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Limits on Consumer Benefits from Proposed Merger of Aetna Inc. into CVS Health Corporation

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I. Introduction

I am the James Joo-Jin Kim Professor at the Wharton School of the University of Pennsylvania, where I am a Professor in the Department of Management and the Department of Health Care Management. I am also the Director of the Wharton Center for Health Management & Economics, and Co-Director of the Roy and Diana Vagelos Program in Life Sciences and Management at the University of Pennsylvania. In these roles, I teach courses on the U.S. healthcare system and the industrial organization of healthcare. These courses cover the entire value chain of health care, including:

- providers such as hospitals, physicians, pharmacies, retail clinics, etc.
- managed care organizations, insurers, and pharmacy benefit managers who contract with and reimburse providers for their services
- employers, individuals, and governmental bodies who ultimately pay for these services, and
- manufacturers of pharmaceutical and medical products who supply the technologies that providers utilize in patient care.

I have worked closely with both the Federal Trade Commission and the Department of Justice in prior antitrust cases that assess the competitive harms from mergers in the healthcare industry. In such cases, I am asked to evaluate whether the mergers provide any offsetting, compensating benefits for lowering healthcare costs and/or improving healthcare quality in the event they are found anticompetitive. This report discusses whether any such benefits may exist in the proposed merger of Aetna Inc. into CVS Health Corporation. My conclusion is that they do not exist.

II. The Merger: Exercise in Vertical Integration

In December 2017, CVS Health and Aetna announced their intention to merge. CVS Health describes itself as a "integrated pharmacy health care company". It is comprised (as of March 2018) of several businesses: (1) a large chain of 9,847 CVS retail pharmacies; (2) a large pharmacy benefit manager (PBM), Caremark, with 90 million members; (3) a chain of 1,111 retail clinics (MinuteClinic) that reside within some of its pharmacies; and (4) a staff of 4,000 of nursing professionals working in the retail clinics and home healthcare. For its part, Aetna is a large health insurer that provides coverage

to 22.2 million enrollees across several customer segments (e.g., commercial, Medicare Advantage, Medicaid) and product lines.

CVS Health executives describe their organization as the "integration" of a pharmacy benefit manager (PBM), a pharmacy, and a retail provider. With the proposed merger of Aetna, the new company will further integrate vertically to include an insurer. According to a CVS Health statement, the merger will confer several benefits, particularly by "integrating more closely the work of doctors, pharmacists, and other health care professionals and health benefits companies to create a platform that is easier to use and less expensive for consumers".[1] In so doing, "the combined company [will serve] as America's front door to quality health care". Thus, at a general level, the merger will tackle the three thorniest problems bedeviling the U.S. healthcare system: cost, quality, and access. These three issues are often referred to as "the iron triangle of healthcare".[2]

According to the announcement, the vertical merger will also serve many specific aims. These include:

- Combine CVS Health's clinical capabilities with Aetna's analytics
- Connect Aetna's provider network with CVS Health's community access model
- Remake the consumer health care experience
- Improve understanding of patients' health goals
- Guide patients through the healthcare system
- Put the consumer at the center of healthcare delivery and empower them
- Avoid unnecessary hospital re-admissions & emergency department visits
- Help members achieve their best health
- Complement the care provided by patients' physicians
- Help meet the health needs of members with chronic conditions
- Use analytics together with broader patient information to reduce cost of care
- Provide face-to-face counseling to patients between doctor visits
- Provide remote monitoring of patients' health status indicators

[1] CVS Health. 2017. "CVS Health to Acquire Aetna," CVS Health Press Release. December 3rd.
[2] William Kissick. 1994. *Medicine's Dilemmas*. New Haven, CT: Yale University Press.

A similar set of aims were enunciated by the general counsel for both CVS Health and Aetna in testimony before the House Judiciary Committee's Subcommittee on Regulatory Reform, Commercial and Antitrust Law in late February 2018.[3] [4]

These general and specific goals are to be achieved through the merger of two companies that offer community healthcare services and insurance coverage, respectively. The merger will result in a vertically-integrated system that combines providers (pharmacies, pharmacists, nurse practitioners), a PBM, and a health plan.[5] [6] Executives involved in such mergers rarely, if ever, evaluate their combination in the light of academic theory or the empirical evidence base. Such is the case here, as I discuss below.

III. Evidence Base on Vertical Integration in the Literature

A. Corporate Literature

The rationale for vertical integration has been described in depth.[7] [8] [9] Initially, vertical integration served to link up the stages of production for a given product (raw materials, production, distribution). More recently, vertical integration sought to combine and then apply intangible assets to the manufacture and distribution of many goods that are not necessarily linked as stages of a common production process. There are several rationales for engaging in such strategic combinations. One goal is to reduce "transactions costs" (e.g., contracting) and "agency costs" (e.g., performance monitoring) between the merging firms. Another goal is to pool complementary assets to achieve "economies of scope" and lower costs by using the same intangible assets in the production of multiple goods and services.

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[3] Thomas Sabatino. 2018. *Statement*. House Judiciary Committee, Subcommittee on Regulatory Reform, Commercial and Antitrust Law. February 27th.
[4] Thomas Moriarty. 2018. *Statement*. House Judiciary Committee, Subcommittee on Regulatory Reform, Commercial and Antitrust Law. February 27th.
[5] Dean Ungar, Alan Murray, Scott Robinson et al. 2018. *Vertical Integration: Short-term Credit Pain, Long-term Credit* Gain. Moody's Investors Service. April 5th.
[6] Leemore Dafny. 2018. "Health Care Industry Consolidation: What is Happening, Why it Matters, and What Public Agencies Might Want to Do About It," Testimony before the House Committee on Energy and Commerce, Subcommittee on Oversight and Investigations. (February 14).
[7] Alfred Chandler. 1962. *Strategy and Structure*. Cambridge, MA: MIT Press.
[8] Alfred Chandler. 1969. "The Structure of American Industry in the Twentieth Century: A Historical Overview," *Business History Review* 43(3): 255-298.
[9] Alfred Chandler, 1977. *The Visible Hand: The Managerial Revolution in American Business*. Boston, MA: Harvard University Press.

Despite the long-term interest in vertical integration, there remains no consistent evidence in the corporate literature that vertical integration reduces firm costs or improves product quality. Favorable outcomes depicted in one prior literature review[10] are not replicated in more recent empirical investigations.[11] [12] This suggests there is no *prima facie* evidence for consumer welfare benefits flowing from strategies of vertical integration. Indeed, the integration decision rests on a complex calculus that few firms make accurately, let alone understand, in the face of changing technology and demand.[13]

B. Healthcare Literature

Several reviews of the literature on vertical integration in healthcare have been published or presented in the last five years.[14] [15] [16] [17] [18] Most reviews deal with the integration of different types of providers. When reviewing the evidence, it is important to distinguish the providers involved in the vertical integration.

Reviews of the literature on *vertical integration of physicians with hospitals* are quite consistent in their conclusions regarding the impact on price and costs. In general,

[10] Francine Lafontaine & Margaret Slade. 2007. "Vertical Integration and Firm Boundaries: The Evidence," *Journal of Economic Literature* XLV (September): 629-685.
[11] Dongli Zhang. 2013. "The Revival of Vertical Integration: Strategic Choice and Performance Influences," *Journal of Management and Strategy* 4(1): 1-14.
[12] Hsiu-Ling Li & Ming-Je Tang. 2010. "Vertical Integration and Innovative Performance: The Effects of External Knowledge Sourcing Modes," *Technovation* 30: 401-410.
[13] John Stuckey & David White. 1993. "When and When Not to Vertically Integrate," *McKinsey Quarterly* (August). David Besanko, David Dranove, & Mark Shanley. 2004. *Economics of Strategy*. Third edition. Hoboken, NJ: Wiley & Sons.
[14] Lawton R. Burns, Jeff Goldsmith, and Aditi Sen. "Horizontal and Vertical Integration of Physicians: A Tale of Two Tails." In *Annual Review of Health Care Management: Revisiting the Evolution of Health Systems Organization. Advances in Health Care Management*, Volume 15: 39-117. (Emerald Group Publishing). 2013.
[15] Jeff Goldsmith, Lawton R. Burns, Aditi Sen, and Trevor Goldsmith. *Integrated Delivery Networks: In Search of Benefits and Market Effects*. (Washington, D.C.: National Academy of Social Insurance, 2015).
[16] Brady Post, Tom Buchmueller, & Andrew Ryan. 2017. "Vertical Integration of Hospitals and Physicians: Economic Theory and Empirical Evidence on Spending and Quality," *Medical Care Research & Review* (August). http://journals.sagepub.com/doi/10.1177/1077558717727834.
[17] Lawton R. Burns and Mark V. Pauly. "Transformation of the Healthcare Industry: Curb Your Enthusiasm?" *Milbank Quarterly*. (March 2018) 96(1): 57-109.
[18] Rachel Machta, Kristin Maurer, David Jones et al. 2018. A Systematic Review of Vertical Integration and Quality of Care, Efficiency, and Patient-Centered Outcomes, *Health Care Management Review* 45(1). doi: 10.1097/HMR.0000000000000197.

integration is associated with higher prices, higher costs, higher utilization of the hospital, and increased market power over insurers. It is also associated with lower productivity and possibly lower quality and higher hospital re-admissions. The evidence regarding quality is mixed.

Some reviews deal with the *vertical integration of multiple providers (and perhaps payers as well)* in accountable care organizations (ACOs) and coordinated care organizations (CCOs). The evidence here suggests some improvements in some quality metrics but a general failure to save money. Others deal with *hospital integration with post-acute care (PAC) sites* such as home health agencies and skilled nursing facilities. The recent evidence shows that such vertical integration increases overall Medicare spending in some settings but not in others; higher quality and lower costs are not achieved.[19]

Finally, some reviews deal with the *vertical integration of insurers and providers,* or providers' assumption of insurance risk in risk-based contracts. The evidence shows that adding insurance functions by a provider organization increases spending but does not improve quality, patient safety, or patient satisfaction.[20] It also does not lower charges per admission or length of stay and may lead to a deterioration in the provider's financial performance.[21] Adding provider functions to an insurer may lead to higher insurance premiums.[22]

These results seriously question whether the integration of these different segments (physician care, hospital care, insurance) produce any consumer welfare benefits. The literature on horizontal integration of each of these segments suggests limited economies

[19] R. Tamara Konetzka, Elizabeth Stuart, & Rachel Werner. 2018. "The Effect of Integration of Hospitals and Post-Acute Care Providers on Medicare Payment and Patient Outcomes," *Journal of Health Economics*. https://doi.org/10.1016/j.jhealeco.2018.01.005.
[20] Jeff Goldsmith, Lawton R. Burns, Aditi Sen, and Trevor Goldsmith. *Integrated Delivery Networks: In Search of Benefits and Market Effects*. (Washington, D.C.: National Academy of Social Insurance, 2015).
[21] Lawton Burns, Gilbert Gimm, & Sean Nicholson. 2005. "The Financial Performance of Integrated Health Organizations (IHOs)." *Journal of Healthcare Management* 50(3): 191-213.
[22] Austin Frakt, Steven Pizer, & Roger Feldman. 2013. "Plan–Provider Integration, Premiums, and Quality in the Medicare Advantage Market," *Health Services Research* 48(6): 1996-2013.

of scale in combining firms within that segment. The literature on vertical integration reviewed above suggests limited economies of scope in combining firms across these segments. That is, there appear to be few or no scope economies within physician groups, hospitals, and health plans that diversify into one another's segment. It is therefore difficult to see why there might be scope economies in health care organizations that link all of these components together.

This begs the question: can there really be synergies in linking together insurers and providers when each has achieved no synergies in their own integration efforts? Can the whole really be greater than the sum of its constituent parts? The literature suggests that physician care, hospital services, and health plan operations are very different business lines, with few assets and capabilities that can be shared across them to leverage savings and efficiencies. As a result, there may be little opportunity to reduce the average costs of each business as they become integrated with one another.

