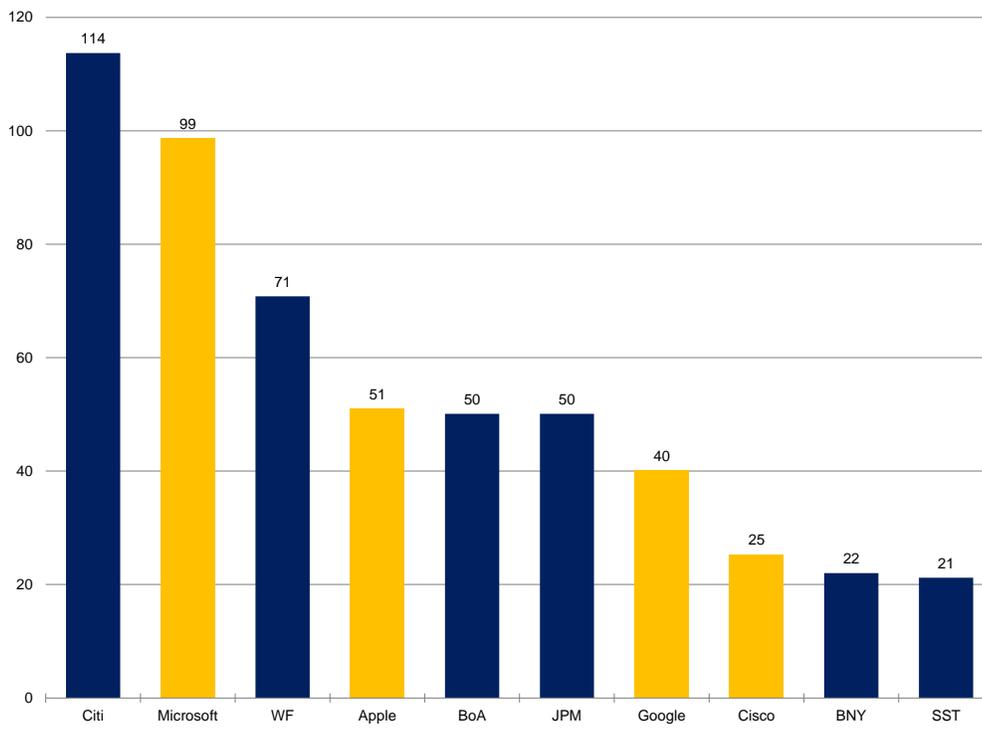
The maximum hit to money markets from “repatriation” is about \$200 billion, not the \$600 billion that a cursory look would suggest. Details mater.<sup>11</sup>

*Bonds, not cash...*

<sup>11</sup> See the leftmost column in Figure 10. \$200 billion comes from the following assumptions: all cash and equivalents of the “next 20” from the first segment gets repatriated. 25% of the bottom 120's balances get repatriated. Bonds < 1 year ex T-bills get liquidated.

### Figure 9: Corporate vs. Bank HQLA Portfolios

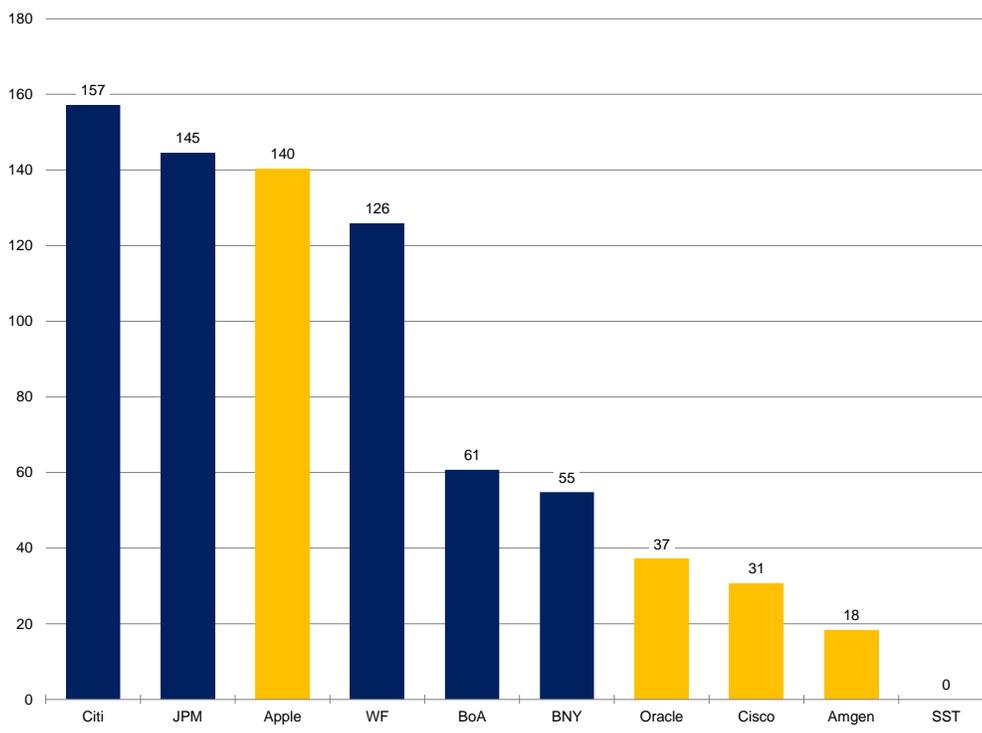
Holdings of U.S. Treasury and agency debt, \$ billions, as of December 31<sup>st</sup>, 2016



Source: Call reports, company data, Credit Suisse

### Figure 10: Corporate vs. Bank Credit Portfolios

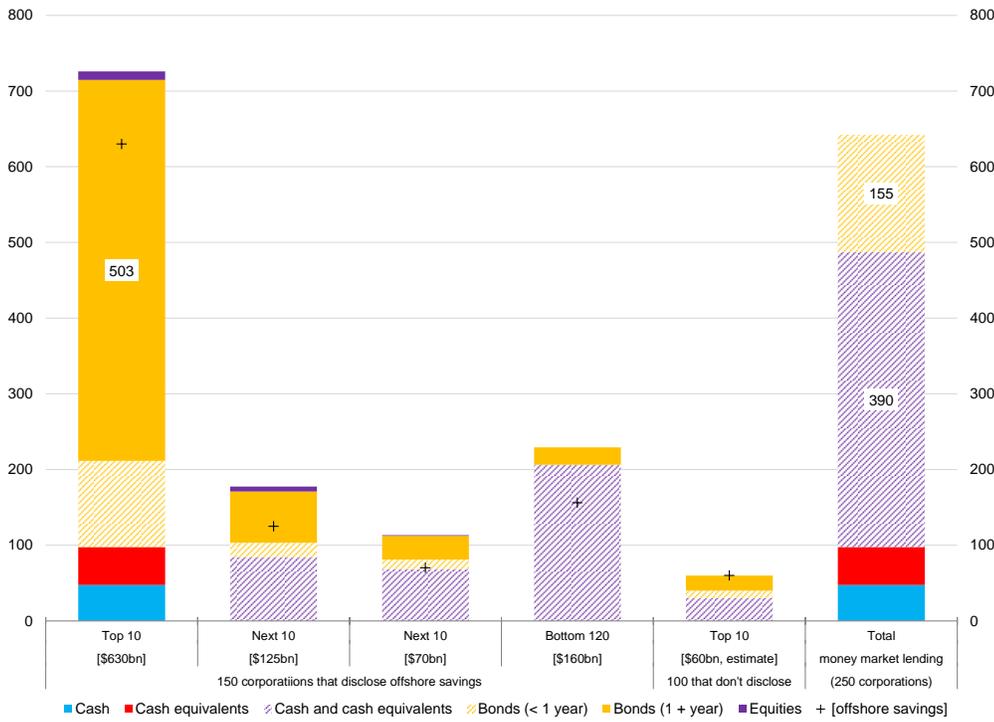
Holdings of corporate bonds, ABS, RMBS, etc., \$ billions, as of December 31<sup>st</sup>, 2016



Source: Call reports, company data, Credit Suisse

### Figure 11: Not All Liquidity is Created Equal

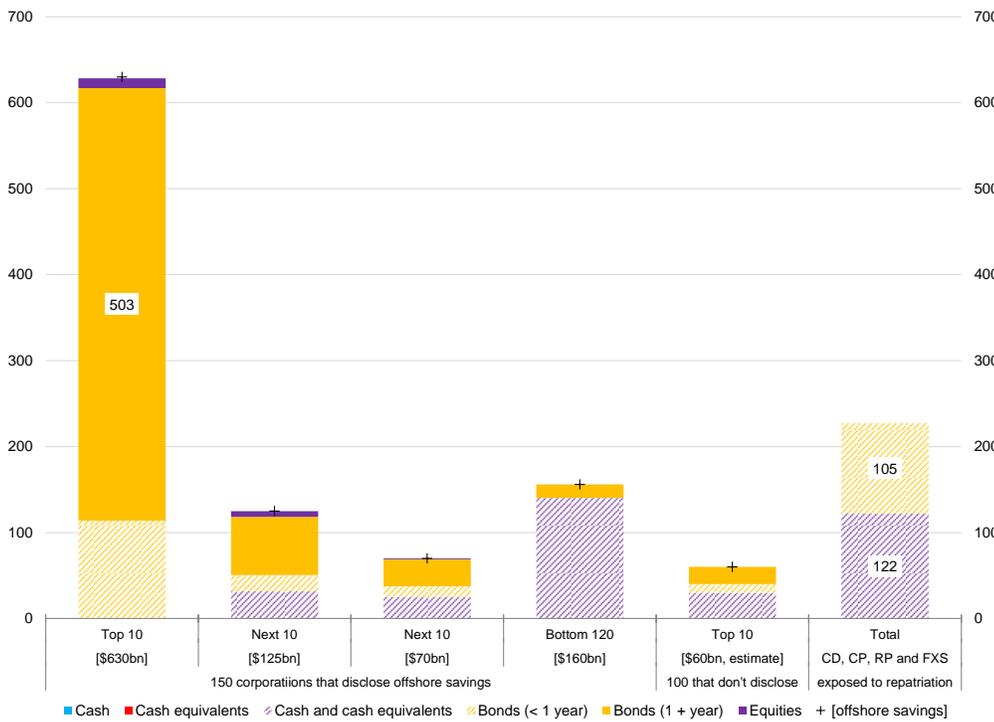
\$ billions, as of December 31<sup>st</sup>, 2016



Source: Company data, Credit Suisse

### Figure 12: Bonds, Not Cash

\$ billions, as of December 31<sup>st</sup>, 2016



Source: Company data, Credit Suisse

## Part 4 – Funded Bond Portfolios

We now know which firms have the most savings offshore and how savings are invested. The next piece of the puzzle is to figure out how these investment portfolios are *funded*.

Savings that accumulate from operating activities are funded by retained earnings.<sup>12</sup> Retained earnings are a “passive” liability – it’s not equity, it’s not debt, and it has no cost.

Savings funded by retained earnings are funds that haven’t been paid out as dividends. Presumably, that’s because management thinks that over time they can invest these funds in higher RoE projects internally than what shareholders could find by investing externally.

Shareholders believe this argument up to a point, but after decades of earnings retention, activists started to bang on managements’ doors to force the release of some savings. And when activists [are at the gate](#), managements listen.

Dividends started to flow...

But because savings accumulated almost exclusively offshore (see previous section), dividends couldn’t be paid out to shareholders without a 35% tax hit upon distribution.<sup>13</sup>

Enlist a banker to whip up a solution...

What’s not possible with the movement of offshore cash balances from operating activities is possible with the movement of cash raised through financing activities: offshore savings could effectively be released by using the proceeds from onshore debt issuance to fund dividends and share buybacks, similar to how homeowners used home equity lines of credit to release the wealth that accumulated as home equity (homeowners’ “retained earnings”).<sup>14</sup>

Figure 13 uses the discipline of “[the money view](#)” (at its *lingua franca* – balance sheets) to depict the corporate game of “accumulate, fund and release” that dominated the 2010s.

First, a modern corporation sets up shop with a simple balance sheet. It has an IP asset on the asset side of its balance sheet (the knowhow to integrate software and design into a phone, the code for an app, the formula for a drug) and finances it with debt and equity.

Second, the corporation’s product (the iPhone, the “killer” app, the life-saving pill) becomes a blockbuster. Sales skyrocket, margins stay fat, surplus cash accumulates. As cash accumulates, cash balances increase on the asset side and retained earnings increase on the liability side. The more cash the firm accumulates, the more risk it takes in how it invests it. Over time, [corporate cash pools](#) morph into corporate bond portfolios...

