Payer pressure is growing across a wide spectrum of the health care sector. Price increases have been blunted by election-year rhetoric and competition in key global pharmaceutical markets. Continued portfolio rationalization, a professed preference for bolt-on deals, and lower target company valuations continue to sharpen global appetites for acquisitions into 2017. A distinct firepower advantage combined with suddenly friendly political and tax climates in the US should allow big pharma to seize the M&A agenda.
More than any other time in the past several years, big pharma companies have the firepower advantage necessary to execute on the acquisitions they require to bolster revenue and drug pipelines. And more than any other time in the past several years, those deals are necessary. Big pharma and biotech’s race for inorganic growth has intensified as payers continue to push back on price increases for older drugs and dampen the growth trajectory of newer therapies, especially in increasingly crowded disease areas. Biopharma targets remain less expensive than during their 2015 peaks. M&A has averaged above US$200 billion over the past three years – impressive heights which we deemed the “new normal” in last year’s report. But even so, 2017 could be a banner year for dealmaking, well exceeding this level as industry and political forces converge.

The surprise 2016 US election and UK Brexit results will do little to alter the fundamental strategic drivers of M&A. The seemingly permanent shift toward a more active biopharma deal environment is a consequence of the global biopharmaceutical industry’s structural evolution toward externalizing R&D and an acute response to the power exhibited by US payers in the past few years. That power has gradually begun to resemble the force historically wielded by counterparts in Europe, and has been enabled by encroaching biosimilars on both sides of the Atlantic. It also reflects divestiture strategies put in place to shed underperforming or undersized businesses while refocusing on disease areas where companies can realistically compete for a leadership position. But the expected pro-business regulatory and tax environments ushered in by the year’s geopolitical forces, in particular the possibility of repatriating at least US$100 billion in cash to the target-rich US, may help to unleash more of the industry’s considerable firepower. The expectation that US pharmas may benefit from any reforms may spur European and other global competitors to accelerate their own dealmaking agendas.

Definitions
The growth gap is the difference in the sales growth of a biopharma company or biopharma subsector (e.g., big pharma) relative to overall drug market sales. It is based on IMS Health’s global drug market forecast and analysts’ estimates of company sales.

The EY Firepower Index measures a company’s ability to do M&A based on the strength of its balance sheet. Together, a company’s market capitalization, cash equivalents and debt capacity provide the “firepower” for deals. Thus, a company’s firepower increases when either its market capitalization or its cash and equivalents rise — or its debt falls. For more details about the methodology and the assumptions underpinning the EY Firepower Index, please see the Appendix on page 18.
Pricing pressure

The timing is fortuitous for pharma. Although 2016 marks the first time in several years that big pharma’s growth gap has not materially expanded, a significant gap remains. In fact, while big pharma has returned to growth in 2016, its growth rate is just shy of the overall market’s.

Evidence of payers’ impact was easy to find in 2016. As companies struggle to boost market share in diabetes, for example – a market already accustomed to contracting with payers – pricing has eroded more quickly than expected across multiple diabetes drug classes. Eli Lilly & Co. grew Humalog US volume by 10% in the third quarter, but normalized sales for that fast-acting insulin actually declined 1%. Lilly then announced in December a deal with Express Scripts to provide major discounts in an effort to increase share. Diabetes competitor Novo Nordisk cited on its third-quarter call the “competitive environment in the US within both diabetes care and biopharmaceuticals” as the reason it wouldn’t hit its 10% operating profit growth target (which it cut to 5%). Other newer diabetes drugs are battling the global payer head winds, including emerging markets, whose slowing economies are constraining health care spending.

So analysts’ forecasts for both older (legacy) and new therapies have been ratcheting down. Revised projections for legacy diabetes drugs, namely insulins, are expected to decline faster than predicted a year ago. Similarly, global growth expectations for new diabetes drugs also have dampened. The net effect: 2020 projected sales have declined by around 15%, or roughly US$7 billion, with this sobering outlook, increasing the urgency for inorganic growth (see Exhibit 1).

Similarly worsening forecasts can be found across multiple therapeutic areas, including central nervous system, respiratory and autoimmune disease. Companies are fighting to keep their therapies on payer formularies and increasing rebates to retain volume or gain acceptance by health technology assessment bodies in Europe. Payers globally have been pushing back harder than ever.