Overall, reviews of vertical integration in healthcare suggest that tighter forms of integration foster higher prices, and integration of firms with higher market share pre-merger exert more anticompetitive effects. There is also some evidence of consumer harm caused by vertical integration: patients of physicians who are employed by hospitals get referred to hospitals of higher cost and lower quality - - the opposite of "value" healthcare.[23]

C. Implications for Aetna – CVS Merger

Thus, when one examines the proposed merger of CVS Health and Aetna, one cannot rely on either the research literature or historical precedents to justify the combination. Instead, one must examine the specific claims for the merger's benefits and the ability of the merged entity's businesses to deliver on such benefits.

[23] Erin Brown & Jaime King, 2016. "The Double-Edged Sword of Health Care Integration: Consolidation and Cost Control," *Indiana Law Journal* 92(1): Article 2.

Considering the theoretic rationales for vertical integration, only two are referenced in either CVS Health's or Aetna's public statements: pooling complementary assets and leveraging existing capabilities. Both are general claims without much specification of what is to combined or how it will be leveraged. Other than the analytics capability of Aetna (discussed below), there is no real discussion or documentation that these two rationales hold. More importantly, there is no mention in their statements about production efficiencies; indeed, as researchers have noted, such efficiencies may be limited in industries that are more labor-intensive than capital-intensive.[24] Both industries involved in the CVS Health - Aetna merger (retail pharmacies, healthcare insurance) are labor intensive; not surprisingly, there is little evidence that scale economies exist.

The disconnect between the rationales offered by CVS/Aetna and academic theory/research, while troubling, is nothing new. Such disjunctions have long existed, stemming as far back as providers' efforts to horizontally and vertically integrate in the early 1990s.[25] These disjunctions are troubling not only because they diverge from academic theory but also because, as witnessed by prior integration efforts in healthcare, they may portend strategic failures by integration to deliver on promised outcomes.

IV. Retail Clinics' Inability to Deliver Promised Benefits

A. Overblown Expectations of Retail Clinics

Much of the supposed benefit of the proposed merger rests on CVS Health's network of retail clinics. CVS Health operates roughly 1,100 MinuteClinics in some of its pharmacies. Following the merger, these retail clinics will become mini-health centers or health hubs that expand access to lower-cost healthcare services and improve care convenience. Some liken them to new "community health centers". Some analysts assert that much of the U.S. population lives within 10-15 minutes of a pharmacy (or within 3 miles of a CVS pharmacy).[26] As a result, patients will have faster access to lower-level

[24] Alfred Chandler. 1990. *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: Harvard University Press.
[25] Lawton Burns & Mark Pauly. 2002. "Integrated Delivery Networks (IDNs): A Detour on the Road to Integrated Healthcare?" *Health Affairs* 21(4): 128-143.
[26] David Larsen. Leerink Partners. As quoted in Zachary Tracer. 2017. "CVS's $68 Billion Bid to Bring One-Stop Shopping to Health Care," *Bloomberg*. (December 7th). Available online at:

care that can increase earlier management of illness and reduce unnecessary use of hospital emergency rooms. In this fashion, retail clinics will solve "the iron triangle" of healthcare by simultaneously improving access, improving outcomes, and lowering costs.

Retail clinics can also purportedly improve the following: (1) coordination of care by fostering partnerships between patients, their physicians, and their local pharmacists; (2) patient compliance with their treatment plans (particularly drug prescriptions) and thereby reduce complications; (3) management of the patient's health across the care continuum; (4) wellness promotion in these new community centers by combining the efforts of the local pharmacist with a nutritionist and a nurse practitioner (in MinuteClinic); (5) the patient's experience of care and health status; (6) consumer spend of the monies in their health savings accounts (HSAs); and (7) the appeal of healthcare to consumers. All of these efforts will promote "population health" and help to achieve the "triple aim".[27]

Pronouncements like this have long fueled exaggerated expectations for retail clinics and their ability to transform the healthcare industry. Such expectations began in with Clayton Christensen et al.'s futuristic view of retail clinics as a disruptive innovation.[28] [29] This helped to propel a rapid rise in the number of clinics that, in turn, led consultants to forecast growth in the sector to 2,225 clinics by 2017 and 2,857 clinics by 2021.[30] Based on such expectations, the enhanced retail clinic represented a "silver bullet" that could "cure" all U.S. healthcare ills. The sections below critically evaluate this promise.

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https://www.bloomberg.com/news/articles/2017-12-07/cvs-s-68-billion-bid-to-bring-one-stop-shopping-to-health-care.

[27] Donald Berwick, Thomas Nolan, & John Whittington, 2008. "The Triple Aim: Care, Health and Cost," *Health Affairs* 27(3): 759-769.

[28] Clayton Christensen, Richard Bohmer, & John Kenagy. 2000. "Will Disruptive Innovations Cure Health Care?" *Harvard Business Review* (September-October): 102-112.

[29] Clayton Christensen, Jerome Grossman, & Jason Hwang. 2009. *The Innovator's Prescription: A Disruptive Solution for Health Care*. New York:McGraw-Hill.

[30] Kalorama Information. 2017. *Retail Clinics 2017*. New York: Kalorama (May).

B. The Hype of Transformation

Company executives and analysts alike characterize the proposed merger as a "transformation" of how healthcare is delivered. This transformation encompasses several theorized benefits and advantages: coordination of care, early management of patient ailments, increased compliance with treatment plans and medication therapy management (MTM), improved management of the continuum of the patient's health, management of chronic illness, enhanced consumer experience, improvement in people's health status, and management of population health.

A recent analysis of the supposed transformation of the U.S. healthcare industry reveals that such claims are over-blown in two respects: transformation is neither happening quickly nor exerting the desired impacts on the iron triangle that futurists predict.[31] At present, transformation remains wishful thinking than reality. In particular, the hoped-for movement to value-based contracting and risk payments - - both of which may be needed to achieve the goals of the proposed merger - - has not happened. Most providers are still paid predominantly on a fee-for-service basis. Hence, getting to payments based on a "total cost of care", which will be helpful to manage the substitution of pharmacy for medical benefits, will take a long time. Moreover, the proposed merger will be hard pressed to reengineer patient care-seeking and provider care delivery on a national scale. It is not clear to anyone that patients view their local pharmacy as a "health hub" or their local pharmacist as a substitute for a primary care physician. Researchers have recently questioned the transformative force of retail clinics.[32] [33]

C. The Hype of Retail Clinic Growth

The anticipated rapid expansion in the retail clinic sector is unwarranted. First, trend data over the past three years indicate that growth in the total number of retail clinics has stalled between 2015-2018. Retail clinics reached a plateau below 2,000 sites by 2015

[31] Lawton R. Burns & Mark V. Pauly. 2018. "Transformation of the Health Care Industry: Curb Your Enthusiasm?" *Milbank Quarterly* 96(1): 57-109.
[32] Christine Cassel. 2018. "Can Retail Clinics Transform Health Care?" *JAMA* (April 12th).
[33] Jon Christianson. 2017. "Retail Clinics Are Still Here. Now What?" *American Journal of Managed Care* (May 2nd). Available online at: https://conciergemedicinetoday.org/2017/05/02/retail-clinics-are-still-here-now-what-ajmc-medica-research-institute-2/.

with a slight decline by 2018.[34] The trend holds for both CVS Health, which operates roughly half of all such clinics, and Walgreens which operates roughly one-fifth. Indeed, Walgreens has shifted its strategy away from in-house clinics to partnerships with local health systems that own and operate the clinics inside Walgreens - - effectively moving away from a vertically-integrated model to a strategic alliance model. Other retail clinic chains have also stopped their expansion. Thus, retail clinics are not a booming industry, contrary to the hype generated by many consultants. Even one of the early advocates of retail clinics and colleagues of Christensen has admitted this.[35]

The stall in retail clinic capacity suggests that the upward trend in retail clinic visits may have likewise plateaued since 2015. At present, retail clinics may supply as little as 1-2% of all primary care in the U.S., down from an estimated 5% or less estimated a few years ago.[36] [37]

D. Low Profitability of Retail Clinics

Retail clinics may have failed to spread because they are often unprofitable, losing $41,000 annually on average.[38] Retail clinics are reportedly unprofitable until they reach a critical mass, after which they earn a small margin. The clinics are a high fixed-cost business using labor, space, and some technology. They can cost $50,000 to $250,000 to build out, can typically see 10-30 patients per day, and may generate revenues upwards of $500,000 per year. Profits of $200,000+ reported for "best-in-class" clinics rest on an "ambitious volume of 30 visits/day".

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[34] Adam Fein. 2018. "As CVS-Aetna Looms, Retail Pharmacy Clinic Growth Stalls," *DrugChannels*. March 6th. Available online at: http://www.drugchannels.net/2018/03/as-cvs-aetna-looms-retail-pharmacy.html.

[35] Jason Hwang & Ateev Mehrotra. 2013. "Why Retail Clinics Failed to Transform Health Care," *Harvard Business Review* (December 25). Available online at: https://hbr.org/2013/12/why-retail-clinics-failed-to-transform-health-care. Accessed on June 10, 2018.

[36] Blue Cross & Blue Shield. 2017. *Retail Clinic Visits Increase Despite Use Lagging Among Individually Insured Americans*. Available online at: https://www.bcbs.com/sites/default/files/file-attachments/health-of-america-report/BCBS.HealthOfAmericaReport.Retail.pdf.

[37] Rand Corporation. 2016. *The Evolving Role of Retail Clinics*. Available online at: https://www.rand.org/pubs/research_briefs/RB9491-2.html. Accessed on June 10, 2018.

[38] Jordan Stone. 2013-2014. *Profit from Convenient Primary Care*. Health Care Advisory Board. Available online at: https://www.advisory.com/-/media/Advisory-com/Research/HCAB/Events/Webconference/2014/Profit-from-Convenient-Primary-Care-052914.pdf.

E. False Hopes in Cross-Selling

The low profitability of clinics may result from an inability to "cross-sell". Retail clinics hope that they can drive business around customer health and wellness, in addition to filling prescriptions and buying consumer products. Despite the promise, senior pharmacy chain executives acknowledge limits on their ability to cross-sell the front-end and back-end of the store: "health and beauty aids" (HABA) and minor acute care services in the retail clinic. Most customers visit pharmacies for one side of the business but not the other (at least on the same visit). This threatens the business model of retail clinics, which must compete on the metric of "revenue per square foot" against the higher-margin HABA products.

Two other considerations call this CVS strategy into question. First, analysts suggest that MinuteClinic generates less than 1% of CVS retail pharmacy dispensing revenues.[39] Thus, there is little evidence that such cross-selling is working. Second, any genuine interest of CVS Health and its MinuteClinics in population health should temper its enthusiasm to cross-sell drugs to its clinic patients.

F. Stalled Growth of Retail Pharmacy

Over the last three years, growth in MinuteClinics has stalled because growth in CVS Health pharmacies has stalled.[40] Some of this is likely internal; some is likely external. CVS undertook two mergers during 2015 - - with Omnicare and Target - - which focused its attention on internal integration issues. Externally, retail pharmacy is a mature industry with revenue growth of only 1-2% annually and more players vying for these revenues. Retail pharmacies face mounting competition from mass merchandisers (e.g. discount stores, supercenters and warehouse clubs), mail-order prescription providers, online pharmacies, convenience stores, wholesalers (e.g. Costco) and other health clinics (e.g., urgent care centers). There is some speculation that the retail pharmacy market

[39] Adam Fein. 2017. "Retail Clinic Check Up: CVS Retrenches, Walgreens Outsources, Kroger Expands," *Drug Channels*. February 16th. Available online at: http://www.drugchannels.net/2017/02/retail-clinic-check-up-cvs-retrenches.html.

[40] https://retail-index.emarketer.com/company/data/5374f24e4d4afd2bb444662b/5374f2784d4afd824cc158f1/lfy/false/cvs-real-estate.

suffers from excess capacity and that consolidation is likely, due to falling drug reimbursement rates, mandatory mail-order plans, the growth of generic drugs, and the growth of narrow networks. Drug volumes and general margins in retail pharmacies (including CVS Health) remain stagnant at best.[41]

G. Financial Losses at CVS Health

Compounding (or exacerbating) this stagnation in CVS stores has been CVS' financial losses. CVS suffered a near 20% drop in its stock price in 2016 and a 17% drop in net income (YOY) in the first quarter of 2017. CVS has been hampered by falling revenues from its retail pharmacy business as a percentage of total revenues from 2010-2017. Most of the decline is traced to competitive actions taken by Walgreens to win over two contracts (Prime Therapeutics in August 2016, TriCare in September 2016) that steered enrollees away from CVS pharmacies.