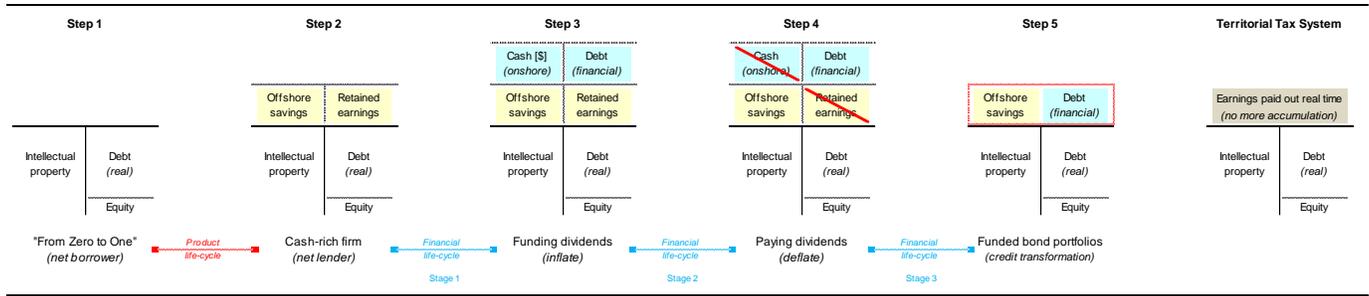
Third, in order to release some offshore savings via financing activities, the corporation issues a bond. Issuing bonds increases the balance sheet on both sides: the corporation ends up with cash on the asset side and debt on the

<sup>12</sup> Initially, at least. Retained earnings funding corporate savings is an accounting *identity*. These savings are the stocks that correspond to the flows we refer to as *free cash flow* (see above). Over time, the funding of savings may change (see below).

<sup>13</sup> Prior to tax reform, the tax hit was unavoidable. That’s because for offshore savings to be distributed to shareholders, savings must first be wired from offshore subsidiaries back to headquarters in the U.S. where it would then be wired on to shareholders. Offshore savings can only be distributed via first flowing through headquarters (HQ). Wiring money to HQ is what triggers the tax.

<sup>14</sup> Systemic risks are obviously *not* a concern in the corporate context. Even though offshore savings are in liquid instruments, offshore savings are illiquid (like home equity). In that sense they can’t be used for anything onshore. Finance enabled their use.

**Figure 13: Accumulate, Fund, Release and Repeat...**



Source: Credit Suisse

liability side. This debt is different from the debt that helped bring the firm to life: it funds financial activities, not real activities.

Fourth, the corporation uses the cash from the bond issue to pay a dividend. When dividends are paid, the corporation's balance sheet shrinks on both sides: cash goes down on the asset side and retained earnings go down by the same amount on the liability side.

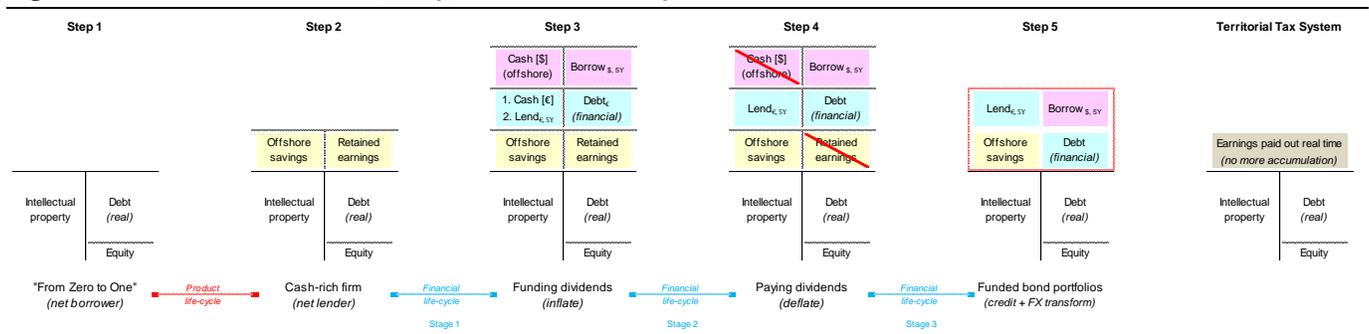
Fifth, the balance sheet the corporation ends up with is one where the offshore savings invested in bonds is still in place, but instead of being funded by retained earnings, it is now being funded by debt. In other words, offshore portfolios are *funded* bond portfolios. The "game" is to earn a decent credit spread through term-matched credit transformation.

Credit transformation comes from the top ten using their high credit ratings to issue debt at rates lower than other issuers, and buy the debt of lower rated issuers such as banks that need financing for HQLA portfolios and firms that need financing for business expansion. In fact, five of the top ten names are rated AAA or a notch below. The ratings of the other five are one to four notches below AAA, but still occupy the upper half of the investment grade (IG) spectrum. Global banks on the other hand occupy the bottom half of the IG spectrum, which reinforces the point we've heard anecdotally that the top ten like to buy bank debt.

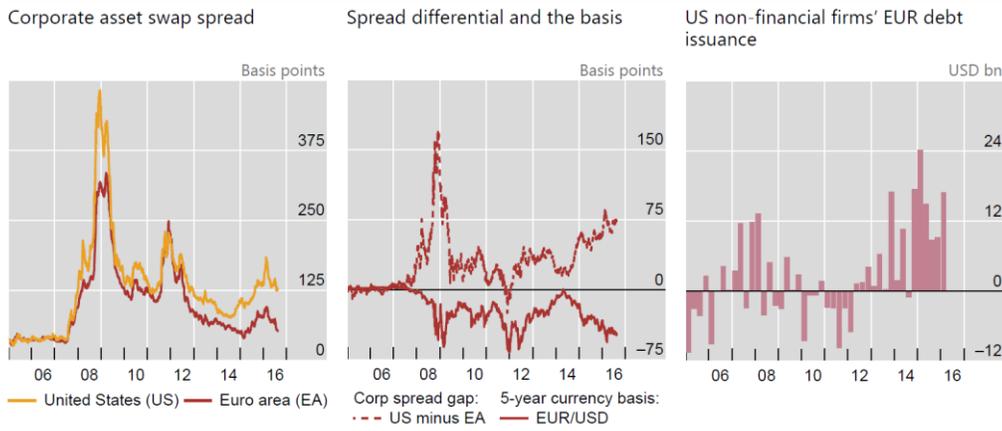
Maturity transformation is *not* a prominent part of these funding strategies: anecdotally, corporate treasurers aim to fund credit arbitrage on a term-matched basis, which is also reinforced by the incentive to fund term when term premia are negative (see [Stein, 2014](#)).

Financing activities to release trapped offshore savings can take more complicated forms. Figure 14 shows an example where the corporation, instead of issuing debt in U.S. dollars, issues debt in euros and then swaps the euros for dollars via cross-currency basis swaps.

**Figure 14: Accumulate, Fund, Swap, Release and Repeat...**



Source: Credit Suisse

**Figure 15: Reverse Yankee Issuance and the €/ \$ Basis**

Source: BIS

Indeed, such funding strategies have been used by cash rich firms in recent years. As the ECB's QE program drove credit spreads tighter in euros, reverse Yankee issuance soared (see Figure 15; reverse Yankee debt is euro-denominated debt issued by U.S. corporates). This issuance was then swapped back to dollars, typically on a term-matched basis – no maturity transformation to worry about here either. With cash rich firms issuing mostly two to five year debt, the bid for U.S. dollars was the strongest in that segment of the €/ \$ cross-currency basis curve, pressuring the basis more negative there (middle panel).

Figure 16 shows what share of the top ten's portfolios is funded by retained earnings, U.S. dollar-denominated debt and reverse Yankee bonds swapped back to U.S. dollars. Despite a massive amount of debt issuance to distribute offshore savings to shareholders, retained earnings still fund 50% of the top ten's offshore savings. Dollar debt funds about 45% of offshore savings, and euro debt swapped into U.S. dollars funds the remaining 5%.

But when we broaden the funding discussion to the top 30 names, the picture changes...

The 30 most wealthy corporations paid out a higher 90% of their offshore savings already – 75% funded with debt issued in the U.S., and 15% funded with debt issued offshore in Europe and then swapped back to U.S. dollars. Unlike other aspects of our analysis, in terms of using debt to release offshore savings, the top ten appear to lag the league tables.

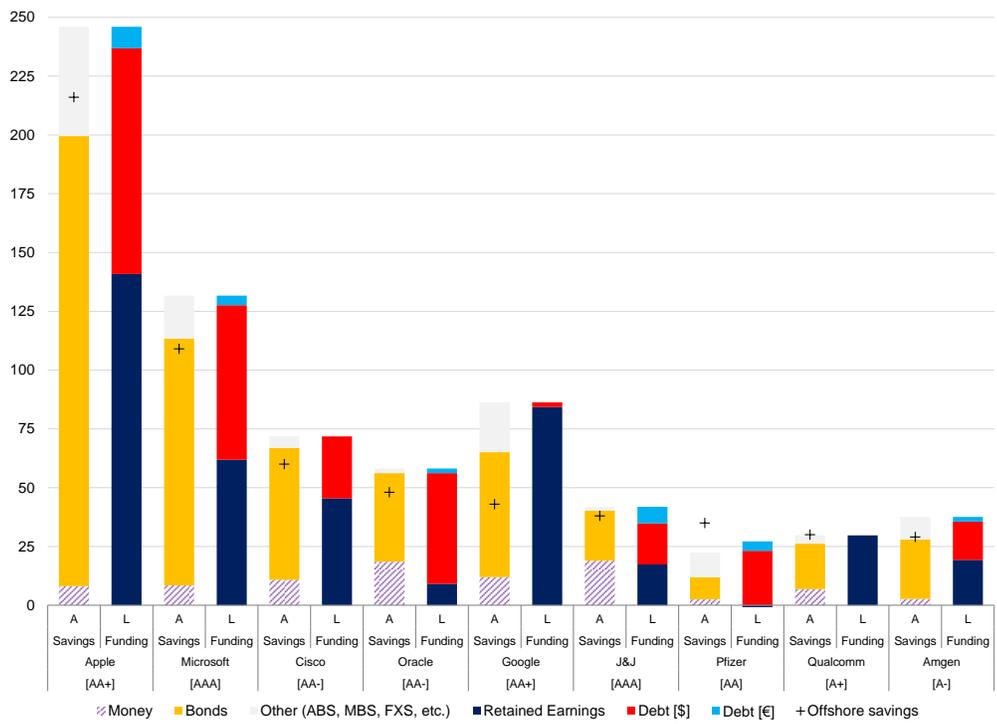
Figure 17 shows the aggregate savings of the top 30 and the funding that corresponds to it – this is the aggregate size of U.S. corporations' funded bond portfolios.

As noted above, the worldwide tax system gave rise to these portfolios, and, on the flipside, the advent of the territorial tax system will be their undoing.

Under the territorial tax system, corporations will no longer accumulate offshore savings, and their incentives will be to dismantle the portfolios they've built up in the past. We discuss the market impact of these changes next...

### Figure 16: Funded Bond Portfolios

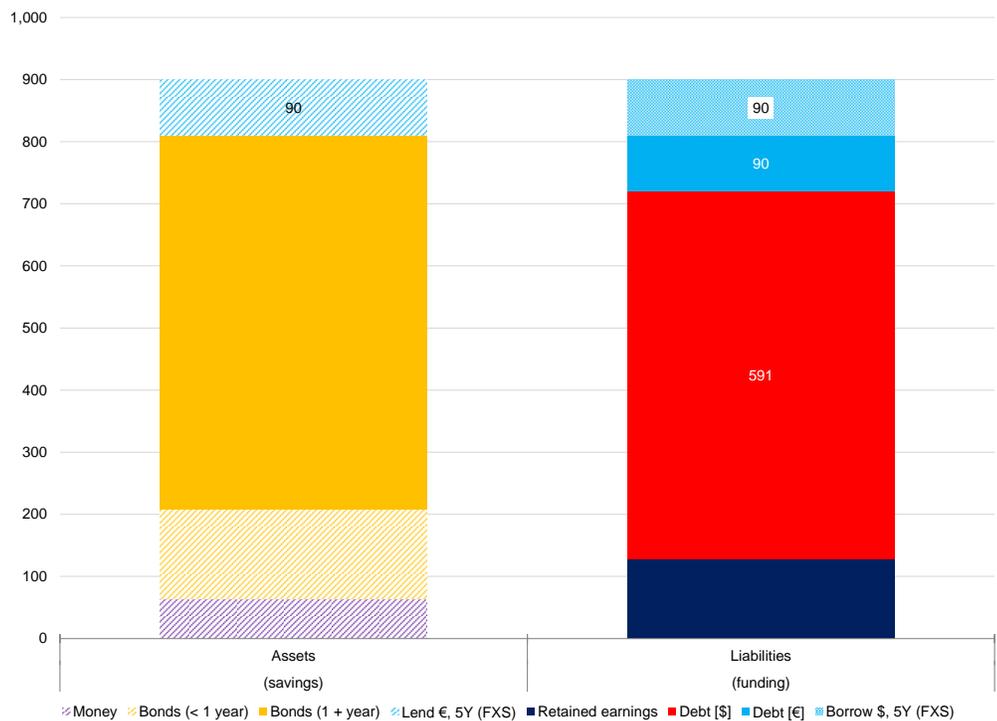
\$ billions, as of December 31<sup>st</sup>, 2016



Source: Company data, Credit Suisse

### Figure 17: Sizing the Echo-Taper

Offshore savings of the 30 most wealthy firms that disclose offshore savings, \$ billions



Source: Company data, Credit Suisse

## Part 5 – The Echo-Taper and the €/ \$ Basis

Now that we know the lay of the land, we can start thinking about the market impact of corporate tax reform. As noted above, paying taxes won't have much of a market impact, and the benefits of freer cash flow will be a drop in a sea of positive risk market sentiment.