Drug distributors like McKesson and Cardinal Health posted poor quarterly results and increasingly cloudy 2017 forecasts, setting off additional alarm bells for pharma investors. Cardinal warned investors that drugmakers’ responses to pricing criticism would see branded pharma price increases that were more modest than previously expected.
Biosimilars, now established in emerging market countries – with domestic pharmaceutical manufacturers, most notably in China – are poised to capture share and are pressuring margins in developed markets as well. And fears affecting Europe a year ago have spread to the US, with several new entrants expected to arrive in 2017.

These biosimilars will compete with several iconic biotech brands. Worries about formulary exclusions and increased rebating pushed biotech valuations more than 10% lower and big pharma valuations 5% lower in October alone. The week before the November US election, valuations bottomed out, down 21% on the year.

Although valuations regained some ground in the immediate aftermath of the election, pricing power may not rebound. Last year in this report, we predicted this emerging payer strength could translate into an additional US$100 billion revenue growth gap by 2020. In 2015, according to Decision Resources, revenue from legacy pharmaceutical products (those products with negative CAGR) was expected to decline 9% annually through 2020. But if that revenue erodes faster, say by 13%, the result could be a US$50 billion revenue shortfall in 2020 compared with projections made in 2015. Likewise, if the industry’s products with positive revenue CAGR (“growth” products) grow more slowly than expected (at perhaps 14% compared to 2015’s 17% projection), it would result in an additional US$50 billion revenue decline by 2020.

Analysts’ forecast revisions for more recent drug launches over the past year also help illustrate emerging gaps. New sell-side analyst projections from five leading investment banks in late 2016, across a significant slice of the industry’s growth products, incorporate more modest growth than a year ago: 7% versus last year’s expected 10%. Extrapolating across all growth products suggests that in less than a year, analysts have shaved about US$25 billion off their own 2020 revenue projections.

Even in therapeutic markets where biopharma companies have had relatively strong pricing power, such as oncology or rare diseases, continued growth may become difficult. National payers have decided against paying for the breakthrough cystic fibrosis treatment Orkambi in the UK, Ireland, Canada, and Australia, citing insufficient cost-effectiveness (negotiations are continuing). Meanwhile, worldwide spending on cancer drugs had already reached US$100 billion in 2014, according to IMS. Eventually, payers’ cost-cutting strategies will impact cancer drug sales in the US, too.

Finding the drug price “white space” can hedge against payers’ ability to limit growth, but may require pharma to pursue higher-risk, global market opportunities like Alzheimer’s disease. This quest may also drive future M&A as companies compete for the best assets in key therapeutic areas where drug sales currently represent a smaller portion of total related health care costs.

Exhibit 2. Biopharma M&A: big pharma poised to dominate

![Biopharma M&A Chart]

Source: Datamonitor and EY analysis.
Includes all announced acquisitions with financial terms disclosed.
Who's buying (and selling) what?

Heading into 2017, we expect dealmakers to return to the table in earnest. From 2014-16, yearly M&A totals averaged around US$200 billion, but as a group, big pharma spent on average only 10% of its firepower each year. The strategic drivers and deal conditions are set. In a global poll by EY in mid-October, we saw early signs of this uptick: 43% of life sciences executives claimed to have five or more deals in the works, as opposed to just 6% in our mid-April poll (see EY’s 15th Capital Confidence Barometer at ey.com/ccb).

As of 31 December, total M&A volume exceeded US$200 billion in 2016, in line with the previous two years and signaling a new plateau after nearly a decade averaging well below US$100 billion (see Exhibit 2). Big pharma led the industry surge, with focused growth in more narrowly defined businesses and therapeutic areas continuing to shape the M&A landscape. The largest deals in 2016 also illustrate the industry’s diverging viewpoints with regard to focus and diversification. Bayer’s proposed Monsanto acquisition further diversifies the conglomerate away from pharmaceuticals and solidifies its position at the top of the agricultural biotech table. Shire seized Baxter spin-off Baxalta after a lengthy chase that began in 2015, strengthening its leadership in rare diseases. And Pfizer’s acquisition of Medivation signaled the big pharma’s determination to bulk up its oncology portfolio.