H. The Merger's Defensive Nature

The above evidence points to a major problem with the proposed CVS Health – Aetna merger: it is a defensive strategy in nature for both parties. *For CVS*, the merger comes on the heels of rumors in May 2017 that Amazon would enter the pharmacy distribution business, a move threatening both retail pharmacy and mail-order pharmacy businesses. Many suspected that CVS Health moved on this deal to counter Amazon's entry; in hindsight, this rumored entry did not occur.

The proposed merger is defensive in another sense as well. As noted above, CVS Health has been facing declining performance over the past few years, in part due to a loss of pharmacy customers to Walgreens. In 2014, Walgreens Boots Alliance formed a strategic alliance with Prime Therapeutics, the PBM serving Blue Cross / Blue Shield (BCBS) plans in several states. As a result of this alliance, BCBS members were steered away from other pharmacies (including CVS) to Walgreens as their national preferred pharmacy network. This network will expand upon Walgreens' completion of its acquisition of 1,932 Rite-Aid pharmacies in 2018.

[41] David Larsen & Matt Dellelo. 2017. *HCIT & Distribution*. Leerink. (December 18).

For Aetna, as well, the merger is a defensive move to counter growth challenges. Much of the growth in managed care enrollment has occurred in three market segments: Medicare Advantage (MA), Medicaid, and (until recent years) the state health insurance exchanges. Aetna had lower market share in the more profitable MA market and sought to correct that weakness through its proposed 2016 merger with Humana. The Department of Justice successfully blocked this merger in early 2017 on grounds that it was anti-competitive. Thus, Aetna was looking for growth in all the wrong places.

Aetna also watched as the Optum Health subsidiary of its major competitor, UnitedHealthcare, successfully merged with a large provider (DaVita Medical Group). The deal added significant physician capacity to Optum's burgeoning provider network (30,000 physicians, both employed and affiliated) serving its MA plans. It also augmented its large ambulatory care business. United already operates 250 urgent care centers (MedExpress) and a chain of surgery centers; the DaVita acquisition added capacity to both. Aetna is thus looking to respond to the growing provider presence of a major competitor.

I. Retail Clinics' Failure to Serve the Underserved

The retail clinics failed to expand care to under-served markets (e.g., the poor, rural residents). This was deliberate. The clinics were disproportionately located in urban areas and, within those areas, in higher-income neighborhoods. Retail clinics targeted more affluent people who could pay cash for the clinic's services or who had insurance (that later covered these services). The clinics did not target the poor or those without a physician - - ironically, those who utilized a hospital emergency department (ED) as their primary source of care. This is perhaps why the entrance of a retail clinic fails to reduce ED utilization for low-acuity conditions.[42]

[42] Grant Martsolf, Kathryn Fingar, Rosanna Coffey et al. 2017. "Association Between the Opening of Retail Clinics and Low-Acuity Emergency Department Visits," *Annals of Emergency Medicine* 69(4): 397-403.

A related explanation is retail clinics' reluctance to accept Medicaid patients. Research suggests that only 60% of retail clinics accept Medicaid.[43] This is consistent with the disproportionate location of these clinics in more affluent neighborhoods. As a result, any impact on retail clinic volume via expanded health insurance coverage through the Affordable Care Act (half through Medicaid, half through the state exchanges) may have been blunted.

J. Retail Clinics' Likely Inability to Address Chronic Illness

The retail clinics' focus on the younger, healthier population means they are not well positioned to address chronic illness in the broader population. In the Medicare population, the top 20% of patients have five or more chronic conditions. This patient segment accounts for two-thirds to three-quarters of healthcare expenses in the Medicare population (those 65+ years of age, and the disabled). This segment is often labeled as "the polychronics" - - i.e., those taking medications for five or more chronic illnesses.

MinuteClinics do not currently target this population. Moreover, the needs of this population may not be well addressed by the nurse practitioners (NPs) and physician assistants (PAs) who staff these clinics. In 2002, the Centers for Medicare and Medicaid Services (CMS) funded fifteen clinical trials for elderly populations under the Medicare Coordinated Care Demonstration. Evaluators concluded that care coordination alone "holds little promise of reducing total Medicare expenditures for beneficiaries with chronic illness".[44] Similar conclusions have been reached by health policy researchers.[45]

While not reducing costs, the Demonstration showed that care coordination programs can sometimes be cost-effective. A particular configuration of healthcare services and providers is needed to deliver and coordinate cost-effective care to this population.[46] [47]

[43] Martsolf et al. 2017. "Association Between the Opening of Retail Clinics and Low-Acuity Emergency Department Visits."
[44] Deborah Peikes, A. Chen, J. Schore, and Randall Brown. 2009. "Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expenditures Among Medicare Beneficiaries," *JAMA* 301(6): 613-618.
[45] J. Michael McWilliams. 2016. "Cost Containment and the Tale of Care Coordination," *New England Journal of Medicine* 375(23): 2218-2220.
[46] Peikes et al. 2009. "Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care

This configuration includes intensive, monthly, face-to-face communications between several pairs of individuals: physician & nurse, provider & patient, and provider & family. It also requires successful behavioral change on the part of the patient to build adherence to medication regimes and self-care behaviors. Such infrastructure may be lacking in a small retail pharmacy setting.

The challenge of care coordination is not to be taken lightly. Medicare fee-for-service beneficiaries see an average of two primary care providers and five specialists across four sites of care annually. A physician treating 257 Medicare patients would have to deal with up to 229 other physicians practicing in 117 care sites.[48] [49] Care is thus dispersed across multiple practitioners in multiple specialties practicing in multiple sites. To paraphrase the saying popularized by Hillary Clinton, it "takes a village" to coordinate care. However, it may not be easy to coordinate such a large village. It is not clear how MinuteClinics using NPs or PAs will address, let alone, improve this situation.

K. Retail Clinics' Likely Inability to Succeed in Wellness & Prevention Programs

One touted advantage of the proposed merger is a focus on wellness and disease prevention. The theory underlying such programs rests on the following assumptions:

- employers/providers who offer wellness screening will attract those at risk
- those at risk will respond to incentives offered and change their behavior
- such behavioral change will be sustained over time, when incentives are removed
- those at risk will participate in disease management programs to sustain the gains and that such programs will help to improve compliance

There are several critical flaws or hazards with such approaches. First, it is not cost-effective to screen everyone. Second, screening programs usually elicit only low participation rates. Third, those who do participate and engage in health risk assessments

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Expenditures Among Medicare Beneficiaries."

[47] Randall Brown. 2013. *Lessons for ACOs and Medical Homes on Care Coordination for High-Need Beneficiaries.* Presentation at AcademyHealth Annual Research Meeting (Baltimore, MD: June).

[48] Hongmai Pham, D. Schrag, A.S. O'Mally, B. Wu, and P, B. Bach. 2007. "Care Patterns in Medicare and their Implications for Pay for Performance. *NEJM*, 356: 1130-1139.

[49] Hongmai Pham, A.S. O'Malley, P.B. Bach, C. Salontz-Martinez, and D. Schrag. 2009. "Primary Care Physicians' Links to Other Physicians Through Medicare Patients: The Scope of Care Coordination," *Annals of Internal Medicine* 150:236-242.

tend to be healthier than those who do not. Fourth, research on behavioral economics shows that only a small percentage of people who are exposed to the incentives change their behaviors and only do so as long as the economic incentives are provided. Moreover, there is considerable variation across patients in how responsive they are to incentives: those who care about their health do not need incentives, while those who care less about their health are not responsive to incentives. Incentives may thus be wasted on both groups. They are also usually so small that they fail to move the needle. Fifth, the chronically ill population (where the real costs are incurred) that is expensive to treat has five or more conditions that need to be jointly managed. Sixth, patients are often not engaged in their own care: patients are too busy with other matters and are not excited by wellness programs. Moreover, patient adherence to therapy may not be the major issue to target. Not surprisingly, the track record of wellness and prevention efforts is mixed at best. [50] [51] [52]

L. Retail Clinics' Likely Inability to Perform Medication Therapy Management

Another touted advantage of the proposed merger is its focus on "medication therapy management" (MTM). MTM and its variants can encompass generic substitution, drug interactions, drug reconciliation, medication adherence programs, annual comprehensive medication review, and targeted medication reviews. Such programs are often voluntary, however. This means that patients can opt out of these programs anytime.

Contrary to popular belief, the major problems in current drug therapy may not be patient adherence. Rather, two big problems are failure to prescribe additional prescriptions that are needed (e.g., controllers for asthmatics, beta blockers for hypertensives) and the tendency to prescribe dosages that are too low (e.g., for patients with diabetes and

[50] Gautam Gowrisankaran, Karen Norberg, & Steven Kymes. 2013. "A Hospital System's Wellness Program Linked to Health Plan Enrollment Cut Hospitalizations but Not Overall Costs," *Health Affairs* 32(3): 477-485.
[51] Robin Soler, Kimberly Weeks, Sima Razi et al. 2010. "A Systematic Review of Selected Interventions for Worksite Health Promotion," *American Journal of Preventive Medicine*. 38(2): s237-262.
[52] Soeren Mattke, Hangsheng Liu, John Caloyeras, et al. 2013. *Workplace Wellness Programs Study: Final Report* (Santa Monica: Rand Corporation).

hyperlipidemia). [53] This likely results from physicians (a) electing to use non-medication therapeutic approaches, and (b) dosing the medications they do prescribe too low to control the patient's condition. Hence, the problem may not lie in adverse drug reactions, drug-drug interactions, and compliance problems, but rather in the under-use of effective pharmaceutical therapies by physicians.[54]

For sophisticated MTM programs to work, pharmacists need to work closely with physicians and patients, and perhaps as an extension of the physician's practice between office visits. It is important that the patient understands, agrees with, and actively participates in the care process and treatment regimen.[55] This can be facilitated by frequent interactions with the pharmacist that occur between physician office visits, and involvement of the patient's family in care coaching sessions at the pharmacy. One problem for CVS Health and its retail clinics is that anywhere from one-half to two-thirds of retail clinic patients have no primary care physician (PCP). Some patients who do have a PCP and then visit a retail clinic abandon their PCP.

M. The Merger's Questionable Ability to Achieve Substitution Effects

One of the touted advantages of the proposed merger is the combination of CVS Health's coverage of the drug benefit (through its Caremark PBM) with Aetna's coverage of the medical benefit. In this manner, there is the opportunity to coordinate the two benefits and seek substitution of less costly pharmaceutical therapy for more costly hospital and physician care. There is some empirical evidence for such substitution effects, although not all economists are convinced.[56] [57] [58] [59] [60] [61]

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[53] Djenane de Oliveira, Amanda Brummel, & David Miller. 2010. "Medication Therapy Management: 10 Years of Experience in a Large Integrated Health Care System," *Journal of Managed Care Pharmacy* 16(3): 185-195.

[54] P.J. O'Connor, J. Sperl-Hillen, P. Johnson et al. 2005. "Clinical Inertia and Outpatient Medical Errors," *Advances in Patient Safety* 2:293- 308.

[55] Brian Issets, Amanda Brunnel, Djenane de Oliveira et al. 2012. "Managing Drug-related Morbidity and Mortality in the Patient-centered Medical Home," *Medical Care* 50(11): 997-1001.

[56] Craig Garthwaite and Mark Duggan. 2011. "Empirical Evidence on the Value of Pharmaceuticals," Chapter 15. In Patricia Danzon and Sean Nicholson (Eds.), Oxford *Handbook of the Economics of the BioPharmaceutical Industry*. (Oxford, University Press).

[57] J. Michael McWilliams, Alan Zaslavsky, & Haiden Huskamp. 2011. "Implementation of Medicare Part D and Nondrug Medical Spending for Elderly Adults with Limited Prior Drug Coverage," *Journal of American Medical Association* 36(4): 402-409.