The spot value of the U.S. dollar is not likely to come into play either. That's because most offshore savings are in U.S. dollar-denominated instruments already. If corporations have some amount of offshore savings in a foreign currency, it likely reflects a genuine liquidity need in that particular foreign currency. Such balances are unlikely to be moved around due to tax reform. Furthermore, because we are talking about U.S. corporations that report their results in dollars, it makes no sense for them to keep excess cash in foreign currency-denominated assets as that would increase their earnings volatility, not to mention the fact that yields on U.S. dollar assets have been better than the rest of the G7.

The funding market impact of tax reform will also be small. The top 30's allocation to cash, cash equivalents (money funds) and money market instruments (repo, CP, CD and FXS) is so small, that these balances likely reflect a genuine liquidity need. The market lore that the top ten are big lenders of dollars via FX swaps is not supported by the data. Figure 18 shows that the top ten lend no more than \$30 billion via FX swaps, and, because sophistication comes with size, if the big fish lend only \$30 billion via FX swaps, small fish lend even less. As our analysis has shown, the "fat" is in the bond segment of the top 30's investment portfolios, and not the cash segment. As such, "liposuction" will likely occur in the bond segment of these portfolios, and not the cash segment. And, if cash is left alone, nothing will whack around the cross-currency basis or U.S. dollar Libor-OIS.

In contrast, the capital market impact of tax reform could be meaningful...

As noted above, the big impact will come from the unwind of the legacy portfolios that built up since 2000 under the global tax system, the roll-back of associated funding strategies, and the disappearance of the captive corporate bid for U.S. Treasuries and term bank debt under the new, territorial tax system. What will be their impact on U.S. Treasury yields, swap spreads, bank funding spreads, and the €/ \$ cross-currency basis swap curve?

Before answering these *macro* questions, we need to ask two *micro* questions:

- (1) When will the top 30 bring offshore savings home?
- (2) What will the top 30 use their offshore savings for?

First, on timing. As noted in the first section of our analysis, the only thing that's mandatory under tax reform is to pay taxes on the stock of offshore earnings from the past. Paying taxes gives firms the *option* to distribute offshore savings if they want to, when they want to, and at the pace at which they want to. As such, the timing of distribution is *uncertain*. The year 2020 often comes up in conversations with treasurers as the absolute latest time by which offshore savings should be completely distributed – 2020 is another election year and the tax code may get another revamp with less favorable terms on offshore savings.

Between now and 2020, the *uses* of offshore savings will dictate the pace of distribution, which brings us to the second question. Our conversations with treasurers suggest that offshore savings will likely be used to "fund" one of four "trades": mergers and acquisitions, paying dividends, buying back stock or buying back debt. On a first principles basis, you can't pay with bonds for M&As, and can't issue dividends or buy back stocks with bonds – all four uses will require turning corporate investment portfolios back into cash...

How?

There are two ways, and only two ways. You either sell assets, or you let assets roll off. The former is an *active* way of converting bonds into cash, and the latter is a *passive* way of converting bonds into cash. Central banks like to call their own passive conversions taper. Inspired by their terminology, we'll call the roll-off of corporate portfolios the "echo-taper".

How do these different uses of offshore savings impact the *pace* of "repatriation"?

Of the four trades, the first – mergers and acquisitions – is like dating: it is time sensitive, meaning that you engage when you see a target. M&As will thus likely be funded through *active* conversions of bonds into cash. If there is an M&A wave on the back of tax reform, corporate treasurers will actively sell lots of bonds to raise cash to buy targets this year.

An aggressive M&A wave means relatively *fast* "repatriation"...

The other three trades are not time sensitive. Nothing forces you to pay a dividend, to buy back your stock or to buy back your debt, so you tend to do these trades when the money rolls in. If there is no M&A wave this year, then corporations will use their savings to pay dividends and fund stock and debt buybacks at the pace at which their portfolios mature over the next few years – funding through a *passive* conversion of bonds into cash.

Dividends and buybacks mean relatively *slow* "repatriation"...

Of course, these general rules of thumb could be accelerated by market events – were rates and credit spreads to rally, corporations will sell bonds from their portfolios ahead of maturity in order to lock in mark-to-market gains and use the cash to fund faster buybacks. Conversely, if IG spreads sell off, corporations could do debt buybacks selectively to lock in (that is, capitalize) the lower market value of their own debt. Thus, timing can speed up...

Our best guess is that \$400 of the \$800 billion in offshore savings controlled by the top 30 will be utilized this year through M&As, stock buybacks and selective debt buybacks, and the other half by the end of 2019. As a concept, we expect that offshore savings will disappear by 2020.

How will these flows impact markets?

From the perspective of fixed income investors, M&As and stock buybacks matter because the *active sale* or *passive taper* of corporate investment portfolios is what will fund them. The task is to figure out what the sale and taper of these portfolios means for U.S. Treasuries, swap spreads and term bank funding spreads. Selective debt buybacks matter for the same reasons, plus the impact that the unwind of cross-currency basis swaps will have on longer-dated bases if corporations buy back their own reverse Yankee debts.

In a year where Treasury supply is set to soar, the fact that the captive corporate bid will vanish due to the move to a territorial system (no more accumulate, fund and release) is bad enough news. If corporate treasurers add to that supply by selling Treasuries, rates could move more than the market expects. In fact, this corporate echo-taper could be far more potent than that of the Fed! That's because we know that the U.S. Treasury will re-issue the Treasuries the Fed no longer buys as bills, not bonds. As such, the taper of the Fed's U.S. Treasury portfolio won't add a lot of duration back into the market – swapping reserves for bills will tighten funding markets, not capital markets (see [here](#)).

In contrast, the taper of corporations' U.S. Treasury portfolios could add quite a bit of duration back into the market, and we are not aware of any coordination between the U.S. Treasury and corporate treasurers to take into account the facts that corporations will be absent from auctions going forward and turn into net *sellers* of Treasuries this year. And judging from the "pulse" of the U.S. Financial Accounts, the Fed doesn't seem to focus on the potential impact of repatriation on term premia either... (see Figure 19).<sup>15</sup>

Thus, it seems that the event to be concerned about is not taper, but the echo-taper...

In addition to U.S. Treasury yields, the echo-taper will likely also impact IG credit spreads. Corporate treasurers selling their IG holdings can impact banks' term funding spreads, coincident with the taper of the Fed's MBS portfolio also pressuring the same spreads.

Thus, M&As and stock buybacks are bad for bond markets because they are funded by the sale of bonds or the taper of bond portfolios, and they do not withdraw duration from the market. They do not, because the instruments being retired are equities, not debt.

The echo-taper reminds us of China's occasional liquidation of its U.S. Treasury holdings when SAFE defends the FX value of the yuan. There is always an element of surprise to China's sales, and primary dealers tend to be caught off guard. As the dealers digest the increased supply of U.S. Treasuries, they tend to hedge their exposure by selling swaps, which pressures swap spreads wider. If the pace of the echo-taper will be surprisingly fast, we would expect markets to behave precisely as they would if China dumped some bonds.

China sells bonds to buy yuan and U.S. corporations sell bonds to buy equities...

But whoever sells and whatever bond sales fund do not matter much. What matters is that the movement of bonds through the system leaves a typical trail in capital markets: higher Treasury yields in the affected segments and wider swap spreads at corresponding terms.

Debt buybacks are better from a bond market perspective...

If corporations sell bonds from their portfolios and use the cash to buy back their own debt, the net supply of bonds falls – i.e., debt buybacks make room for debt sales one for one.

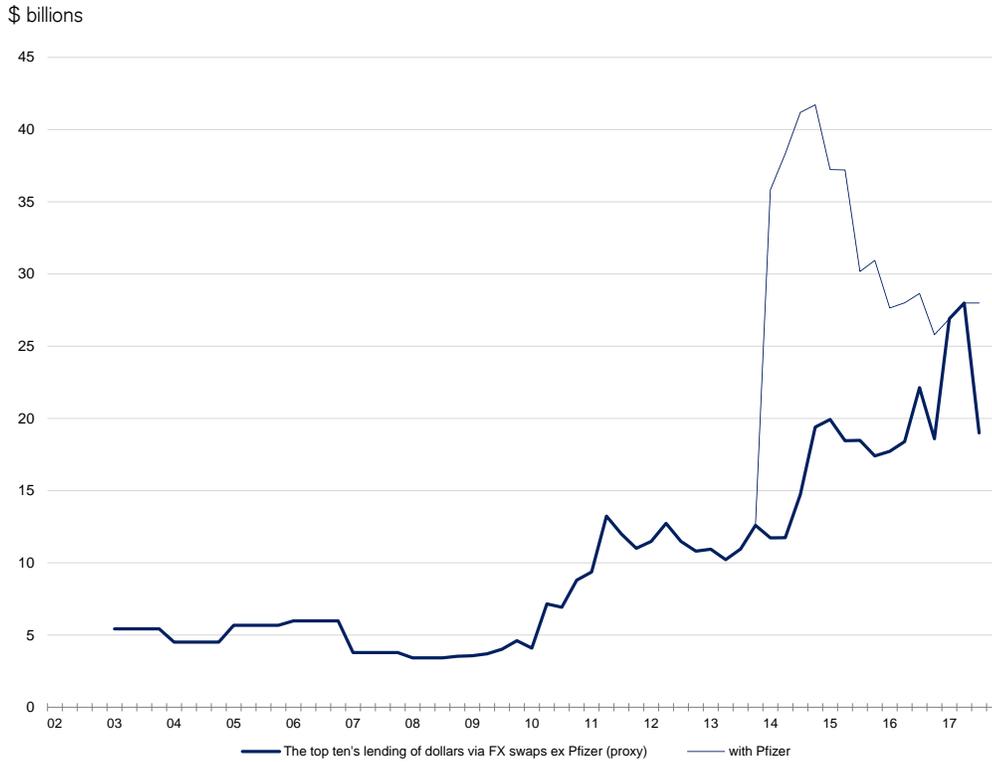
Corporations are unlikely to buy back their debt *en masse*, as gearing enhances RoEs and executives are paid based on RoEs. But buybacks could occur selectively, especially if markets move in ways that make them attractive.

On a relative value basis, debt buybacks will favor reverse Yankee debt over onshore debt. What will be the market impact of that? Figure 17 showed the volume of the top 30's reverse Yankee debt outstanding. As noted above,

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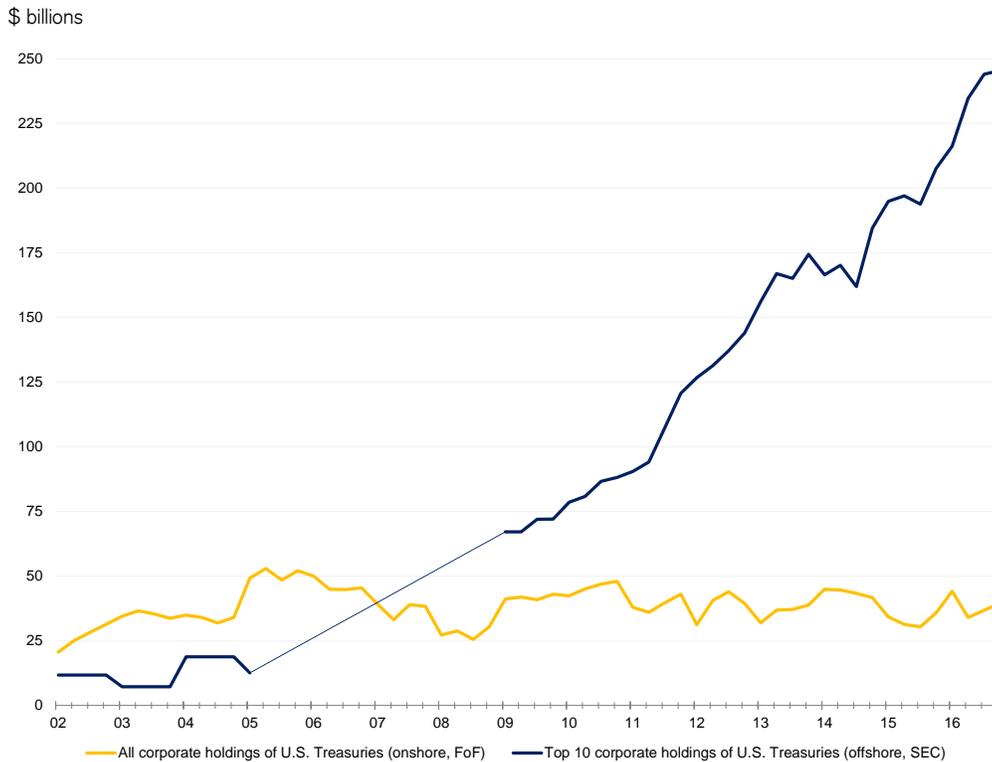
<sup>15</sup> Table [L.103](#) in the U.S. Financial Accounts (formerly the Flow of Funds) which tracks the balance sheet of U.S. corporations shows that the sector holds about \$50 billion of Treasuries – a number that hasn't changed in decades (orange line, Figure 19). But on the previous pages, we've shown that the largest corporations have accumulated \$250 billion in Treasuries. Table [L.103](#) tracks the *onshore* savings of U.S. corporations. *Offshore* savings are lumped together with the "Rest of the World" in Table [L.133](#)

**Figure 18: Corporate Treasurers are Not Big Lenders of Dollars via FX Swaps**



Source: Company data, Credit Suisse

**Figure 19: The Fed's Statistical Perspective on Repatriation vs. Reality...**



Source: Company data, Federal Reserve, Credit Suisse

reverse Yankee bonds typically have a cross-currency basis swap stapled to them. A buyback of reverse Yankee debt would most definitely trigger the buyback of associated cross-currency swaps, which, all else equal, would make the two to five year segment of the €/ \$ cross-currency basis curve less negative.