Divestitures remain a major part of the mix. Over the past four years, asset selling by large companies has accounted for about a quarter of all M&A, highlighted by swaps like the US$25 billion Sanofi/Boehringer Ingelheim transaction in June 2016. That deal saw Sanofi’s animal health business exchanged for Boehringer’s consumer unit and cash. In the weeks following the US election, several potential divestitures have been mooted in press reports that represent around US$50 billion in potential deal valuations, suggesting that shedding non-core assets and business units may feature among 2017’s trends as well. In late December 2016, Novartis announced it would out-license US rights to three COPD treatments to Sunovion Pharma, avoiding a bruising battle with that respiratory market’s incumbents.
Big biotechs surprisingly remained mostly on the sidelines during 2016, keeping their considerable firepower in check. On the whole, big biotechs have a greater bias toward organic growth than big pharma. But much of this inactivity can be ascribed to discipline: the handful of big biotechs most expected to pull the trigger on large deals often cited overheated target valuations. But biotech and big pharma valuations fell steadily throughout the year – before the US-driven post-election bounce – as drug pricing concerns gained momentum.

This trend may offer further clues to 2017’s outlook. The last time biopharma valuations experienced such acute declines was during the 2008 financial crisis. This pronounced downturn was quickly followed by a handful of 2009 megadeals: Pfizer bought Wyeth, Roche bought Genentech, and Merck & Co. bought Schering-Plough. So there’s a precedent for big pharma ramping up dealmaking in 2017, and potentially dominating M&A share for several years.

Unlike in 2008, the factors affecting valuation and firepower declines in 2016 are industry- and business model-driven: pricing pressure, specialty pharma inversion consequences and competition in key markets. Nevertheless, market dynamics advantage big pharma and a small handful of big biotechs.

A considerable force in M&A over the past few years, the specialty pharma set has depleted its firepower and appears likely to remain on the sidelines for 2017.
Will payer leverage and post-election optimism shift dealmaking into a higher gear?

Specialty pharma may sit one out

Big pharma’s firepower share gains have come as the specialty pharmaceutical sector lost share. Specialty pharma equity valuations have fallen by 34% on average during 2016. And after a marathon of inversion-fueled M&A from 2013 through 2015 – accounting for over half the biopharma deal volume in that period – specialty pharma’s firepower is depleted. No fewer than six of the largest 10 specialty pharma companies have exhausted their firepower, and several are considering divestitures to repair their debt-laden balance sheets that pushed the sector’s debt-to-equity ratio to 67%. Only Allergan, fresh from its sale of its generics business to competitor Teva Pharmaceuticals for US$40 billion, could pursue substantial M&A. Until specialty pharma can replenish its firepower, it is likely to remain on the sidelines for 2017.
Falling firepower

Falling equity valuations and debt raised to fuel previous years’ M&A have resulted in a roughly 20% industry-wide firepower decline. Specialty pharma firepower (down 62%) and big biotech firepower (down 24%) account for about half the decline. Big pharma (down 17%) now nearly equals its largest share of industry firepower in four years (see Exhibit 4). Total firepower for US-based big pharma companies has fallen by 5% from 2015 through 2016; for Japanese pharma and European big pharma the declines have been even greater, 13% and 29%, respectively. Big biotech maintained its firepower share at the expense of debt-laden specialty pharma, among which only Allergan and a few smaller players have firepower (See box: “Specialty pharma may sit one out”). Despite the overall decline, capital allocation priorities favor continued M&A among industry’s largest players.

That M&A is necessary. Most big pharma and some big biotechs have forecast growth through 2020 below the IMS-projected 4% global revenue growth rate for the sector. Put plainly, they have growth gaps (see also “Definitions” on page 2). Pricing pressure on new therapies has impeded recovery from the industry-wide patent cliff that began several years ago. Companies with growth gaps and shrinking firepower are in the most challenging positions (see Exhibit 5).