Coordination of benefits is the presumed goal of insurers who offer an in-house PBM. It is important to note, however, that roughly half of U.S. insurers insource their own PBM, while the other half outsource the PBM function. Based on a "survivorship principle", the market has not clearly selected one model over the other. It is also not clear how far these substitution effects extend. It may be the case that patients who have high medical costs are also those that have high pharmacy costs. Moreover, it is unclear whether prior evidence will hold going forward as specialty pharmaceuticals increasingly comprise a large share of spending on drugs.

Some considerations may temper our expectations regarding these substitution effects. First, they do not automatically happen at the health plan level, but instead rely on providers' decision-making at the point of care. Second, there may be little incentive to pursue such savings in the absence of global risk claims and payment. As recently reported, most providers are still paid predominantly fee-for-service.[62] Third, such programs will be difficult to implement in the face of shortages among both PCPs (and other primary care providers, covered below) and their lack of knowledge regarding the drugs prescribed by the specialist colleagues to whom they refer their patients.

N. Challenges of Supply and Demand for Retail Clinic Staff

The strategy to transform the retail clinics into community health hubs may fail for other reasons. The growth of retail clinics partly depends on the supply of practitioners needed

[58] M. Christopher Roebuck, Joshua Liberman, Marin Gemmill-Toyama et al. 2011. "Medication Adherence Leads to Lower Health Care Use And Costs Despite Increased Drug Spending," *Health Affairs* 30(1): 90-91.
[59] Martin Gaynor, Jian Li, and William Vogt. 2006. "Is Drug Coverage a Free Lunch? Cross-Price Elasticities and the Design of Prescription Drug Benefits," NBER Working Paper Series. Working Paper 12758.
[60] Frank Lichtenberg. 1996. "The Effect of Pharmaceutical Use and Innovation on Hospitalization and Mortality", Working Paper No. 5418, National Bureau of Economic Research, Cambridge, MA.
[61] Terry McInnis. (2012). *Pharmacist – The Most Transformative Force in Healthcare or The Demise of a Profession?* Available online at: http://www.bluethorninc.com/Articles.html. Accessed on June 10, 2018.
[62] Burns & Pauly. "Transformation of the Health Care Industry. 2018.

to staff them and state laws that allow them to practice there. Both have proved problematic.[63] [64]

Retail clinics are typically staffed by nurse practitioners (NPs) and physician assistants (PAs). There is wide variation in NP supply across states; less than half of NPs work in primary care. Unlike the retail clinics and primary care physicians, NPs and PAs are more likely to work in rural areas. Another issue is state-level nursing scope-of-practice regulations. In some states, NPs are permitted to provide care independently; other states do not permit NPs to practice without collaborating with, or being supervised by, a physician. Many of these states require written practice protocols, and they sometimes restrict the number of NPs with whom a physician may collaborate. Still other states allow NPs to practice independently but permit them to prescribe medicines only if they are collaborating with or supervised by a physician.[65] Reforms in such state regulations are necessary to increase demand for NP and PA care, which might then allow retail clinics to grow further.[66]

O. Retail Clinics' Failure to Disrupt

Retail clinics were not transformative. Contrary to Clayton Christensen's theory, they were also not disruptive.[67] Instead of targeting those market segments that have been neglected (e.g., the poor, the rural, the uninsured, those in poor health) with a more affordable product offering, they cherry-picked patients. Not only did they target wealthier neighborhoods, they also attracted patients who were disproportionately younger adults, females, and those without any chronic conditions.[68] This was not "the

[63] Robert Martiniano, Sherry Chorost, & Jean Moore. 2016. *Health Care Employment Projections, 2014-2024*. Rensselear, NY: Center for Health Workforce Studies. School of Public Health.
[64] Julie Sochalski. 2016. "Nursing and the Health Care Workforce." Presentation to the Wharton School. September 29.
[65] Joanne Spetz, Stephen Parente, Robert Town et al. 2013. "Scope of Practice Laws for Nurse Practitioners Limit Cost Savings that can be Achieved in Retail Clinics," *Health Affairs* 32(11): 1977-1984.
[66] J. Margo Brooks Carthon, Therese Sammarco, Darcy Pancir et al. 2017. "Growth in Retail-based Clinics after Nurse Practitioner Scope of Practice Reform," *Nursing Outlook* 65: 195-201.
[67] Christensen et al. 2000. "Will Disruptive Innovations Cure Health Care?"
[68] J. Scott Ashwood, Rachel Reid, Claude Setodji et al. 2011. "Trends in Retail Clinic Use Among the Commercially Insured," *American Journal of Managed Care* 17(11): e443-e448.

low end of the market" who were "less-demanding customers".[69] For such patients (many of whom are Millennials), convenience served as the strongest predictor of retail clinic use.

Moreover, disruption is not always positive.[70] When asked if retail clinics were helping or hurting primary care, only 22% of physicians responded favorably; by contrast, 36% felt retail clinics were hurting primary care. Overall, 79% of respondents said that market disruption fragmented the physician-patient relationship, 47% stated it fostered inaccurate medical information, 47% said it resulted in less coordinated care, and 33% felt it increased the overall cost of care.

Three recent studies buttress these physician perceptions. First, retail clinics add to patient demand rather than substitute for other types of utilization; as a result, the presence of retail clinics adds to total health spending. Much of retail clinic utilization (estimated at 58%) would not otherwise occur.[71] Second, analyses of primary care physicians suggest that the shift to retail clinics and other convenient care sites harms the physician-patient relationship and the benefits of such encounters (e.g., trust, empathy, information exchange, compliance, emotional bonding, reassurance and anxiety reduction).[72] Third, a recently completed study shows that the loss of continuity in seeing one's primary care physician - - as often happens when patients seek care from a retail clinic and do not return - - leads to higher utilization of specialists and higher healthcare spending.[73]

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[69] Christensen et al. 2000. "Will Disruptive Innovations Cure Health Care?"
[70] Amy Compton-Phillips. 2016. "Care Redesign Survey: In the Push for Convenient Care, Protect the Patient-Doctor Relationship," NEJM Catalyst (July 14th). Available online at: https://catalyst.nejm.org/care-redesign-report-push-convenient-care-protect-patient-doctor-relationship/.
[71] J. Scott Ashwood, Martin Gaynor, Claude Setodji et al. 2016. "Retail Clinic Visits for Low-Acuity Conditions Increase Utilization and Spending," *Health Affairs* 35(3): 449-455.
[72] Timothy Hoff. 2018. *Next in Line*: *Lowered Care Expectations in the Age of Retail- and Value-Based Health*. Oxford, UK: Oxford University Press.
[73] Stephen Schwab. 2018. *The Effects of Disruptions to the Patient-Physician Relationship*. Doctoral Dissertation. Department of Health Care Management, The Wharton School.

P. Revenge of the Incumbent Providers

The expectation that incumbent providers would ignore the upstart retail clinics and let them flourish - - which was part of Christensen's theory - - was totally inaccurate. Research long ago showed that none of the innovations initially identified by Christensen as "disruptive" (retail clinics, single specialty hospitals, ambulatory surgery centers) really disrupted the healthcare industry.[74] Hospital chains opened their own retail clinics and partnered with others in strategic alliance; hospitals also opened their own specialty-focused centers of excellence to combat free-standing single specialty hospitals; and hospitals have increasingly acquired physician-owned ambulatory surgery centers or sponsored their own. Regulatory and reimbursement factors also played a strong role in facilitating hospital ascendance in the latter two areas. Instead of disruption, incumbent providers played strong defense against new entrants, often coopting them to become members of their systems.

Q. False Allure of Community Health Centers

The proposed merger relies on a re-tooling of the retail clinic into a community health center (or neighborhood hub). This will purportedly serve as a new way to access healthcare services and increase the population's access to convenient, low-cost care. Such a vision embraces the 1960s' vision of community health centers (CHCs) and community mental health clinics (CMHCs) as the basis for healthcare delivery. Unfortunately for their advocates, these centers never became mainstream delivery sites that attracted insured patients. Instead, they served as sites of care for the poor and the mentally ill. They were poorly funded by local government and never achieved their promise. The same CHC fate has been observed in countries like India and China.[75] [76]

[74] Lawton R. Burns, Guy David, & Lorens Helmchen. 2011. "Strategic Responses by Providers to Specialty Hospitals, Ambulatory Surgery Centers, and Retail Clinics." *Population Health Management* 14(2): 69-77.
[75] Lawton R. Burns. 2014. *India's Healthcare Industry: Innovation in Delivery, Financing, and Manufacturing*. New Delhi: Cambridge University Press.
[76] Lawton R. Burns and Gordon G. Liu. 2017. *China's Healthcare System and Reform*. Cambridge, UK: Cambridge University Press.

R. Mismatch in Capacity Between CVS Health & Aetna

Historical case evidence shows that vertical integration fails when there is a mismatch in the capacity of the merging, upstream and downstream entities. There is an enormous mismatch in capacity between CVS Health's chain of pharmacies (N = 9,847) and its chain of retail clinics (N = 1,111 as of March 2018). This means that as few as 11% of CVS pharmacies have such a clinic inside the store. While 70% of the U.S. population may reportedly live within three miles of a CVS pharmacy (according to Leerink), they may not live anywhere near a MinuteClinic. Thus, to deliver on the promised merger benefits above, CVS would need to embark on a massive expansion of its retail clinics and trust that they would be utilized. Such demand may not be present, given the stalled growth in the total number of retail clinics. This capacity mismatch in the components of CVS Health (pharmacies and retail clinics) will hamper the vertical integration effort.

There may also be a mismatch in the geographical location of the merged entities' operations. Only a fraction of CVS Health pharmacies has a retail clinic, and these tend to be disproportionately located in wealthier neighborhoods. It is not clear whether these clinic locations overlap with the geographic location of Aetna's enrollees, who are expected to be directed to CVS pharmacies and hopefully use its pharmacists and MinuteClinics. A preliminary analysis of available data indicate that Aetna has high enrollment in some states (e.g., Alaska, Arizona, West Virginia) where CVS has no retail clinics; in other high enrollment states, CVS has very few such clinics. To the degree that the geographic overlap is low, there is little synergy likely between these businesses (at least in the short-term until the mismatch in capacity issues are addressed).

S. Retail Clinics' Limited Impact on the Iron Triangle

Academic evidence on retail clinics suggests their ability to impact the iron triangle (access, cost) is limited. With regard to access, retail clinics treat patients that are not necessarily treated by other providers. The vast majority of retail clinic patients (60%+) have no primary care physician, partly reflecting the fact they are also much younger in age than other patients. Retail clinics are almost exclusively located in urban areas; 13% of clinics are located in underserved areas (health professional shortage areas) where 21%

of the U.S. population resides. Moreover, despite the claims for convenience, retail clinics do not uniformly enjoy customer praise. An analysis of social media reveals that Walmart's retail clinics achieve higher positive evaluations than do CVS' MinuteClinics. 41% of users posted negative comments on MinuteClinics; 38% reported long wait times, suggesting the stores be relabeled as "HourClinic". Customers of both complained about the level of medical expertise, with some claiming they had been misdiagnosed.[77]

With regard to costs, because retail clinic patients typically lack a primary care physician, there is no substitution of retail clinics for other types of utilization. Instead, as noted above, retail clinics increase overall spending by increasing overall utilization.[78] Moreover, it is not likely that the vertical integration of three businesses - - retail pharmacy & clinic, health insurer, and PBM - - can redefine the healthcare system. The latter two businesses (insurer, PBM) are intermediaries in the broader health system; the first is a bit player in the provider sector of the health system. None of them include physicians, who control (directly or indirectly) 85-90% of all healthcare spending. Physicians are not only key to controlling healthcare costs, they are also critical to payer success in Medicare Advantage contracting, quality improvement, and documentation.