What is the probability of this happening?

Better than 50%. Recall that corporations have an incentive to buy back their own debt when credit spreads widen and the market value of debt is less than its face value. Expectations for the ECB's taper to commence next year could be the catalyst for a selloff and a wave of debt buybacks. Buybacks could set off a steepening of the term structure of the €/ \$ cross-currency basis swap curve, especially if we link this theme up with the significant tightening that we expect in the three-month €/ \$ basis on the back of increased U.S. Treasury bill supply during this year (see the prior issue of *Global Money Notes* [here](#)).

## Conclusions

The echo-taper, higher U.S. Treasury yields, wider swap spreads and a steeper €/ \$ cross-currency swap curve – these are the *potential* macro themes on the back of repatriation.

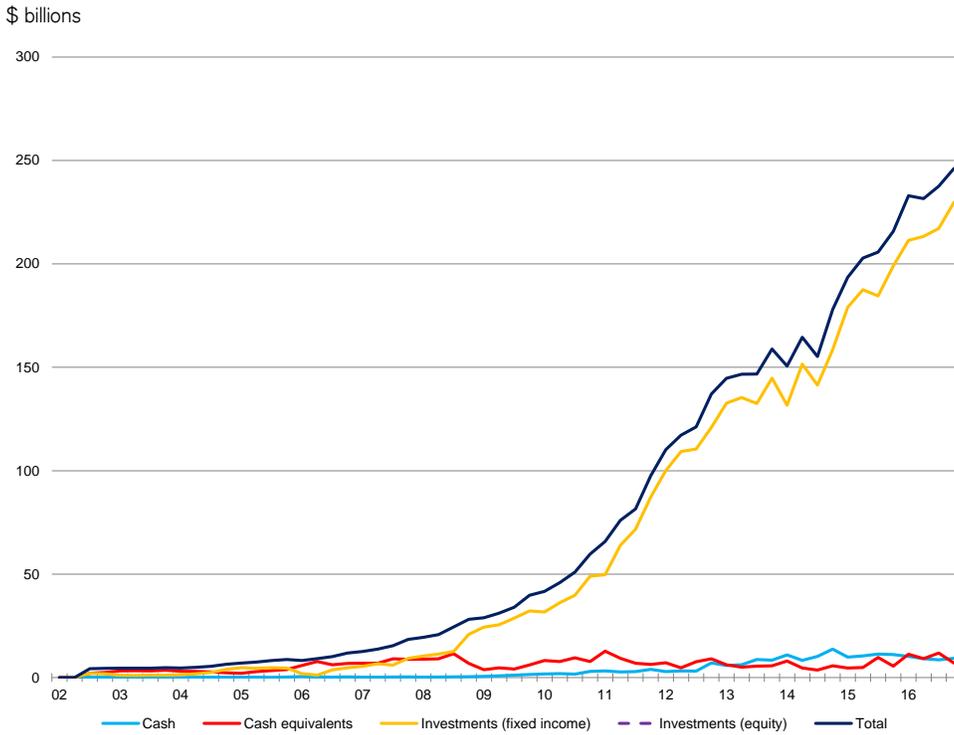
The timing and pace of repatriation will be key to trade these themes successfully, in our view.

Similar to how we made a habit of analyzing U.S. and foreign banks call reports to understand money market dynamics in the post-Basel III era, we will have to make a habit of parsing the SEC filings and listening to the earnings calls of the top 30 corporations that will drive the bulk of M&A deals and stock and debt buybacks on the back of repatriation.

The data we use to source alpha changes over time. Watching open market operations by the Fed was a thing of the 1980s. Watching the FX reserves of central banks was a thing of the 1990s. Watching the HQLA portfolios of G-SIBs is a thing of the present. Now we have to add to that watching the bond portfolios of the iconic corporations of the present...

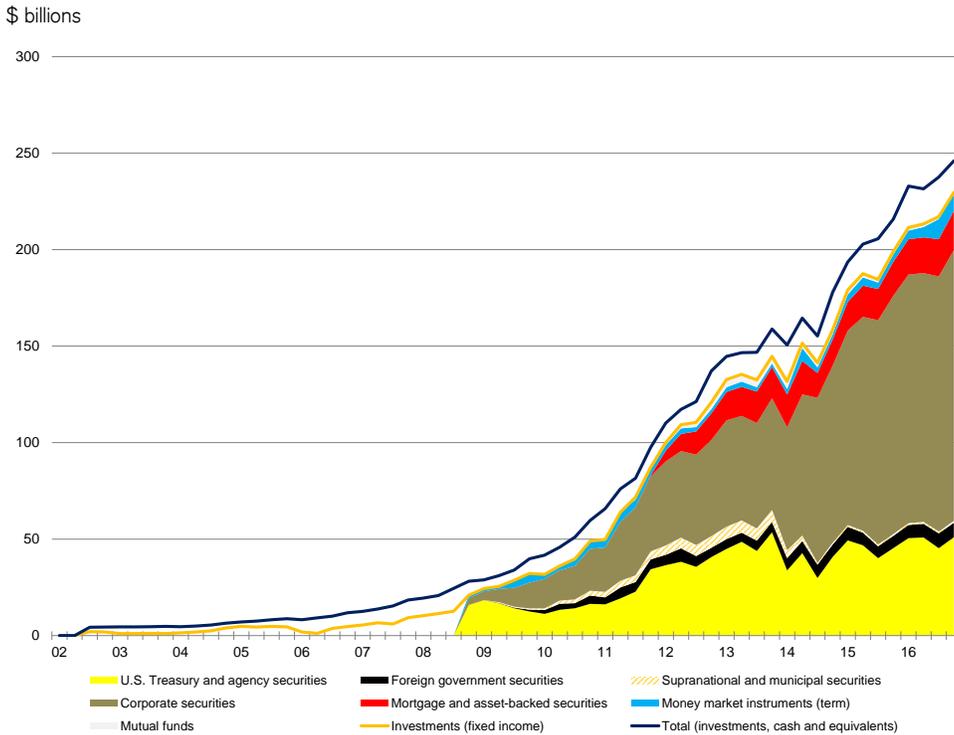
## Appendix 1 – Apple Inc.

**Figure 20-1: Total Investments by Type**



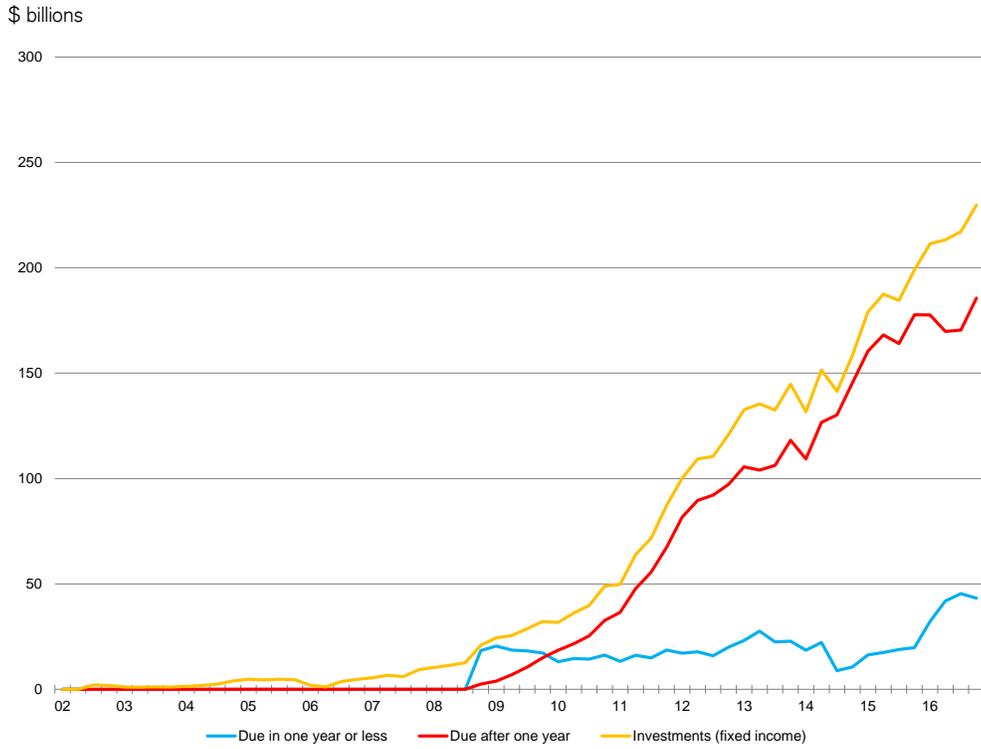
Source: Company data, Credit Suisse

**Figure A1-2: Bond Investments by Type**



Source: Company data, Credit Suisse

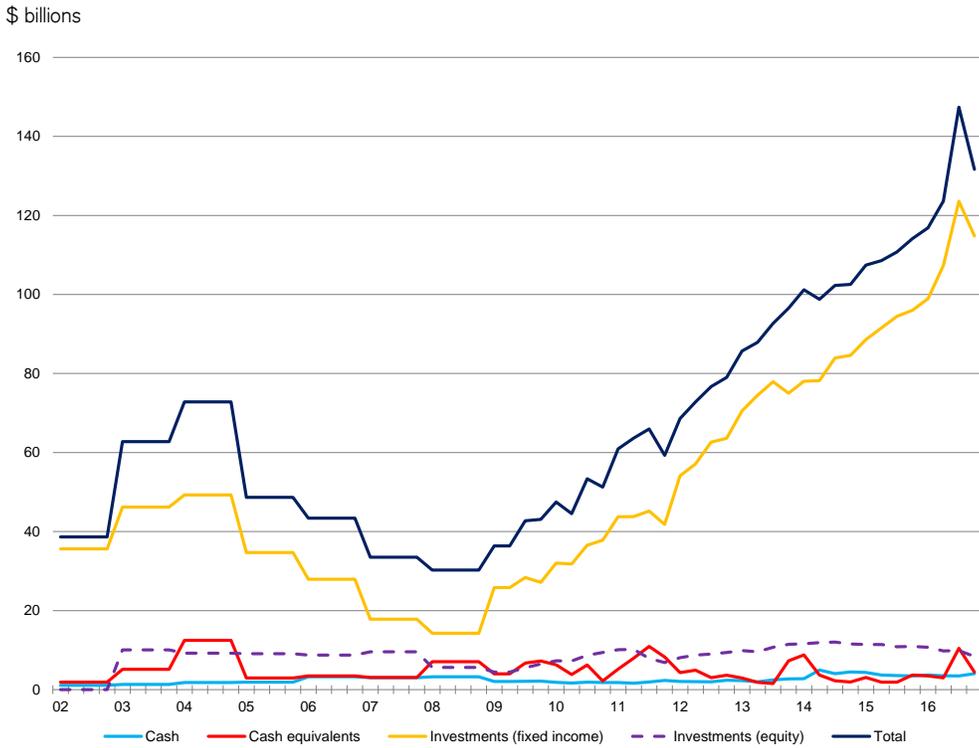
**Figure A1-3: Bond Investments by Term**