While mean firepower declined roughly 17% from 2015, most big pharma companies have relatively large firepower reserves to pursue the M&A necessary to close their growth gaps. Some companies, including Bristol-Myers Squibb Co. (BMS), have lost firepower as equity valuations fell. Others, including AbbVie, spent firepower on M&A, generating stronger growth outlooks that make firepower declines less relevant. Still others, including AstraZeneca (AZN) and Novartis, face greater challenges in that they need more growth but have declining firepower. A small minority – such as Johnson & Johnson, Merck & Co. and Allergan (after divesting its generics business to Teva) – have increased firepower in 2016, which will give them an advantage when competing for acquisition targets. And as 2016 waned, Allergan announced it was acquiring LifeCell for nearly $3b while Johnson & Johnson appeared ready to deploy some of its industry-leading firepower: the Swiss biotech Actelion confirmed in late November that it was approached by J&J about a possible transaction.

Exhibit 4. Firepower falls as big pharma gains share

![Exhibit 4](chart)

Source: S&P Capital IQ and EY analysis.
Exhibit 5. Firepower dynamics: relative positions drive M&A possibilities

Source: IMS (30 November 2016), S&P Capital IQ (30 November 2016) and EY analysis.
With big pharma in the driver’s seat, it’s worth examining the universe of targets the subsector might pursue. For the first time in several years, larger growth targets that few could afford now appear within reach. Big pharma’s average firepower now exceeds the average valuations of big biotech and specialty pharma targets, which have fallen by 30% over the past year. Ultimately, this may spur big biotechs to pursue defensive M&A, and as a group they’re poised to participate meaningfully in 2017.

Whether or not they can afford megadeals, most large companies have stated preferences for bolt-on deals. These small-to-mid-cap biotech and specialty targets remain plentiful, and their valuations fell significantly in the past year (see Exhibit 6). Even big pharma with dwindling firepower can be in the competitive mix for some of these targets. In 2016, more than a third of the M&A dollar volume came from this group: Baxalta and Medivation were joined by Anacor (acquired by Pfizer), Dyax (acquired by Shire) and Meda (acquired by Mylan). In 2017, we won’t be surprised to see small- and mid-cap biopharmas representing more than half of all deal volume, as falling valuations and pricing pressures combine to forge M&A in pharma’s battlefield markets.

Ten acquisitions from our basket of 50 possible biopharma target companies (ranging from US$1 billion to US$50 billion in market value, with an average value of US$10 billion, shown as the light gray line in Exhibit 6) would reach US$100 billion in deal volume. Using average revenue projections for these targets, big pharma would be able to add roughly US$30 billion by 2020 to help close growth gaps. And considering the prospect for repatriating more than US$100 billion during 2017, these projections could be conservative.
Using average revenue projections for these targets, big pharma would be able to add roughly US$30 billion by 2020 to help close growth gaps.
Laggards in the space may choose to pursue asset swaps or divestitures in favor of doubling down in therapeutic areas where they can more aggressively — and more realistically — pursue leadership opportunities.

Crowded therapeutic battlefields

There’s a lot of pressure in highly competitive therapeutic areas like diabetes and autoimmune disease. One quick way to lose formulary positioning? Raise prices in crowded markets such as those that have multiple therapeutic alternatives. Companies are finding that they have to put large rebates on the table to maintain formulary positions and maximize patient access to their respective drugs, yet the large rebates are clearly impacting net selling price.

Commentary from companies on the pricing pressures helped set in motion the biopharma-wide swoon we saw ahead of the US election in November. These discussions are less common in certain areas like oncology, but even that therapeutic area could be affected.

Within the immuno-oncology area, we see significant portfolio overlaps. For example, there are 20 different PD-1 antibodies in clinical development (including related targets like PD-L1), according to clinicaltrials.gov. Not only does this put a strain on clinical trial infrastructure, but there could be limited bandwidth for winners and eventual payer pressure. Laggards in the space may choose to pursue asset swaps or divestitures in favor of doubling down in therapeutic areas where they can more aggressively — and more realistically — pursue leadership opportunities. GlaxoSmithKline (GSK) did this in 2014 when it divested its oncology business to Novartis, picked up Novartis’ vaccines unit and entered into a joint venture around the Swiss pharma’s consumer portfolio. Others may find willing buyers in the market incumbents that have lost early immuno-oncology battles and face declining share in part due to generic and biosimilar competition or insufficient pipelines (see Exhibit 7).