T. Overblown Expectations of Analytics

One of Aetna's major contributions to this merger is its analytics capability. In recent testimony, Aetna Counsel Thomas Sabatino stated that his company's "analytics team can identify members who are at high-risk for developing health complications and share that information with providers to help them prevent catastrophic health events before they happen". This capability of "predictive modelling" has been under development by insurers since the early 2000s. Such efforts are subject to the same limitations as efforts to promote wellness (noted above). They rely not only on identifying the high-risk but also on their ability to (a) contact and alert them, (b) activate them to seek care, and (c) change their behavior to prevent further complications. The problem here is that those at highest risk are

[77] Stace Aversa. 2013. "Comparing Social Sentiment on Convenient Care Clinics: How Convenient Are They?" Crimson Hexagon. (September 9th).

[78] Ateev Mehrotra. *Impact of Retail Clinics on Quality & Costs.* Available online at: https://static1.squarespace.com/static/573a188740261dc86d93cf71/t/5888be7bebbd1af0a2f9ba63/1485356671639/Ateev+Mehrotra.pdf.

among the least activated in their own health; they may also be least able to take corrective action. It is not clear how Aetna's linkage to a chain of pharmacies (some of which have retail clinics) will ameliorate this situation.

One should remind oneself of the previous hype surrounding the introduction of electronic medical records (EMRs) and its supposed ability to tackle quality and cost problems simultaneously. Nearly two decades after their introduction, there is no evidence for cost reduction and only scattered evidence for quality improvement.[79] A more recent illustration of such overblown expectations is IBM's aggressive promotion of its Watson supercomputer as a revolution in precision medicine and cancer care. Analysts suspect that IBM marketed the product to providers without any evidence base in order to bolster flagging revenues.[80]

V. Conclusion

The proposed merger between CVS Health and Aetna is unlikely to yield the long list of benefits advanced by executives from both companies. The documentation on how these benefits are to be achieved is lacking; their evidence base in the scientific literature is questionable; and the implementation challenges are enormous. This paper suggests that any effort to achieve such benefits through the use of retail clinics and analytics is unlikely to succeed. More generally, the strategies of vertical integration and diversification that underlie the merger lack a firm evidence base for any consumer benefits.

[79] Leila Agha. 2014. "The Effects of Health Information Technology on the Costs and Quality of Medical Care," *Journal of Health Economics* 34: 19-30.
[80] Casey Ross. 2017. "IBM Pitched its Watson Supercomputer as a Revolution in Cancer Care. It's Nowhere Close," *Stat* (September 5th).

The Impact of CVS's Acquisition of Aetna on Medicare Part D Stand-Alone Prescription Drug Plan (PDP) Market Concentration

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May 29, 2018

Executive Summary

The proposed merger of CVS and Aetna will have important and significant impacts on the concentration of the Medicare Part D stand-alone prescription drug plan (PDP) market. My analysis shows that in 10 of the 34 PDP regional markets, the merger should be "presumed to be likely to enhance market power" according to the U.S. Department of Justice and Federal Trade Commission's (DOJ/FTC) *Horizontal Merger Guidelines*. In an additional 20 of the 34 PDP regional markets, the merger will "potentially raise significant competitive concerns and often warranty scrutiny" according the DOJ/FTC *Horizontal Merger Guidelines*. This latter competitive concern was found for California and it is in my opinion that this merger would raise PDP premiums.

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[†] I thank the American Medical Association for supporting my work in preparing this report. This report reflects my views and opinions, not necessarily the views of the American Medical Association.

Introduction

On February 28, 2018, representatives of CVS and Aetna spoke before the House Judiciary Regulatory Reform, Commercial and Antitrust Law Subcommittee. The hearing came on the heels of concerns raised by the American Medical Association that the merger would reduce competition among pharmacy benefit managers, local health insurance markets, and local retail pharmacy markets.[1] Consumer groups have also raised concern about the merger's potential to harm consumers.[2] Both horizontal and vertical theories of harm have been discussed in relation to CVS's proposed acquisition of Aetna. This memo focuses on the horizontal overlap between CVS and Aetna in the Medicare Part D stand-alone prescription drug plan (PDP) market.

The Medicare Part D Stand-Alone Prescription Drug Plan (PDP) Market

In 2018, 43 million of the 60 million people with Medicare have prescription drug coverage under a Medicare Part D plan.[3] Of the 43 million, 25 million (58%) are covered under a stand-alone prescription drug plan (PDP) while the remaining 18 million are enrolled in Medicare Advantage prescription drug plans (MA-PDs).[3] The market concentration analysis in this memo focuses exclusively on the PDP market. Five plan sponsors accounted for 83% of PDP enrollment in 2018: CVS Health (24%, 6 million enrollees), UnitedHealth (21%, 5.3 million enrollees), Humana (20%, 4.9 million enrollees), Express Scripts (10%, 2.4 million enrollees), and Aetna (9%, 2.1 million enrollees).[4]

How Part D Premiums Are Determined

Part D plan sponsors compete on premiums to attract enrollees, but do not set premiums directly.[5] Plan sponsors submit bids to the Centers for Medicare & Medicaid Services (CMS) that represent their revenue requirements (including administrative costs and profit) for

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[1] American Medical Association. "Statement of the American Medical Association to the U.S. House of Representatives Committee on the Judiciary Subcommittee on Regulatory Reform, Commercial and Antitrust Law Re: Competition in the Pharmaceutical Supply Chain: The Proposed Merger of CVS Health and Aetna." February 27, 2018. Available from: https://searchlf.ama-assn.org/undefined/documentDownload?uri=%2Funstructured%2Fbinary%2Fletter%2FLETTERS%2F2018-2-27-AMA-Statement-for-the-Record-CVS-Aetna%2520Merger-House-Judiciary-Committee.pdf

[2] See e.g. Consumers Union. "Statement of Dena Mendelsohn Senior Attorney Consumers Union to the Department of Managed Health Care on the Proposed Acquisition of Aetna, Inc. by CVS Health Corporation" May 7, 2018. Available from: http://consumersunion.org/wp-content/uploads/2018/05/Consumers-Union-written-testimony-to-DMHC-re-CVS-Aetna.pdf

[3] Cubanski, Juliette, Anthony Damico, and Tricia Neuman. "Medicare Part D in 2018: The Latest on Enrollment, Premiums, and Cost Sharing." San Francisco, CA: Kaiser Family Foundation. May 17, 2018. Available from: https://www.kff.org/medicare/issue-brief/medicare-part-d-in-2018-the-latest-on-enrollment-premiums-and-cost-sharing/

[4] Author's analysis of the CMS's April 2018 Part D monthly enrollment file. Sum of the individual insurer percentages is 84% instead of 83% due to rounding. Data available from: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MCRAdvPartDEnrolData/Monthly-Enrollment-by-Contract-Plan-State-County.html

[5] This section relies heavily on the description of how premiums are determined in MedPAC. "The Medicare prescription drug program (Part D): Status report." Ch. 14 in *Report to the Congress: Medicare Payment Policy*. Washington, DC: MedPAC. March 2018. Available from: http://www.medpac.gov/docs/default-source/reports/mar18_medpac_ch14_sec.pdf?sfvrsn=0

delivering basic benefits to an enrollee of average health. CMS then calculates a nationwide enrollment-weighted average among all the bid submissions. The monthly premium an enrollee pays for a plan is a subsidized base premium ($35.02 in 2018) plus (or minus) any difference between his plan's bid and the nationwide average bid. If an enrollee picks a plan that contains supplemental coverage, the enrollee pays the full price of the additional coverage.

Part D's bidding process also determines the maximum premium amount Medicare will pay on behalf of low-income subsidy (LIS) enrollees.[6] The amount is calculated separately for each of the 34 Part D geographic regions as the average premium among plans with basic benefits, weighted by each plan's LIS enrollment in the previous year. 25 of the 34 Part D geographic regions are a single state. The remaining 9 regions are comprised of multiple states (see Table 1 for a list of the 34 Part D geographic regions). The formula used for the LIS program ensures that at least one stand-alone PDP in each region is available to LIS enrollees at no premium. In 2018, over 12 million (28%) of Part D enrollees (PDP plus MA-PD enrollees) received premium and cost-sharing assistance through the Part D LIS program.[3]

[6] In 2018, enrollees can have up to $18,210 in yearly income ($24,690 for a married couple) and up to $14,100 in resources ($28,150 for a married couple) and still qualify for a low income-subsidy. See https://www.medicare.gov/your-medicare-costs/help-paying-costs/save-on-drug-costs/save-on-drug-costs.html for details.

Table 1. Medicare Part D Geographic Regions

PDP Region #	States
1	Maine, New Hampshire
2	Connecticut, Massachusetts, Rhode Island, Vermont
3	New York
4	New Jersey
5	District of Columbia, Delaware, Maryland
6	Pennsylvania, West Virginia
7	Virginia
8	North Carolina
9	South Carolina
10	Georgia
11	Florida
12	Alabama, Tennessee
13	Michigan
14	Ohio
15	Kentucky, Indiana
16	Wisconsin
17	Illinois
18	Missouri
19	Arkansas
20	Mississippi
21	Louisiana
22	Texas
23	Oklahoma
24	Kansas
25	Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wyoming
26	New Mexico
27	Colorado
28	Arizona
29	Nevada
30	Oregon, Washington
31	Idaho, Utah
32	California
33	Hawaii
34	Alaska

Source: Q1 Group LLC. "2018 Medicare Part D Prescription Drug Plans: Overview of CMS Region" Available from: https://q1medicare.com/PartD-Medicare-PartD-Overview-byRegion.php

The importance of the 34 Part D regions in the determination of the maximum premium amount Medicare will pay on behalf of LIS enrollees, plus the fact that plan sponsors must offer a plan in at least one entire region (and cannot pick and choose which geographies within a region it offers plans),[7] makes Part D regions the geographic level at which antitrust authorities are likely to examine CVS and Aetna for overlap in the PDP market. Hence, Part D region-level PDP market concentration is analyzed in what follows.

Measuring Market Concentration

I used the Herfindahl-Hirschman Index (HHI) to measure PDP market concentration. HHI has been used frequently as a measure of market concentration in merger cases brought by the Antitrust Division of the US Department of Justice (DOJ) and Federal Trade Commission (FTC) and is used in *Horizontal Merger Guidelines*, authored by these agencies.[8] HHI is calculated by taking the market share of each firm, squaring it, and summing the results. HHI values range from zero to 10,000. For example, if a market included two firms, one with 60 percent market share and the other with 40 percent market share, the HHI would be 5,200 (or $60^2 + 40^2$). The *Horizontal Merger Guidelines* considers markets in which the HHI is between 1,500 and 2,500 points to be moderately concentrated, and markets with an HHI in excess of 2,500 points to be highly concentrated. Market shares in each of the 34 Medicare Part D regions were calculated based on plan sponsor PDP enrollment.

To address the impact of a CVS/Aetna merger on PDP market concentration, 2018 market concentration was calculated two ways: (1) assuming CVS and Aetna were separate firms (pre-merger HHI) and (2) assuming CVS and Aetna were a single firm (post-merger HHI). Market concentration measures from 2009 to 2017 were also calculated to show the trend in PDP market concentration.

In the context of mergers, the DOJ/FTC Guidelines assign the highest concern and scrutiny to mergers that would increase the HHI in a market by over 200 points and leave the market with an HHI of over 2,500. Other HHI changes and levels trigger different degrees of concern and scrutiny (see Table 2 for details). Markets that trigger moderate and high concern (according to Table 2) are highlighted in the analysis that follows.