Source: Company data, Credit Suisse

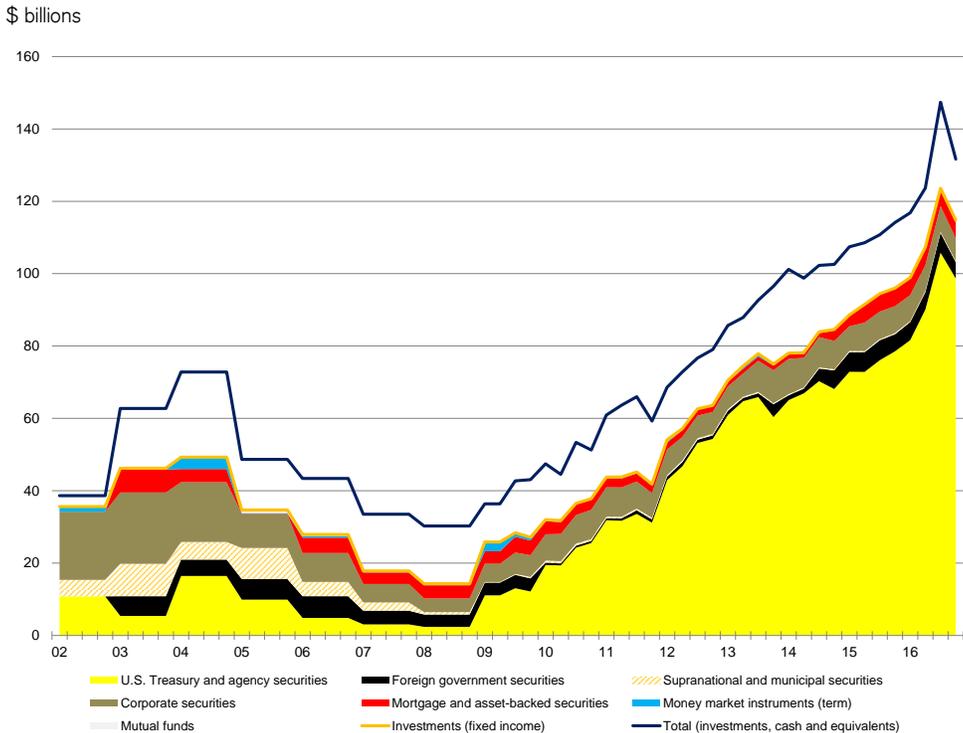
## Appendix 2 – Microsoft Corporation

**Figure 21-1: Total Investments by Type**



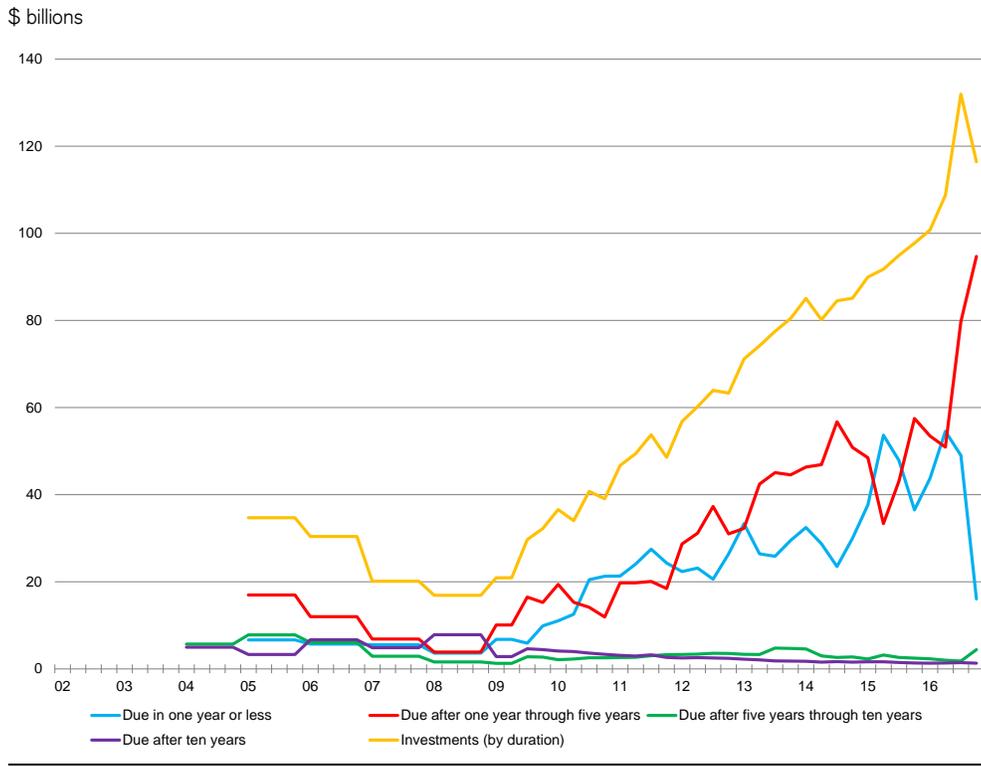
Source: Company data, Credit Suisse

**Figure A2-2: Bond Investments by Type**



Source: Company data, Credit Suisse

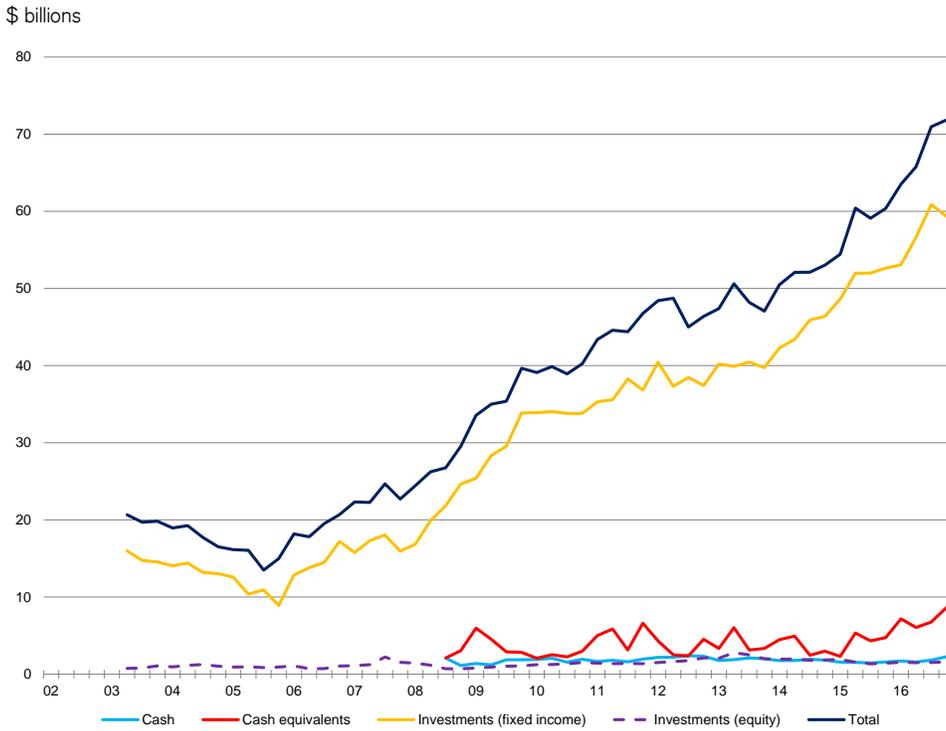
**Figure A2-3: Bond Investments by Term**



Source: Company data, Credit Suisse

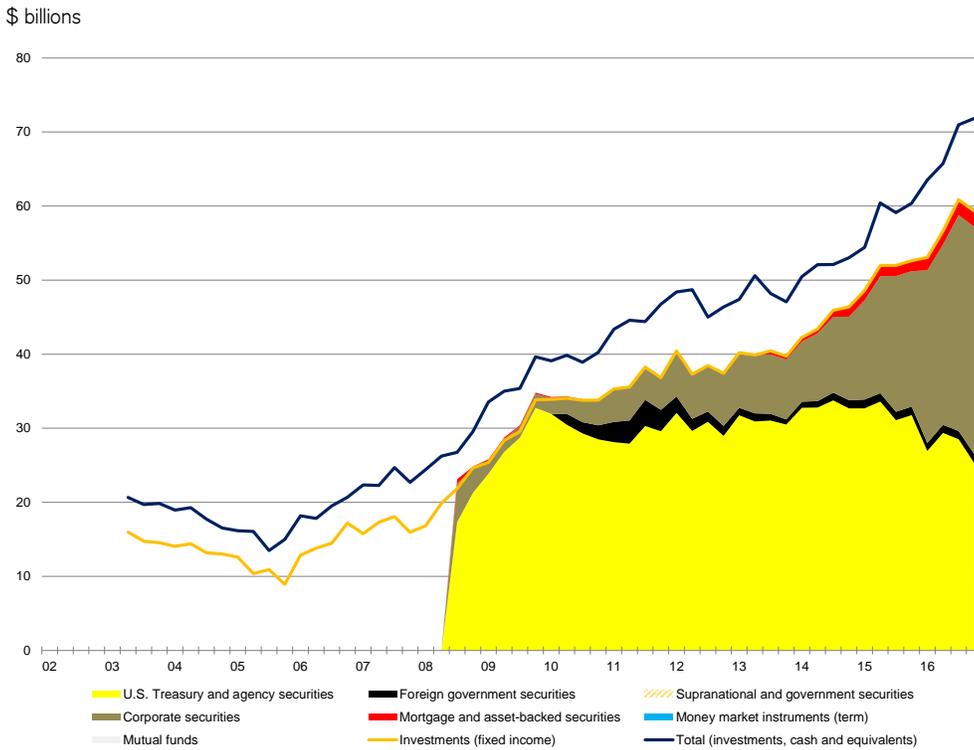
## Appendix 3 – Cisco Systems, Inc.

**Figure 22-1: Total Investments by Type**



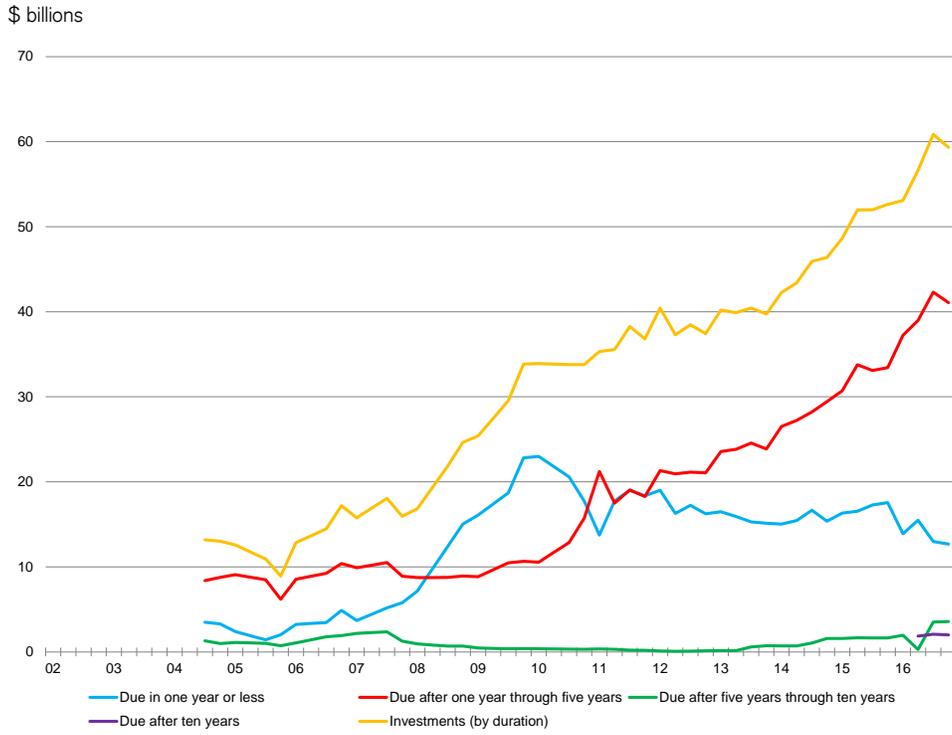
Source: Company data, Credit Suisse

**Figure A3-2: Bond Investments by Type**



Source: Company data, Credit Suisse

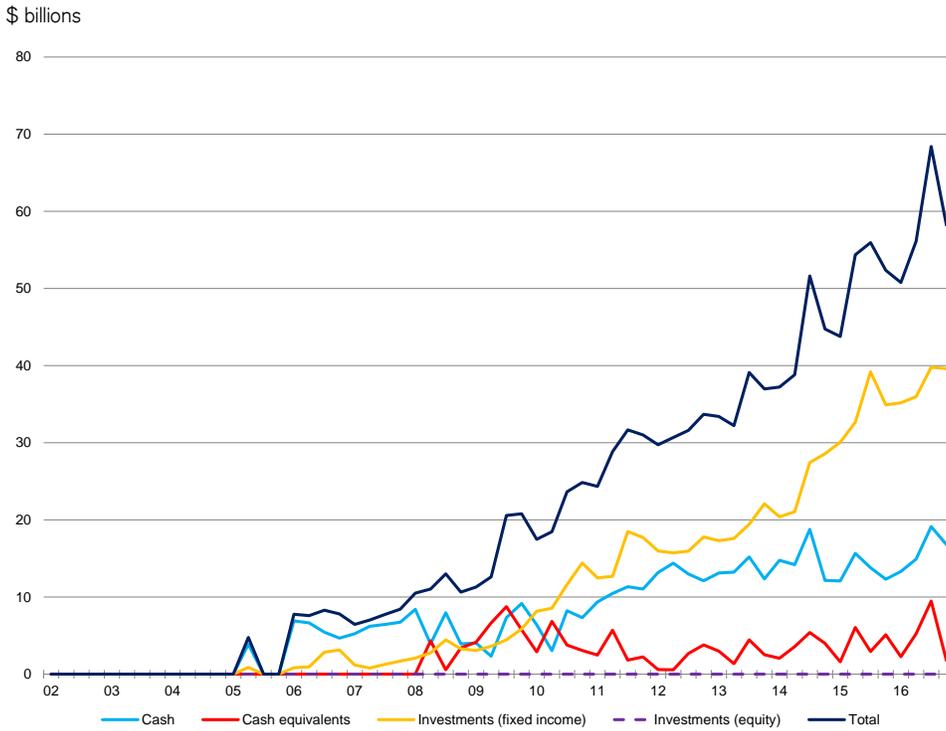
**Figure A3-3: Bond Investments by Term**