Pfizer’s Medivation acquisition leaves few acquirable stand-alone, revenue-generating oncology businesses that can move the needle at a top-20 cancer company. Hence the few remaining significant oncology targets have naturally become the subject of intense M&A speculation as 2016 draws to a close.
Will payer leverage and post-election optimism shift dealmaking into a higher gear?

**Exhibit 7. Oncology: attractive and increasingly crowded**

Source: Datamonitor (30 November 2016) and EY analysis
Growth gaps expanding?

The marketplace reaction to biopharma companies’ third-quarter earnings calls suggests investors did not fully appreciate the industry’s pricing problems. And market forecasters may only now be beginning to discount biosimilars’ potential impact on payer pressure, which may eventually accelerate market erosion in classes that have several competitors vying for share. “In fact, where biosimilars have launched, we’ve already seen about a 26% volume share of branded Remicade switched to biosimilars of infliximab, and so we believe that actually the marketplace on a global basis is really beginning to become more comfortable with the introduction of biosimilars,” Pfizer Essential Health Group President John Young commented during the company’s third-quarter earnings call.

And payer leverage is not only evident in mature markets like anti-TNFs. One reason that growth gaps remain is payer pressure in newer markets as well. In the cardiovascular space, Pfizer Chairman and CEO Ian Read cited payer pressure as one reason the company abandoned its phase III PCSK-9 inhibitor bococizumab, which was in line to become the third entrant in a class once expected to top out at US$20 billion in annual sales but where the first two entrants are having trouble getting out of the gate. The market landscape for lipid-lowering agents is evolving, and success will likely depend on proving long-term efficacy and durability. What’s more, “we have also recently seen payers establish access restrictions to the class, which has meaningfully dampened our initial expectations for the market potential,” Read noted during the Pfizer call.

Payer enthusiasm for competition-driven formulary exclusion or pricing pressure begins even before a new drug class makes it to market. This may dampen projections for potential new blockbuster therapies, especially when multiple new entrants with comparable safety and efficacy profiles approach the market simultaneously, as in the case of anti-PCSK-9s. This could further drive M&A as companies vie to capture assets with demonstrable safety, efficacy or speed-to-market advantages over the competition.
Firepower unleashed — record M&A in 2017?

As the probability of revenue shortfalls increases across the industry, even companies with ostensibly solid growth prospects may pursue M&A to guard against downside scenarios. From a macro perspective, the biopharma industry enjoys M&A momentum. There had been pent-up demand for deals in a holding pattern going into the presidential election, but the deal chatter in the waning weeks of 2016 indicate much firepower could soon be unleashed in 2017 based on these drivers:

- **The payer growth gap has become a reality.** As therapeutic battlefield competition intensifies and pricing pressure mounts, the payer growth gap has moved from concept to reality. Last year’s theoretical worries have become this year’s reduced revenue outlooks.

- **Finding growth in traditional strongholds is becoming increasingly difficult.** Yesterday’s breakthrough innovations in disease areas, such as autoimmune disease and oncology, have become today’s crowded therapeutic battlefields, forcing the industry to seek therapeutic “white spaces” in underserved areas of increasingly high health care system expense. Therapeutic areas like Alzheimer’s disease remain high-risk, but pharmaceuticals represent only about 1% of this US$250 billion health care cost sink. Better disease biology understanding and clinical trial design informed by improved diagnostics may eventually help reverse pharma’s fortunes in this and other drug development graveyards.

- **Plenty of firepower remains unspent.** Even if falling firepower is likely to limit some players that were active on the M&A stage over the past few years, those that had saved firepower are now poised to act. Big pharma and big biotech, which have on average spent only about 10% of their firepower on M&A annually over the past several years, may participate more meaningfully in 2017.

- **US political climate becomes more favorable.** Now that the election is over, regulatory and tax reform could create a positive dealmaking environment, offsetting lost firepower by freeing cash trapped overseas to deploy for growth-boosting M&A. Comprehensive tax reform could also narrow the tax rate gap between companies that didn’t invert and those that did – creating more competitive tension on the M&A playing field, while providing prospects for accretive deals to move forward. In general, Republican Congressional majorities are viewed as more business-friendly, and biopharma CEOs and boards may have more confidence to pursue deals. Capital has remained inexpensive thanks to low interest rates, but those rates have begun to rise.