[7] Event Driven. "AET/CVS: Part D Overlap and Potential Divesture Analysis." February 9, 2018.
[8] U.S. Department of Justice and Federal Trade Commission. "Horizontal Merger Guidelines." Washington, DC: DOJ/FTC. August 19, 2010. Available from: https://www.justice.gov/sites/default/files/atr/legacy/2010/08/19/hmg-2010.pdf

Table 2. Level of Concern and Scrutiny Based on HHI Change and Resulting HHI Level

		HHI Level		
		< 1,500	1,500 to 2,500	>2,500
HHI Change	<100	Low	Low	Low
	100 to 200	Low	Moderate	Moderate
	>200	Low	Moderate	High

Low: "Unlikely to have adverse competitive effects and ordinarily require no further analysis"
Moderate: "Potentially raise significant competitive concerns and often warrant scrutiny"
High: "Presumed to be likely to enhance market power"

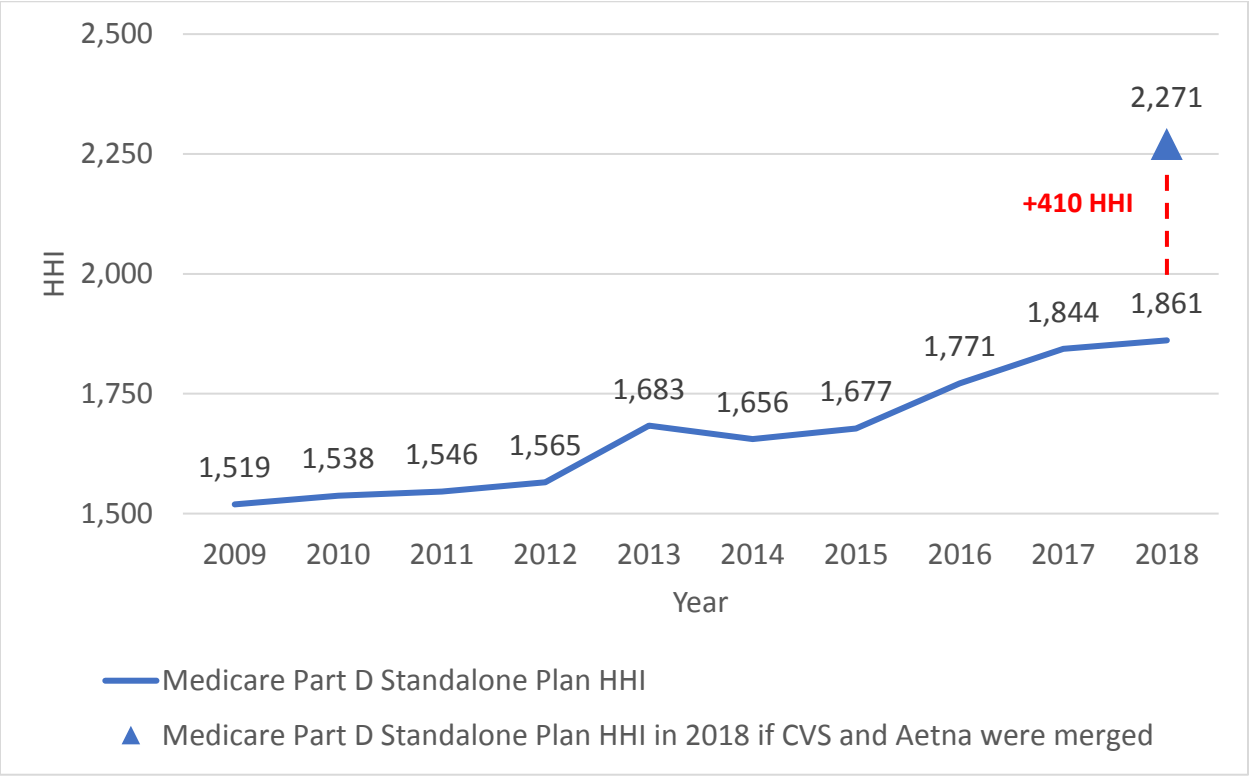
Source: Author's analysis of U.S. Department of Justice and Federal Trade Commission's 2010 Horizontal Merger Guidelines (pg. 19).
Note: HHI=Herfindahl-Hirschman Index.

Market Concentration Trends and Post-Merger HHI

Table 3 shows the average PDP market HHI (weighted by PDP enrollment) from 2009-2018. In 2009, PDP market HHI was 1,519 – just above the DOJ/FTC 1,500 threshold for a moderately concentrated market. By 2018, PDP market HHI had increased to 1,861 – an increase of 342 HHI (23% increase).

The triangle labeled HHI=2,271 in Table 3 represents PDP market HHI in 2018 if CVS and Aetna are treated as a single firm in HHI calculations. If CVS and Aetna were a single firm, average PDP market HHI would be 410 points higher in 2018 than it currently is (2,271 vs. 1,871, 22% increase). Mergers that lead to an HHI change of over 200 points and a resulting HHI of between 1,500 and 2,500 "potentially raise significant competitive concerns and often warrant scrutiny" according to the DOJ/FTC Guidelines (see Table 2).

Table 3. Average Part D Region-Level PDP Market Concentration (Weighted by PDP Enrollment), 2009-2018.



Source: Author's analysis of April 2018 enrollment data published by CMS (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MCRAdvPartDEnrolData/Monthly-Enrollment-by-Contract-Plan-State-County.html)
Notes: PDP=stand-alone prescription drug plan. HHI=Herfindahl-Hirschman Index. The HHIs shown in the figure are a weighted-average of the HHIs of Medicare Part D's 34 regions (weighted by PDP enrollment).

Table 4 shows how pre-merger and post-merger HHIs for each of the 34 Part D regions. Market concentration in region 33 (Hawaii) would increase the most as a result CVS's acquisition of Aetna (1,364 HHI increase, from 4,898 to 6,263). Overall, 30 Part D regions would experience an HHI increase of over 200 points as a result of CVS's acquisition of Aetna. Of these 30 regions, 10 would have a post-merger of greater than 2,500. Mergers that increase in HHI by over 200 points and result in a post-merger HHI of over 2,500 are "presumed to be likely to enhance market power" according to the DOJ/FTC Guidelines (see Table 2). The post-merger HHIs of the other 20 regions that would experience increases of 200 HHI would all be in the 1,500 to 2,500 range, and thus the merger would trigger moderate concern in these regions according to Table 2. California, with a post-merger HHI of 2,441 and an increase of 434 HHI, is one of the 20 regions.

Table 4. PDP Market Concentration, 2018 (by PDP Region)

PDP Region #	States	2018 HHI	2018 Post-Merger HHI	HHI Change
33	Hawaii	4,898	6,263	1,364
19	Arkansas	1,984	2,844	861
10	Georgia	1,977	2,772	794
20	Mississippi	2,006	2,722	716
18	Missouri	2,015	2,645	630
24	Kansas	2,045	2,669	624
8	North Carolina	1,700	2,249	549
22	Texas	1,769	2,299	530
23	Oklahoma	1,996	2,468	471
15	Kentucky, Indiana	1,647	2,107	460
21	Louisiana	1,717	2,175	458
9	South Carolina	1,687	2,144	456
5	District of Columbia, Delaware, Maryland	1,797	2,250	453
32	California	2,007	2,441	434
3	New York	1,844	2,273	429
14	Ohio	1,755	2,181	426
2	Connecticut, Massachusetts, Rhode Island, Vermont	1,610	2,029	419
7	Virginia	1,606	2,004	398
6	Pennsylvania, West Virginia	1,702	2,095	394
12	Alabama, Tennessee	1,602	1,986	384
26	New Mexico	1,717	2,087	370
16	Wisconsin	1,588	1,947	358
11	Florida	2,292	2,628	336
27	Colorado	2,256	2,582	325
25	Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wyoming	2,145	2,466	321
17	Illinois	1,547	1,839	292
28	Arizona	1,866	2,149	283
29	Nevada	2,383	2,638	255
4	New Jersey	2,320	2,551	231
31	Idaho, Utah	1,836	2,053	217
30	Oregon, Washington	1,614	1,814	199
13	Michigan	1,795	1,957	162
1	Maine, New Hampshire	1,546	1,691	145
34	Alaska	2,715	2,740	26
	AVERAGE (weighted by PDP enrollment)	**1,861**	**2,271**	**410**

Source: Author's analysis of April 2018 enrollment data published by CMS (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MCRAdvPartDEnrolData/Monthly-Enrollment-by-Contract-Plan-State-County.html)
Notes: PDP=stand-alone prescription drug plan. HHI=Herfindahl-Hirschman Index. 2018 HHI treats CVS and Aetna as separate firms. 2018 Post-Merger HHI assumes CVS and Aetna are a single firm in HHI calculations.

The Impact of Market Power on Part D Premiums

A number of studies have associated increases in market concentration with increases in health insurance premiums.[9] Other studies specifically analyze the impact of health care market concentration on Part D premiums and show Part D premiums increase when firms merge. A recent paper by Anna Chorniy and colleagues estimates that Part D plan sponsors mergers lead to higher premiums.[10] An earlier study by Claudio Lucarelli and coauthors also estimates that average premiums increase for merged firms.[11]

Based on the HHI increases shown in Table 4, a number of Part D regions (including California) warrant scrutiny based on DOJ/FTC Guidelines. In my professional opinion, these concentration increases are likely to lead to premium increases.

[9] See e.g. Dafny, Leemore, Mark Duggan, and Subramaniam Ramanarayanan. "Paying a premium on your premium? Consolidation in the US health insurance industry." *American Economic Review* 102, no. 2 (2012): 1161-85; Dafny, Leemore S. "Are health insurance markets competitive?." *American Economic Review* 100, no. 4 (2010): 1399-1431; Dafny, Leemore, Jonathan Gruber, and Christopher Ody. "More insurers lower premiums: Evidence from initial pricing in the health insurance marketplaces." *American Journal of Health Economics* 1, no. 1 (2015): 53-81; Scheffler, Richard M., Daniel R. Arnold, Brent D. Fulton, and Sherry A. Glied. "Differing impacts of market concentration on Affordable Care Act Marketplace premiums." *Health Affairs* 35, no. 5 (2016): 880-888; and Trish, Erin E., and Bradley J. Herring. "How do health insurer market concentration and bargaining power with hospitals affect health insurance premiums?." *Journal of health economics* 42 (2015): 104-114;

[10] Chorniy, Anna, Daniel P. Miller, and Tilan Tang. "The impact of horizontal mergers on plan premiums and drug formularies in Medicare Part D." April 2018.

[11] Lucarelli, Claudio, Jeffrey Prince, and Kosali Simon. "The welfare impact of reducing choice in Medicare Part D: A comparison of two regulation strategies." *International Economic Review* 53, no. 4 (2012): 1155-1177.

Potential effects of the proposed CVS acquisition of Aetna on competition and consumer welfare

Neeraj Sood, PhD

June 14, 2018

I thank the American Medical Association for supporting my work in preparing this report. This report reflects my views and opinions, not necessarily the views of the American Medical Association or of my employer, the University of Southern California.

A. About the author

I am a Professor of Health Policy and Vice Dean for Research at the Sol Price School of Public Policy, University of Southern California (USC). Sol Price School of Public Policy is ranked 3rd in health policy and management in the nation by the US News and World Report. I am a faculty member and past Director of Research of the USC Leonard D. Schaeffer Center for Health Policy and Economics. I am also a research associate at the National Bureau of Economic Research -- the nation's premier economics research organization.

I have published more than 100 papers and reports on health policy and economics. My past research has focused on health insurance markets, pharmaceutical markets and global health. This research has been published in leading journals in economics, health policy and medicine including publications in the *Quarterly Journal of Economics, Journal of Economic Perspectives, Journal of Health Economics, JAMA* and *Health Affairs.* My work on health care costs and the pharmaceutical supply chain has been cited by the Council of Economic Advisors of President Obama and President Trump. I have been invited to participate in expert consensus committees of the National Academies of Science, Engineering and Medicine. I have received more than $10 million in extramural research funding and have been a scientific advisor and consultant for several organizations in the health care industry. My work has also been featured in media outlets including the *New York Times*, *Washington Post*, *U.S. News and World Report*, and *Scientific American*. I was the finalist for the 16th and 21st Annual NIHCM Health Care Research Award, recognizing outstanding research in health policy. I was also the 2009 recipient of the Eugene Garfield Economic Impact Prize, recognizing outstanding research demonstrating how medical research impacts the economy.

I am an associate editor for leading journals in my field including the J*ournal of Health Economics* and *Health Services Research*. I am also a board member of the *American Society of Health Economists*. Prior to joining USC, I was a senior economist at RAND. I obtained my PhD in Public Policy from the Pardee RAND

Graduate School and Masters in Economics from Indiana University and Delhi University.