Source: Company data, Credit Suisse

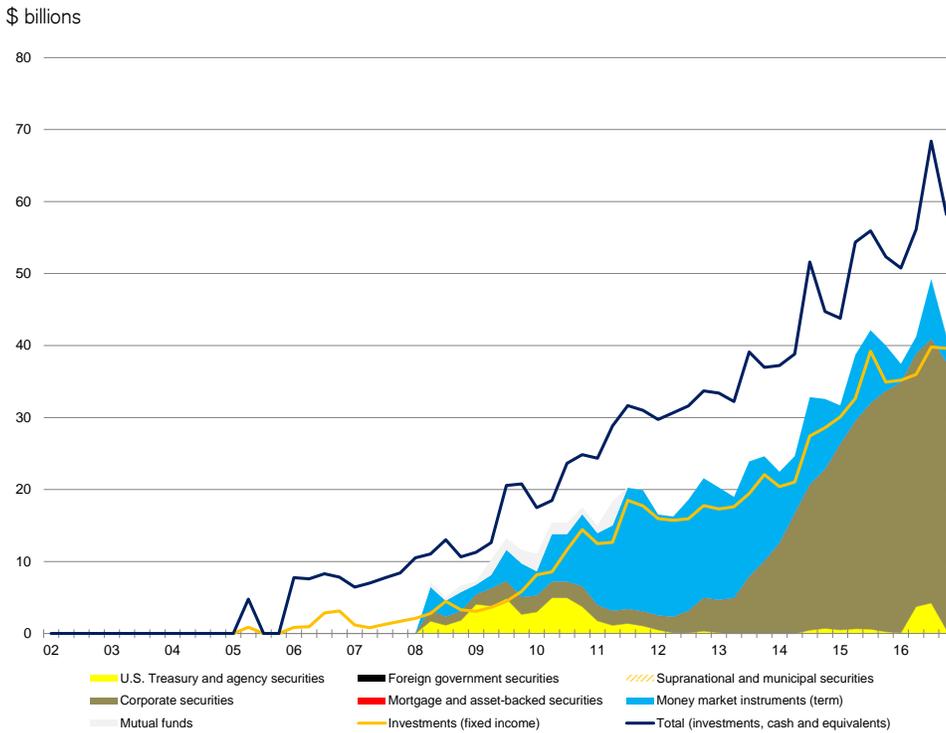
## Appendix 4 – Oracle Corporation

**Figure 23-1: Total Investments by Type**



Source: Company data, Credit Suisse

**Figure A4-2: Bond Investments by Type**



Source: Company data, Credit Suisse

**Figure A4-3: Bond Investments by Term**

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\$ billions

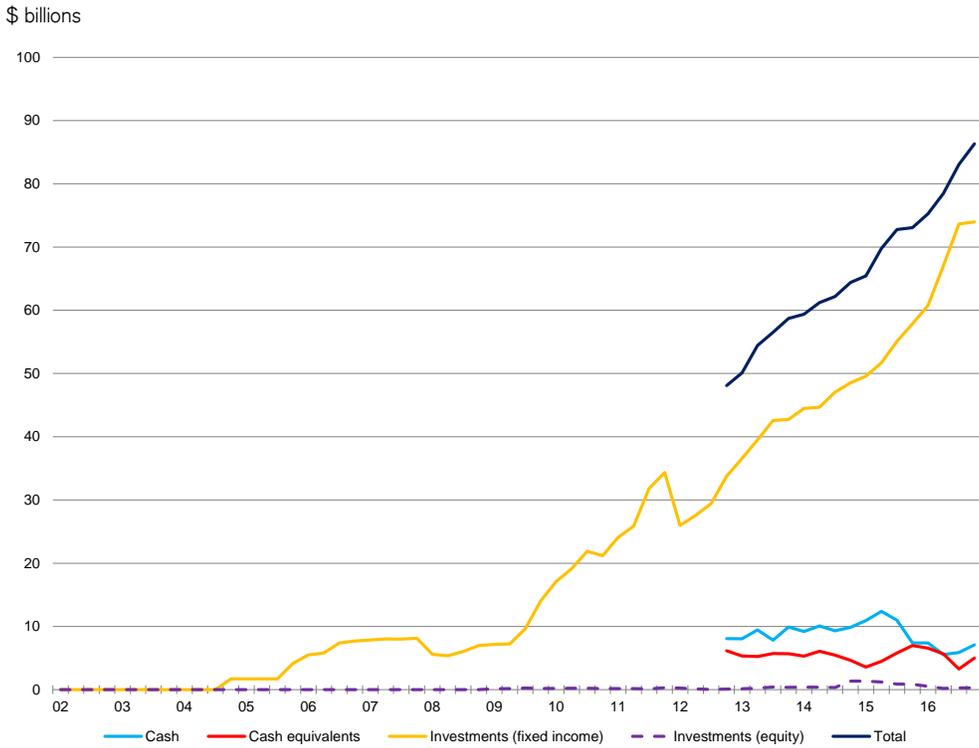
N/A

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Source: Company data, Credit Suisse

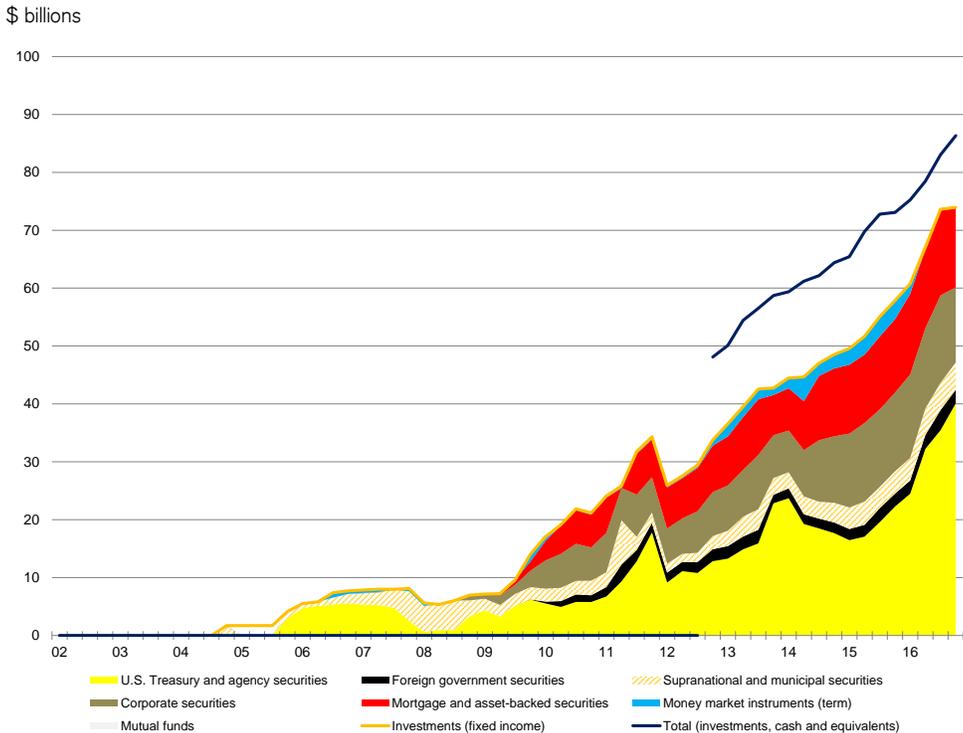
## Appendix 5 – Alphabet Inc.

**Figure 24-1: Total Investments by Type**



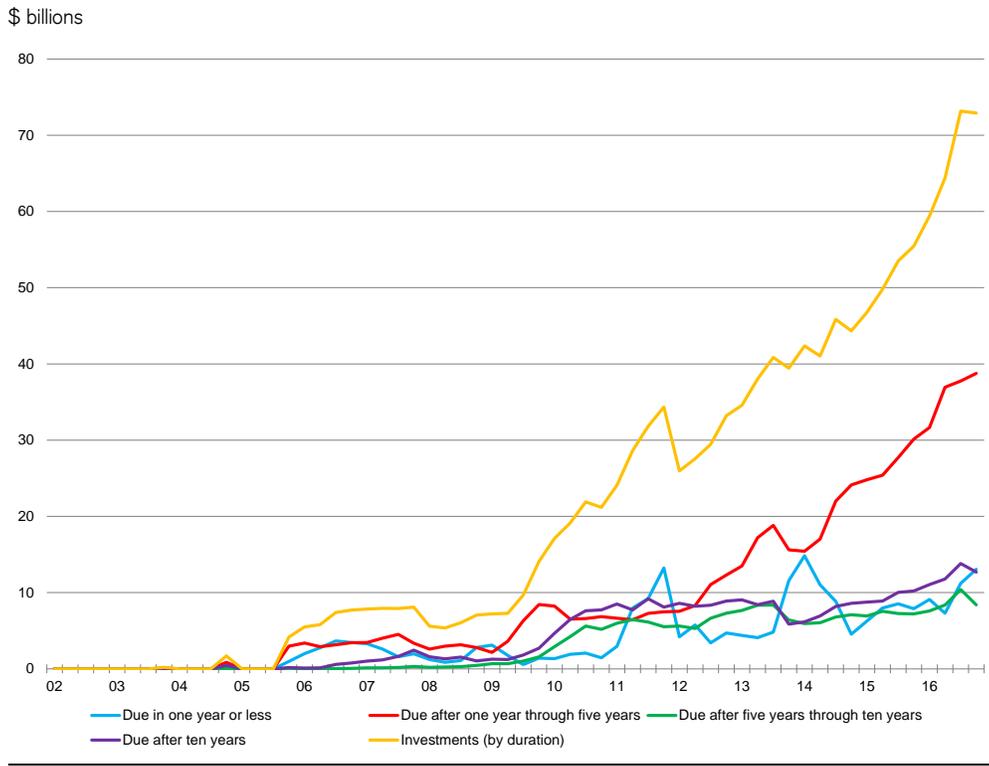
Source: Company data, Credit Suisse

**Figure A5-2: Bond Investments by Type**



Source: Company data, Credit Suisse

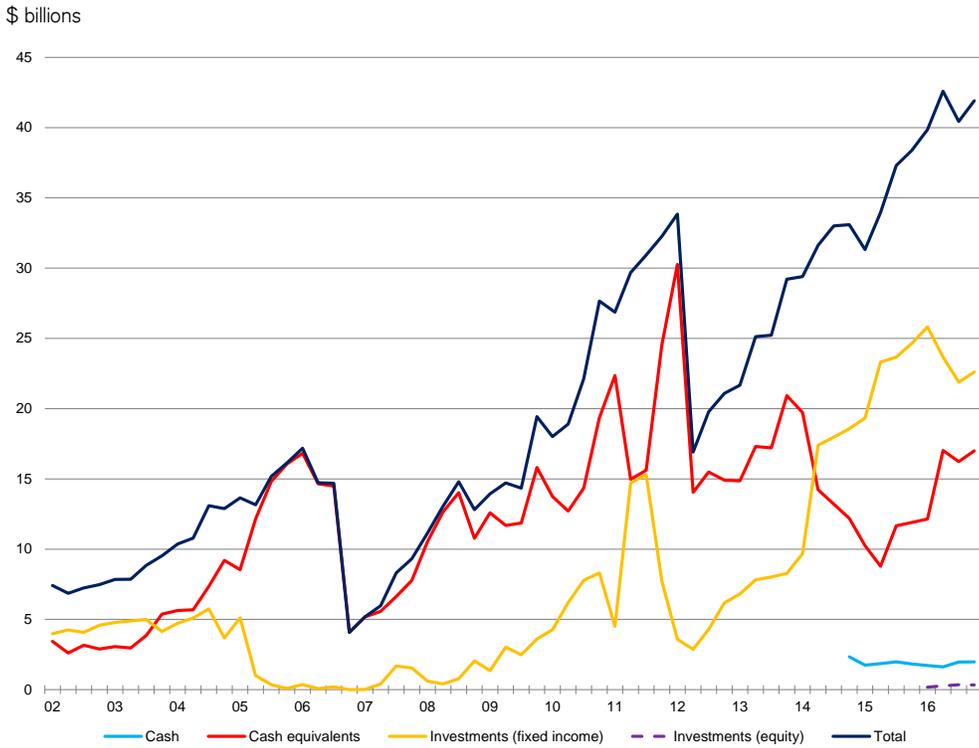
**Figure A5-3: Bond Investments by Term**