- **Waning ex-US advantages.** Pharmaceutical companies with ex-US tax domiciles have enjoyed a dealmaking advantage over their US counterparts. US tax policy reform may lessen or erase that benefit and global phamas seeking US market growth may opt to accelerate M&A plans moving into 2017.

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**Exhibit 8. Strategic divergence**

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- **Focused:** companies with pharma sales greater than 70%. Includes AstraZeneca, AbbVie, Merck, Eli Lilly, Novartis, Pfizer, Boehringer Ingelheim, Roche and Sanofi.
- **Diversified:** companies with pharma sales less than 50%. Includes Abbott, Bayer, GSK and Johnson & Johnson.
- **Other:** includes Crop Science (Bayer), Nutrition (Abbott) and Alcon (Novartis).

*Source: Datamonitor, using pro forma 2017 sales.*
Certain companies may alternatively or in parallel pursue further diversification away from the pharma core business. GSK, Merck KGaA, Bayer and others have already done so, as they’ve sought growth opportunities in adjacent life sciences business areas (see Exhibit 8). Non-core businesses may be the road less traveled for most of pharma, but they are projected to account for around US$150 billion in sales in 2016 out of a total of US$500 billion. We expect transactions in most, if not all, subsectors in 2017.

Those companies with a relatively smaller US pharma footprint have in some cases strategically limited their exposure to these emerging US pricing concerns. GSK anticipated the current US pricing dynamic earlier than most companies. “There are tremendous market forces at work in terms of the way in which the US market is changing, who’s making the decisions, who’s controlling the lives,” CEO Andrew Witty noted on the company’s third quarter earnings call. “The fact that we’ve absorbed so much pain on pricing over the last three years actually puts us in a more interesting zone” as GSK’s respiratory franchise battles generic competition, he noted.

Successful M&A going forward will require more rigorous industry pricing analysis. Independent of who becomes the next US president, payer pressures in the form of competitive rebating and formulary exclusions will continue. Some of those companies that have been saving firepower for a rainy day may look out the windows and see storm clouds. Acting administrator for the Centers for Medicare & Medicaid Services Andy Slavitt suggested during an industry talk in early November that the pharmaceutical industry acknowledge the math as it adapts to a value-based pricing environment. A drug price can’t grow by 11% unless it’s causing overall costs to decrease by 12%, he noted. “The reality is that in the next few years, these costs will put unsustainable pressure on the Medicare program.” The US president-elect Donald Trump evidently agrees. “I’m going to bring down drug prices. I don’t like what’s happened with drug prices,” he told TIME magazine in December, prompting a biotech market swoon.

The likelihood that prices won’t increase to the extent investors had once envisioned will only heighten the industry’s need for inorganic growth. Crowded therapeutic areas must consolidate, abetted by increased asset swapping, as companies strive to “own the disease” with a comprehensive portfolio approach to better prepare for payer negotiations. As we’ve seen with oncology, even disease areas where pharma has traditionally enjoyed a relatively free hand with pricing are not immune. With drug costs as a percentage of overall costs already high in oncology, it’s not difficult to see why.

Adding it all up, divestitures, therapeutic battlefield consolidation and activity in remaining unmet therapeutic needs might easily drive the US$200 billion in deal volume that the biopharma industry has enjoyed over the past few years, even without such favorable M&A conditions. But 2017, with unprecedented payer pressure, a deal tail wind from macro forces, and an unusually full M&A pipeline, is likely to push biopharma dealmaking to new heights.

### 2017 and beyond: a new page for biopharma’s M&A playbook

Entering 2017, biopharma companies should consider pre-emptive measures to address growth challenges.

- **Prepare to move quickly.** US tax reform and a friendly political climate will likely emerge in 2017. US companies must now figure out how to best utilize offshore cash to fulfill their M&A aspirations. Waiting for legislation creates a competitive disadvantage and may result in lost opportunities. Ex-US companies should anticipate these moves, take pre-emptive measures and accelerate M&A decision-making.

- **Deal premiums require firepower reserves; find them now.** Winning a competitive deal in desirable growth categories may require incremental firepower. Consider proactively divesting or asset swapping to facilitate dealmaking.