B. Scope of this report

This report reflects my opinions and views on the potential effects of the proposed merger of CVS and Aetna on competition in the insurance, pharmacy, and pharmacy benefit management market. Evaluation of the detrimental or beneficial effects of the merger through other potential pathways was beyond the scope of this report. These views are based on my assessment of economic theory, past research, and data on the structure, conduct and performance of firms in relevant industries. Some of the statements in this report are forward-looking statements or predictions and thus inherently involve uncertainties. I use underline font to highlight key points.

C. Market overview

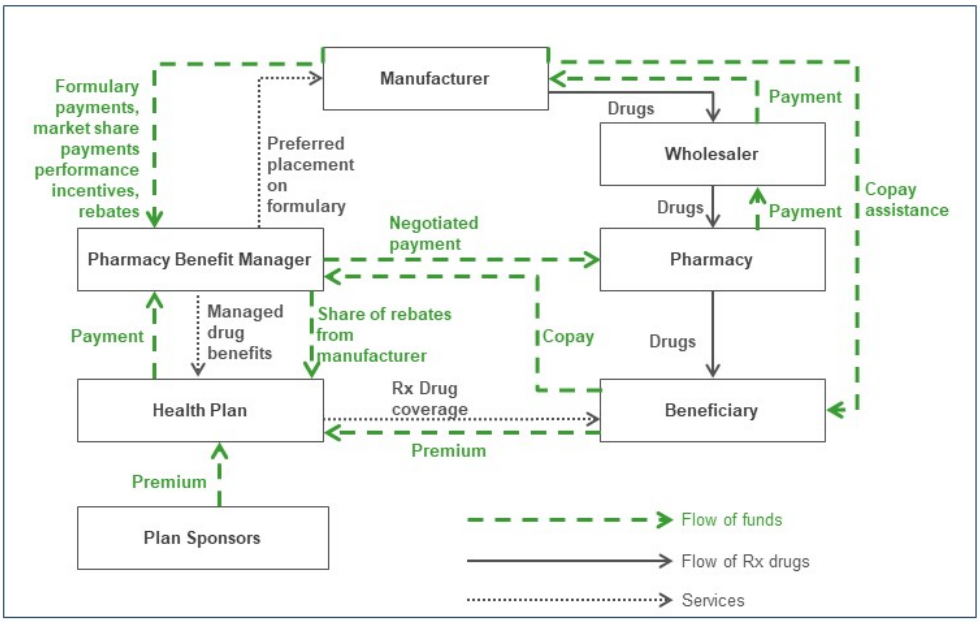
CVS and Aetna are major players in the pharmaceutical supply chain. Therefore, to understand the potential consequences of CVS's acquisition of Aetna we need to first understand the flow of funds and services in the pharmaceutical supply chain. Below, I give a primer on this complex supply chain based on my recent publication on this market.[1] Figure 1 provides a graphical representation of the supply chain.

a. The flow of drugs

Consider an insured consumer who purchases a drug from a retail pharmacy. The pharmacy dispenses the drug to the consumer. The pharmacy acquires the drug from a wholesaler and the wholesaler in turn acquires the drug from a manufacturer. So, the drug supply chain is manufacturer to wholesaler to pharmacy to consumer.

[1] http://healthpolicy.usc.edu/documents/USC%20Schaeffer_Flow%20of%20Money_2017.pdf, accessed May 18, 2018.

Figure 1: The flow of drugs, funds and services in the pharmaceutical supply chain



b. The flow of funds

The flow of funds is more complex than the flow of drugs. The insured consumer pays a copay or coinsurance to the pharmacy at the point of purchase. The pharmacy passes the copay or coinsurance to the pharmacy benefit manager (PBM). The pharmacy also invoices the PBM for providing the drug to the insured consumer. The PBM pays the pharmacy the negotiated rate for the drug. The PBM in turn invoices the health plan for reimbursing the pharmacy. The health plan pays the PBM. The health plan generates revenue by charging premiums to consumers or their employers. The pharmacy restocks the drug by paying a wholesaler for the drug. The wholesaler in turn pays a manufacturer for the drug. The manufacturer pays a rebate to the PBM. The PBM passes some of the rebate back to the health plan. The manufacturer might also pay the consumer in the form of a copay coupon.

c. The flow of services

Pharmacies provide retail service or the storefront for consumers to purchase drugs. Wholesalers purchase drugs from manufacturers and sell drugs to pharmacies. Thus, they provide drug distribution and storage services. Manufacturers conduct research and development to discover new drugs. They obtain approval from the Food and Drug Administration to sell the drug to consumers. Once a drug is approved, manufacturers produce and market the drug to doctors, health plans and consumers. Health plans provide insurance to consumers and thus take on the risk of high prescription drug costs and health care costs. PBMs are agents of health plans. They provide two core services to a health plan. First, they negotiate rebates with manufacturers in exchange for preferred formulary placement (lower copays or coinsurance) for the manufacturers' drugs relative to drugs from competing manufacturers. Second, they negotiate contracts with pharmacies and thus decide whether a pharmacy will be in the network and the reimbursement the pharmacy will receive for dispensing drugs to the insured consumer.

d. Market structure and conduct

I estimate that for every $100 in spending by an insured consumer on a drug sold in a retail pharmacy only $58 reaches the manufacturer and the remaining $42 is kept by intermediaries or "middlemen".[2] Insurers keep $19, PBMs keep $5, pharmacies keep $15 and wholesalers keep $2. The analysis does not directly address the question of whether these returns are "excessive". However, market concentration or lack of competition is an important indicator of companies' ability to earn excess returns, and several segments of the pharmaceutical supply chain are highly concentrated. The top three PBMs account for 70% of the market, the top three pharmacies account for 50% of the market, and the top three wholesalers account for 90% of the market.[3,4,5] Similarly, the large group health insurance market is also

[2] http://healthpolicy.usc.edu/documents/USC%20Schaeffer_Flow%20of%20Money_2017.pdf, accessed May 18, 2018.
[3] http://www.drugchannels.net/2017/12/the-cvs-aetna-deal-five-industry-and.html, accessed May 22, 2018.
[4] http://www.drugchannels.net/2018/02/the-top-15-us-pharmacies-of-2017-market.html, accessed May 22, 2018

highly concentrated with the top three insurers accounting for more than 50% of the market in 33 states.[6]

Market power in the pharmaceutical supply chain can hurt consumers by increasing drug spending and out of pocket costs. Prior research documents that market power manifests itself in several practices of intermediaries in the supply chain that potentially harm consumers. For example, my prior work suggests that pharmacies within a local market charge widely varying prices for exactly the same product. The research also suggests that drug prices found at independent pharmacies or at online discount websites were lower on average than prices at chain drug stores.[7] Similarly, insurers often charge consumers more in out of pocket costs than the drug acquisition costs for the insurer. According to a recent study by my colleagues, almost a quarter of pharmacy prescriptions involved a patient copayment that exceeded the average reimbursement by the insurer or PBM to the pharmacy.[8] Furthermore, insurer and PBMs often have "gag clauses" which prohibit the pharmacy from disclosing to consumers that they could save money by paying cash for their prescription drugs rather than using their insurance.[9] Finally, PBMs might not be good agents of health plans and consumers. PBMs often do not disclose the amount of rebates they receive from manufacturers raising questions about the extent to which they pass on rebate dollars to health plans. For example, Anthem, the second largest health plan in the US, recently sued its PBM, Express Scripts, saying it withheld billions in cost savings owed to Anthem. Similarly, PBMs sometimes create incentives to increase drug prices in return for higher rebates. The increase in drug prices might offset the savings from rebates, so that health plans

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[5] https://www.mdm.com/2017-top-pharmaceuticals-distributors, accessed May 22, 2018.

[6] https://www.kff.org/other/state-indicator/market-share-and-enrollment-of-largest-three-insurers-large-group-market/?currentTimeframe=0&print=true&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D, accessed May 22, 2018.

[7] Arora, Sanjay, Neeraj Sood, Sophie Terp, and Geoffrey Joyce. "The price may not be right: the value of comparison shopping for prescription drugs." *The American journal of managed care*23, no. 7 (2017): 410-415.

[8] http://healthpolicy.usc.edu/documents/2018.03_Overpaying%20for%20Prescription%20Drugs_White%20Paper_v.1.pdf, accessed May 22, 2018.

[9] https://www.nytimes.com/2018/02/24/us/politics/pharmacy-benefit-managers-gag-clauses.html, accessed May 22, 2018.

end up paying more for drugs despite getting bigger rebates. In addition, the high drug prices hurt consumers in high deductible health plans who pay the list price of the drug rather than the price after rebates and other discounts. [10]

D. Key findings

In this section, I discuss the potential effects of the acquisition of Aetna by CVS on competition in insurance, pharmacy and PBM markets.

a. The merging firms

The merger of CVS and Aetna would merge firms with significant market power in their respective markets. Aetna is the third largest insurer in the US with more than 23 million persons receiving insurance through Aetna. Aetna's net revenues in 2016 were $63 billion and its revenues have increased at about 10% per year.[11] CVS is the largest pharmacy company in the US and accounts for 24% of prescription drug revenues in the US. CVS is also one of the largest PBMs in the US and has a market share of about 24%.[12] CVS and Aetna both also sell Medicare Part D prescription drug plans. The combined revenues of CVS-Aetna would be $221 billion making it the fourth largest company in the US.[13] Thus, the merged entity CVS-Aetna would wield considerable market power in the health insurance, pharmacy, and PBM markets.

b. Potential effects on competition in insurance markets

Health insurance markets in the US are already characterized by a lack of competition. The federal trade commission considers markets to be highly concentrated if the HHI (a measure of market competition) for a market is greater than 2,500. According to recent data from an American Medical Association study,

[10] https://www.bloomberg.com/news/articles/2016-10-05/patients-lose-out-on-big-pharma-s-secret-rebate-merry-go-round, accessed May 22, 2018.
[11] https://healthpayerintelligence.com/news/top-5-largest-health-insurance-payers-in-the-united-states, accessed May 22, 2018.
[12] http://www.drugchannels.net/2017/12/the-cvs-aetna-deal-five-industry-and.html, accessed May 22, 2018.
[13] http://investors.cvshealth.com/~/media/Files/C/CVS-IR-v3/AET%20transaction/CVS-Aetna%20Investor%20Presentation.pdf, accessed May 22, 2018.

the vast majority of US health insurance markets had an HHI greater than 2,500.[14] For example, 94% of HMO markets are highly concentrated and 86% of PPO markets are highly concentrated. Data from the Kaiser Family Foundation for the individual, small group and large group market paint a similar picture of highly concentrated markets.[15] Aetna is a dominant firm in the health insurance market. According to recent data, Aetna is the number 1 or number 2 insurer in over 70 HMO markets and over 100 PPO markets.[16]

The merged entity CVS-Aetna will be a formidable competitor in the health insurance market. The merger will further strengthen the already dominant position of Aetna and will exacerbate the lack of competition in health insurance markets. The competitive edge would come from CVS-Aetna's ownership and control of two segments of the pharmaceutical supply chain – PBMs and retail pharmacies.

PBMs are agents of health insurance plans. They help health plans negotiate with pharmacies and pharmaceutical firms. If CVS were to merge with Aetna, CVS would be a better agent for Aetna. Post-merger CVS would have a stronger incentive to control prescription drug costs (net of rebates) and overall health care costs for Aetna. CVS would have reduced incentives to engage in practices that increase rebates at the cost of increasing spending on prescription drugs for Aetna. Some of the savings to Aetna will be passed on to Aetna subscribers as lower premiums.

However, the extent of savings from CVS being a better PBM for Aetna depend on what PBM services CVS is providing to Aetna. Savings only arise if CVS is making strategic decisions for Aetna such as decisions on formulary design and price negotiations with pharmaceutical companies. Savings would be minimal or non-

[14] Competition in health insurance: A comprehensive study of U.S. markets, 2017 Update. American Medical Association.
[15] https://www.kff.org/other/state-indicator/large-group-insurance-market-competition/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D, accessed May 22, 2018.
[16] Competition in health insurance: A comprehensive study of U.S. markets, 2017 Update. American Medical Association.

existent if CVS is only providing administrative or claims processing services and Aetna is making its own decisions on formulary design and negotiations with pharmaceutical companies. Aetna's financial statements to the SEC state that "We also perform various pharmacy benefit management services for Aetna pharmacy customers consisting of: product development, Commercial formulary management, pharmacy rebate contracting and administration, sales and account management and precertification programs. Caremark PCS Health, L.L.C. (a wholly-owned subsidiary of CVS Health) performs the administration of selected functions for our retail pharmacy network contracting and claims administration; home delivery and specialty pharmacy order fulfillment and inventory purchasing and management; and certain administrative services. Other suppliers also provide certain pharmacy benefit management services."[17] Therefore, Aetna's own financial statements to the SEC indicate that Aetna already performs its core PBM functions and thus the potential efficiencies from merging with the PBM arm of CVS would be minimal.