Source: Company data, Credit Suisse

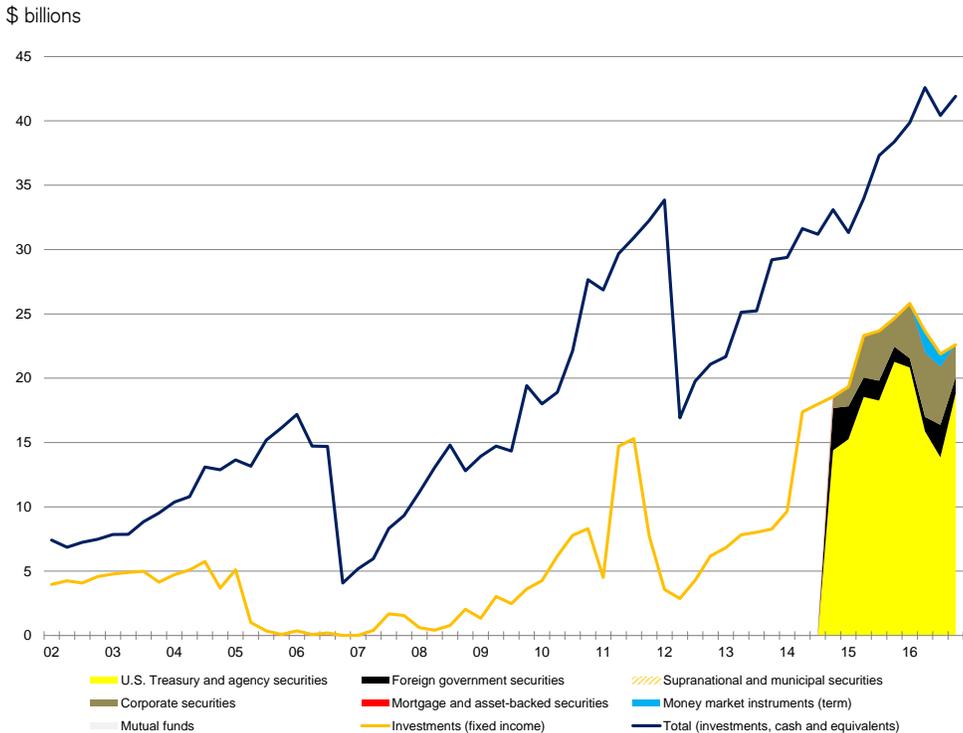
## Appendix 6 – Johnson & Johnson

**Figure 25-1: Total Investments by Type**



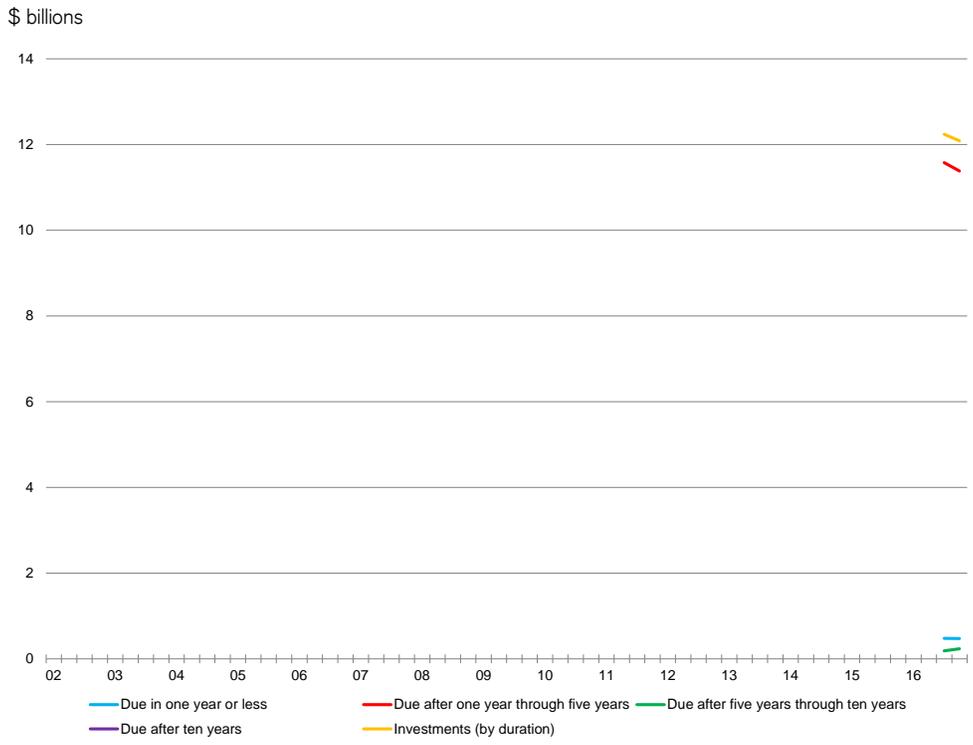
Source: Company data, Credit Suisse

**Figure A6-2: Bond Investments by Type**



Source: Company data, Credit Suisse

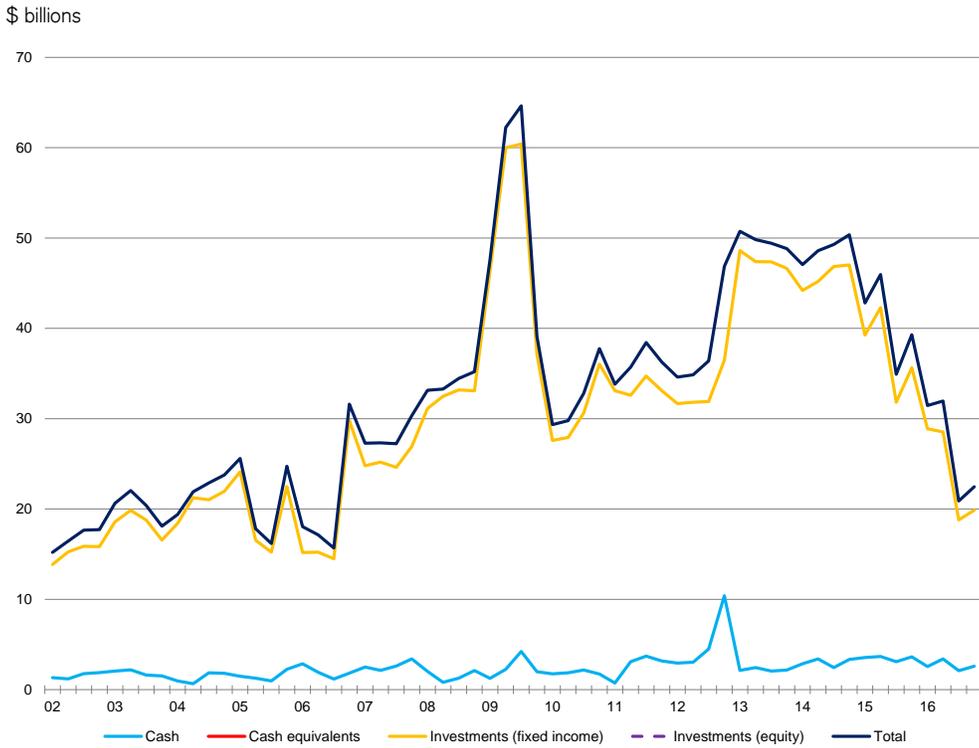
**Figure A6-3: Bond Investments by Term**



Source: Company data, Credit Suisse

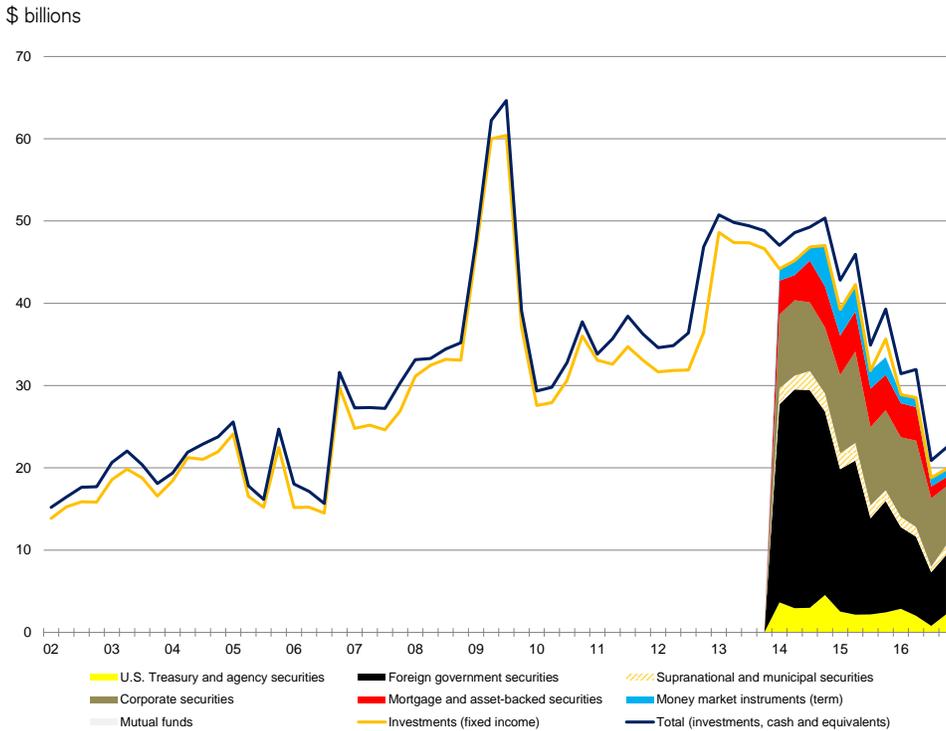
## Appendix 7 – Pfizer, Inc.

**Figure 26-1: Total Investments by Type**



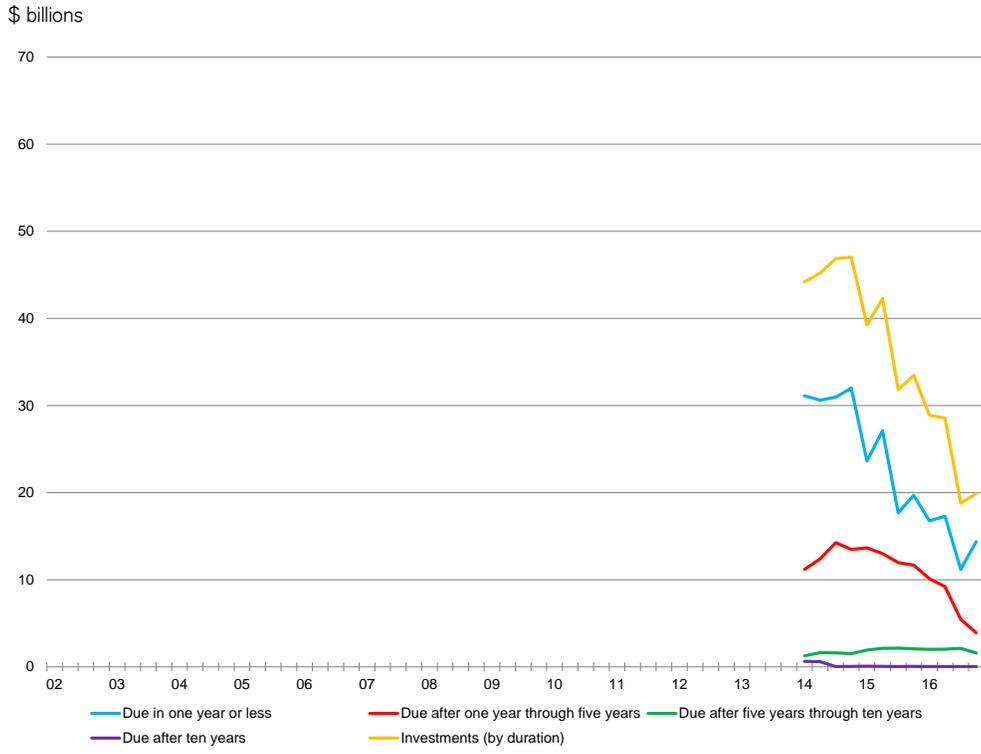
Source: Company data, Credit Suisse

**Figure A7-2: Bond Investments by Type**



Source: Company data, Credit Suisse

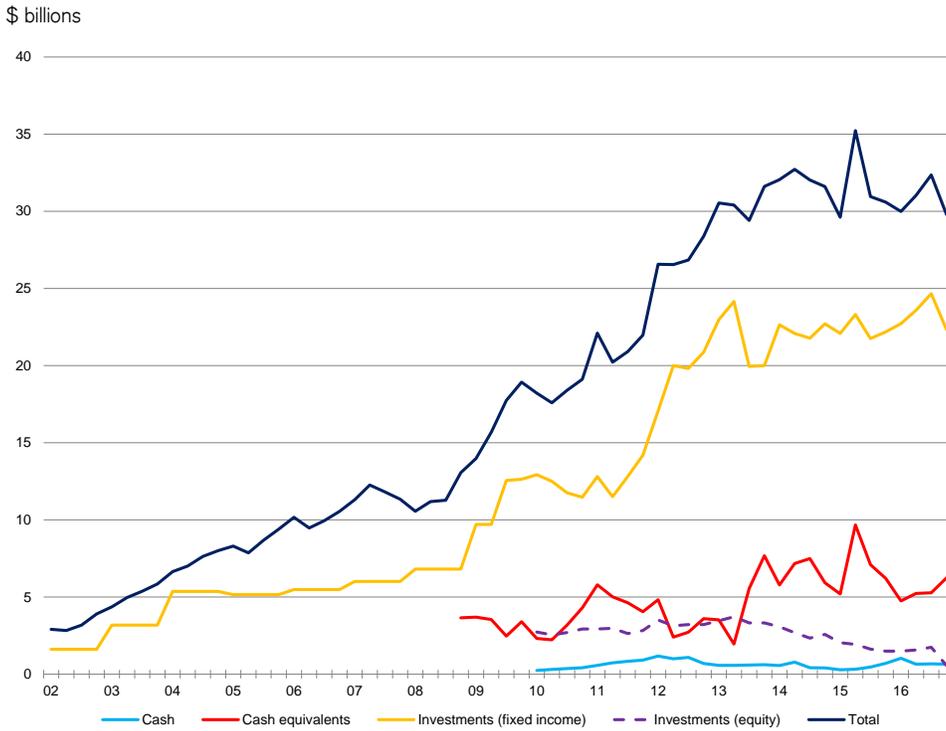
**Figure A7-3: Bond Investments by Term**