- **Focus on the downside.** Anticipating future growth gaps in strategic franchises highlights the need for M&A. Rising deal pipelines across the industry reflect this forward thinking.

- **In to win?** Evidence of increasing payer pushback in key pharma therapeutic areas heightens the risks for second-tier players. Companies on the margins may look to gain share through M&A – or divest ahead of the competition to lock in more favorable terms. This is true within the biopharma space as well as for companies with businesses in adjacent business sectors weighing the benefits of diversification.
Unprecedented payer pressure, a deal tail wind from macro forces, and an unusually full M&A pipeline, is likely to push biopharma dealmaking to new heights in 2017.
Appendix: Methodology and definitions

The EY Firepower Index measures companies’ capacity to fund transactions based on the strength of their balance sheets. It has four key inputs:

1. Cash and equivalents
2. Existing debt
3. Debt capacity, including credit lines
4. Market capitalization

The following assumptions are the underlying factors for the EY Firepower Index:

- A company will not acquire targets that exceed 50% of its existing market capitalization.
- The debt/equity ratio of the combined entity created by a transaction cannot exceed 30%. (Equity is measured on a market value basis.)

While some pharma companies have made acquisitions that go beyond these upper limits, our intent is to apply a uniform methodology to measure relative changes in firepower. The EY Firepower Index measures the capacity to conduct M&A transactions financed with cash or debt. It does not measure the ability to conduct stock-for-stock transactions. However, increases in a company’s stock price do boost its firepower under the EY Firepower Index’s formula. That is because increased equity enables companies to borrow more to finance transactions.

While the EY Firepower Index and this report focus on M&A, we acknowledge that licensing will remain an important business development strategy. However, in assessing the growth gaps of big pharmas, M&A is more relevant than in-licensing, since acquiring companies with commercialized products has a more immediate effect on a pharma company’s revenue gap than does in-licensing pipeline assets.

In this report, we include the following companies in the **big pharma** category:

- Abbott Laboratories Inc.
- AbbVie Inc.
- Astellas Pharma Inc.
- AstraZeneca plc
- Bayer AG
- Bristol-Myers Squibb Company
- Daiichi Sankyo Company Ltd.
- Eisai Co. Ltd.
- Eli Lilly and Company
- GlaxoSmithKline plc
- Johnson & Johnson
- Merck & Co. Inc.
- Novartis AG
- Pfizer Inc.
- Roche Holding AG
- Sanofi
- Takeda Pharmaceutical Co. Ltd.

We include the following companies in the **big biotech** category:

- Alexion Pharmaceuticals Inc.
- Amgen Inc.
- Baxalta plc
- Biogen Idec
- BiogenMar Pharmaceuticals Inc.
- Celgene Corp.
- Gilead Sciences Inc.
- Incyte Corp.
- Novo Nordisk A/S
- Regeneron Pharmaceuticals Inc.
- Seattle Genetics Inc.
- Vertex Pharmaceuticals Inc.

We include the following companies in the **specialty pharma/generics** category:

- Alkermes
- Allergan plc
- Endo International plc
- Jazz Pharmaceuticals plc
- Mylan Inc.
- Perrigo Company
- Shire plc
- Teva Pharmaceutical Industries Ltd.
- UCB
- Valeant Pharmaceuticals International Inc.

Four companies in the specialty pharma/generics list have generics businesses (Allergan, Endo, Mylan and Teva).
Will payer leverage and post-election optimism shift dealmaking into a higher gear?

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How EY's Global Life Sciences Sector can help your business

As populations age and chronic diseases become commonplace, health care will take an ever larger share of GDP. Scientific progress, augmented intelligence and a more empowered patient are driving changes in the delivery of health care to a personalized experience that demands health outcomes as the core metric. This is causing a power shift among traditional stakeholder groups, with new entrants (often not driven by profit) disrupting incumbents. Innovation, productivity and access to patients remain the industry's biggest challenges. These trends challenge the capital strategy of every link in the life sciences value chain, from R&D and product supply to product launch and patient-centric operating models.

Our Global Life Sciences Sector brings together a worldwide network of 11,000 sector-focused professionals to anticipate trends, identify their implications and help our clients create competitive advantage. We can help you navigate your way forward and achieve sustainable success in the new health-outcomes-driven ecosystem.

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