Source: Company data, Credit Suisse

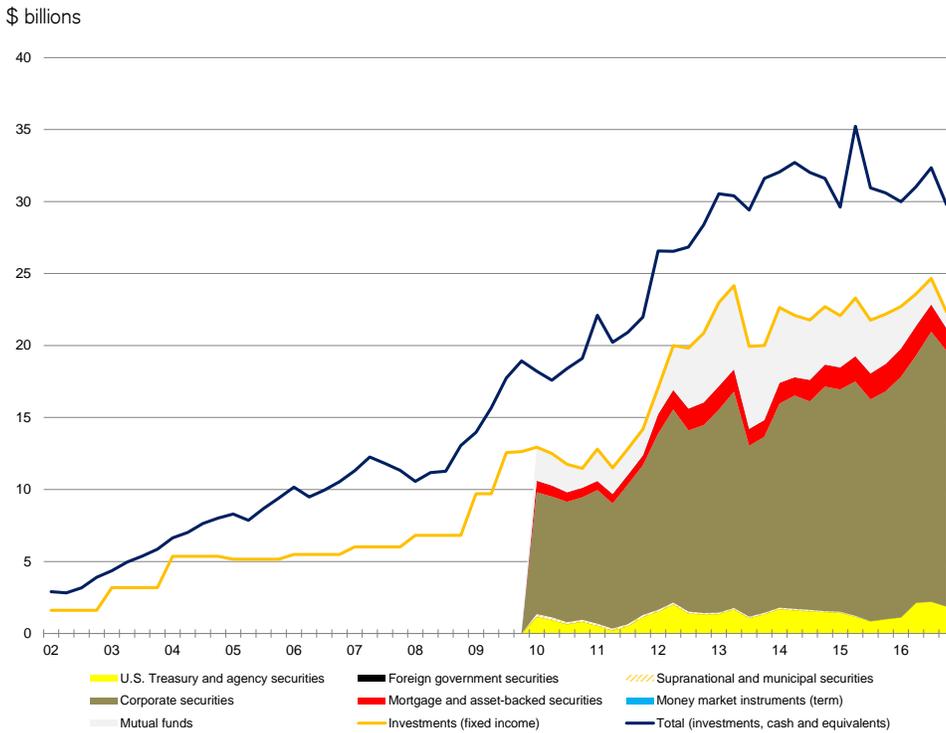
## Appendix 8 – Qualcomm Incorporated

**Figure 27-1: Total Investments by Type**



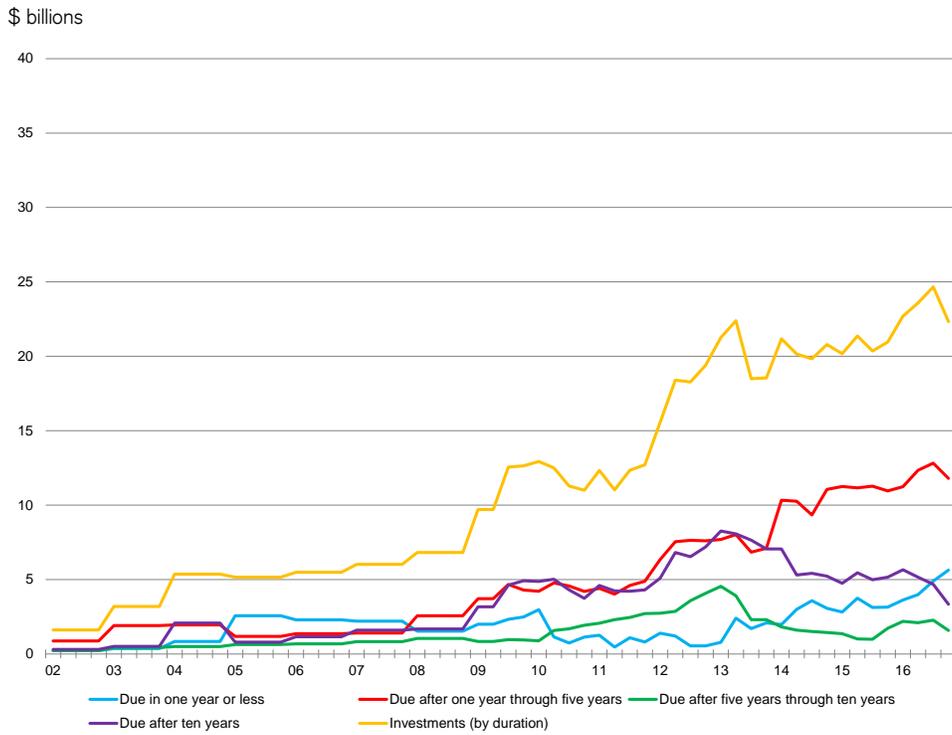
Source: Company data, Credit Suisse

**Figure A8-2: Bond Investments by Type**



Source: Company data, Credit Suisse

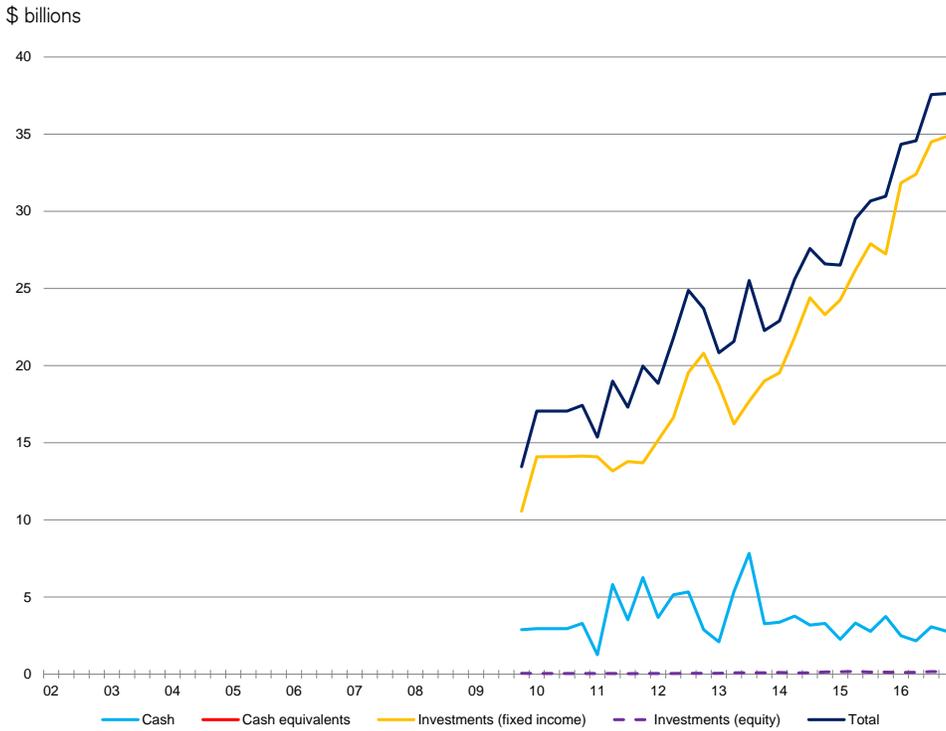
**Figure A8-3: Bond Investments by Term**



Source: Company data, Credit Suisse

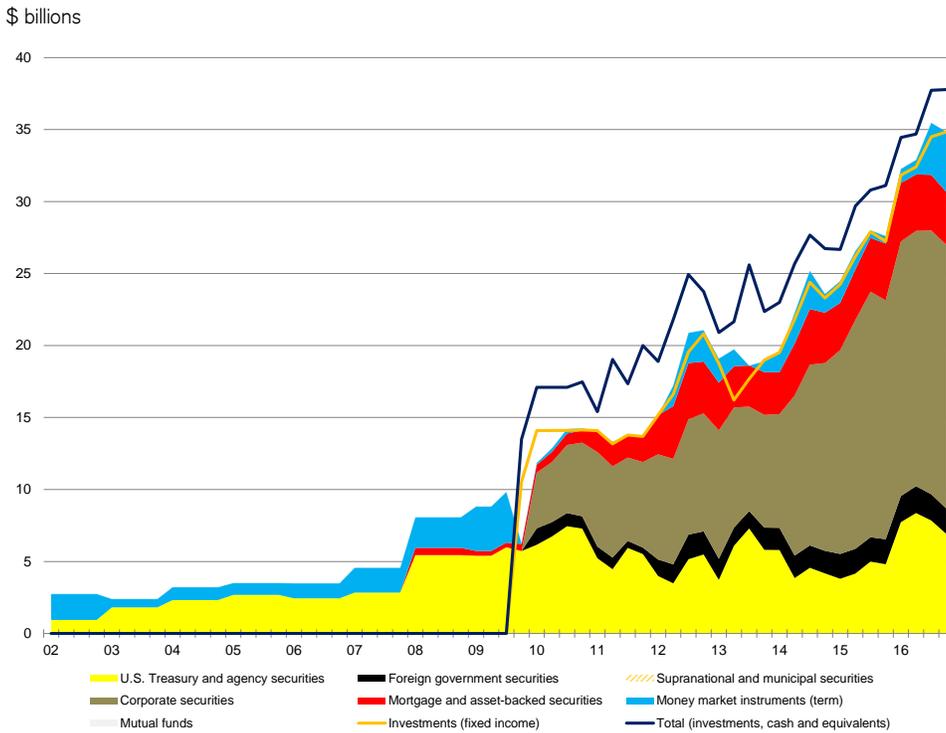
## Appendix 9 – Amgen, Inc.

**Figure 28-1: Total Investments by Type**



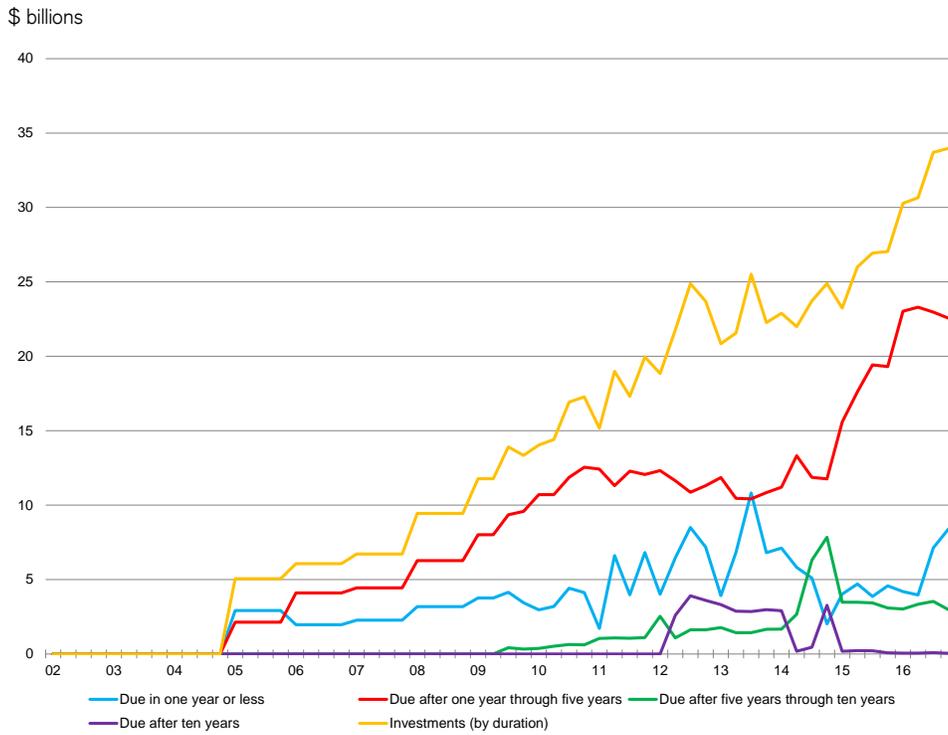
Source: Company data, Credit Suisse

**Figure A9-2: Bond Investments by Type**



Source: Company data, Credit Suisse

**Figure A9-3: Bond Investments by Term**



Source: Company data, Credit Suisse

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