Post-merger, CVS would be a worse agent for other health plans. Post-merger, CVS would have weaker incentives to control prescription drug costs and overall health care costs for health plans competing with Aetna. As explained earlier, PBMs earn rebates from pharmaceutical firms. They make profits by keeping some of these rebates and passing the remaining back to health plans. Although passing rebates back to health plans lowers the profit margin of PBMs, they do so because it helps health plans lower costs and thus helps the PBM retain the business from health plans. The PBM arm of CVS-Aetna would have less of an incentive after the merger to pass rebate dollars back to health plans competing with the insurance arm of CVS-Aetna. The rationale is that passing rebate dollars to health plans competing with the insurance arm of CVS-Aetna will lower their costs and thus will hurt the insurance arm of CVS-Aetna. In other words, the PBM arm of CVS-Aetna has an incentive to disadvantage health plans competing with the insurance arm of CVS-

[17] Aetna 10-K report available online at http://investor.aetna.com/phoenix.zhtml?c=110617&p=irol-sec , accessed May 22, 2018.

Aetna in passing rebates from pharmaceutical firms. This will likely result in less competition in the insurance market.

PBMs also negotiate prices with pharmacies on behalf of health plans. In these negotiations the PBM arm of CVS-Aetna has two potential conflicts. First, helping health plans competing with CVS-Aetna lower their pharmacy costs hurts the insurance arm of CVS-Aetna. Second, helping health plans competing with CVS-Aetna lower their CVS pharmacy costs hurts both the insurance arm of CVS-Aetna and the retail arm of CVS-Aetna. Therefore, the PBM arm of CVS-Aetna has an incentive to disadvantage health plans competing with the insurance arm of CVS-Aetna in negotiations with pharmacies. This will result in less competition in the insurance market.

Therefore, the merger simultaneously creates incentives for CVS to be a better agent for Aetna (which potentially helps consumers with insurance from Aetna) and be a worse agent for health plans competing with Aetna (which potentially hurts consumers with insurance from other health plans). CVS currently provides PBM services to 94 million plan beneficiaries of which about 22 million are Aetna subscribers.[18]

The adverse effects of the incentives for CVS-Aetna to disadvantage competing health plans are exacerbated by two facts. First, the PBM market is highly concentrated. So, health plans competing with CVS-Aetna do not have many options to switch PBMs. In addition, several of the largest PBM competitors for CVS-Aetna, such as OptumRx, Humana Pharmacy Solutions, and Prime Therapeutics are also owned by health plans. Second, CVS recently entered into an agreement to provide PBM services to Anthem. Anthem is the second largest health plan in the US and actively competes with Aetna in several insurance markets. For example, in Thousand Oaks, California, Aetna is the second largest insurer and faces stiff competition from Anthem which is the largest insurer. The story is the same in many

[18] https://cvshealth.com/about/facts-and-company-information, accessed May 22, 2018.

other markets ranging from New Haven-Milford, Connecticut to Albany, Georgia to Evansville, Kentucky. The PBM arm of CVS-Aetna has a strong incentive to help the insurance arm of CVS-Aetna be the number one insurer in these markets.

CVS-Aetna will also own one of the largest retail pharmacy networks in the US. CVS Health financial statement filed with the SEC states: "We currently operate in 98 of the top 100 United States drugstore markets and hold the number one or number two market share in 93 of these markets."[19] CVS-Aetna could leverage this pharmacy network to disadvantage competing health plans. Health plans that do not have CVS in their pharmacy network will be less attractive to consumers, especially in markets where CVS has a dominant market share. CVS-Aetna could exploit this fact to charge higher prices to health plans competing with CVS-Aetna. If health plans refuse to accept the high prices and don't include CVS-Aetna pharmacies in their network they risk losing customers. If they accept the high prices then they face higher health care costs which might result in higher premiums and lower market shares for these health plans.

One might question the size of the incentives for CVS-Aetna to disadvantage health plans competing with the insurance arm of CVS-Aetna. After all, if it does not provide competitive PBM and pharmacy services then health plans might drop CVS-Aetna and seek the same services from elsewhere. Consider a consumer who spends $10,000 a year on average (this is roughly equal to US per capita health spending) on health care and $1,000 or roughly 10% of her total spending (this is roughly equal to the fraction of health spending on prescription drugs) is on prescription drugs. Data from SEC on the profitability of PBM and health insurance sectors suggests a net profit margin of PBM services of 2.3% and a net profit margin of health insurers of 3.0%.[20] Therefore, if CVS-Aetna were to lose this consumer as a PBM customer then CVS-Aetna would lose about $23 (2.3% x 1,000) in profits. However, if CVS-

[19] https://www.sec.gov/Archives/edgar/data/64803/000006480316000074/cvs-20151231x10k.htm, accessed May 22, 2018.
[20] http://healthpolicy.usc.edu/documents/USC%20Schaeffer_Flow%20of%20Money_2017.pdf, accessed May 22, 2018

Aetna were to gain the same consumer as a health insurance customer then CVS-Aetna would gain about $323 in profits stemming from $300 (3% x 10,000) in profits from providing insurance and $23 in profits from providing PBM services. Therefore, 1 insurance customer is as valuable as 14 PBM customers; providing strong incentives for CVS-Aetna to disadvantage competing health plans to gain insurance customers even if it risks losing some PBM customers.

The numbers are similar when we look at incentives on the pharmacy market. Net profit margins in the pharmacy sector are 4%.[21] Therefore, if CVS-Aetna were to lose an average pharmacy customer they would lose roughly $40 in profits per year. However, if CVS-Aetna were to gain this customer as a health insurance subscriber who also bought his or her prescriptions from CVS-Aetna they would stand to gain $363 in profits. Therefore, 1 insurance customer is as valuable as roughly 9 pharmacy customers; providing strong incentives for CVS-Aetna to disadvantage competing health plans to gain insurance customers even if it risks losing some PBM customers.

Some might argue that lack of competition or greater market concentration in insurance markets might be a good for consumers. It might help health plans negotiate lower prices with hospitals and other health care providers and some of these savings might be passed to consumers as lower health insurance premiums. However, this view is not supported by past empirical research. An amicus brief filed by me and other leading health economists related to the merger of Anthem and Cigna summarizes the past empirical research as follows: "This body of work finds that *consolidation in health insurance markets does not, on average, benefit consumers*. Although, greater insurance market concentration tends to lower provider prices, there is no evidence the cost savings are passed through to

[21] http://healthpolicy.usc.edu/documents/USC%20Schaeffer_Flow%20of%20Money_2017.pdf, accessed May 22, 2018

consumers in the form of lower premiums. To the contrary, premiums tend to rise with increased insurer concentration."[22]

In summary, the potential benefits of merging the PBM arm of CVS with Aetna are likely to be minimal. In contrast, the merger creates strong incentives for CVS-Aetna to disadvantage health plans competing with CVS-Aetna. In my opinion, the potential costs of reduced competition due to foreclosure in the insurance market outweigh the potential efficiencies of the merger for CVS-Aetna in the insurance market.

c. Potential effects on competition in pharmacy markets

Pharmacy markets in the US are uncompetitive or highly concentrated. According to a 2015 study CVS and Walgreens together control between 50 and 75 percent of the drugstore market in each of the country's 14 largest metro-areas. They also control the majority of the market share in 70 of the top 100 metro-areas in the country.[23] The merger of CVS with Aetna will further strengthen the already dominant position of CVS in the pharmacy market and will exacerbate the lack of competition in pharmacy markets. The health insurance arm or PBM arm of CVS-Aetna could disadvantage pharmacies competing with CVS by excluding them from their pharmacy network or through other business practices. A recent news story in the Columbus Dispatch alleges that CVS already engages in some questionable practices in Ohio.[24] First, the story alleges that the PBM arm of CVS set up a website for consumers to compare drug prices. But the site disadvantaged pharmacies competing with CVS pharmacies by automatically putting CVS pharmacies at the top of the comparison list. Second, the PBM arm of CVS lowered Medicaid payment to independent pharmacies putting them under financial duress. Then the pharmacy arm of CVS sent letters to many of the same pharmacies, asking whether they would be interested in selling their pharmacies to CVS. Third, the

[22] https://www.hbs.edu/faculty/Profile%20Files/Amicus%20Brief%20in%20re%20Anthem-Cigna%20Proposed%20Merger%202017_7df8927a-b54b-4ea2-a49c-55c98d6ef15c.pdf, accessed May 22, 2018.
[23] http://www.businessinsider.com/cvs-and-walgreens-us-drugstore-market-share-2015-7, accessed May 22, 2018.
[24] http://www.dispatch.com/news/20180415/three-cvs-actions-raise-concerns-for-some-pharmacies-consumers, accessed May 22, 2018.

insurance arm of CVS encouraged Medicare beneficiaries to transfer their prescriptions to CVS pharmacies to save money. These communications favored CVS pharmacies over other low-cost pharmacies. Such practices are not isolated to CVS. In September 2017, an independent pharmacy filed a lawsuit against Walgreens and a PBM called Prime Therapeutics.[25,26] The lawsuit alleges that Walgreens and Prime Therapeutics entered into a business agreement in August 2016 which made Walgreens the primary retail pharmacy for Prime Therapeutics. The lawsuit alleges that Prime Therapeutics wrongfully terminated its contract with the plaintiff pharmacy because it wanted to advantage Walgreens.

In addition to the above practices, CVS-Aetna could also advantage CVS-Aetna pharmacies by creating a preferred network and giving preference to CVS-Aetna pharmacies in the network. The incentive to engage in practices that increase the fraction of Aetna subscriber prescriptions filled at CVS pharmacies increases post-merger as currently Aetna does not have an incentive to favor CVS pharmacies even though Aetna's PBM CVS-Caremark has an incentive to engage in practices that favor CVS. Post-merger this check on the incentives for CVS-Caremark to favor CVS will be reduced as Aetna will be part of CVS. Therefore, the merger likely cements CVS pharmacies already dominant position with Aetna and creates additional incentives to further increase the share of Aetna subscriber prescriptions filled by CVS pharmacies. This vertical foreclosure in the pharmacy market will lead to reduced competition in the pharmacy market by leading to exit of existing pharmacies or deterring entry of new pharmacies. Eventually reduced pharmacy competition will lead to higher pharmacy costs for health plans and consumers.

The effects of this vertical foreclosure on competition in the pharmacy market will be most severe in markets where Aetna has a dominant market share. Hovenkamp, a

[25] https://www.duanemorris.com/alerts/small_pharmacy_hits_walgreens_prime_therapeutics_billion_dollar_antitrust_suit_0917.html?utm_source=Mondaq&utm_medium=syndication&utm_campaign=View-Original, accessed May 22, 2018.

[26] https://cookcountyrecord.com/stories/511114389-pharmacy-accuses-insurance-claims-processor-prime-therapeutics-of-squeezing-it-out-of-business, accessed May 22, 2018.

leading antitrust scholar states that "Both tying arrangements and vertical mergers are condemned under the same Clayton Act standard when they "may substantially lessen competition," and the fundamental concerns are the same. However, there are important factual differences. The vertical merger is more permanent than either tying or exclusive dealing contracts, and this serves to eliminate the considerable competition that occurs when vertical contracts must be renewed. Secondly, when tying or exclusive dealing is used to facilitate collusion, downstream firms upon whom these arrangements are imposed can be expected to resist. When the integration occurs by merger, however, the downstream business becomes part of the colluding firm itself. As a result, condemnation on market shares of 25% or perhaps 20% seems appropriate, provided that entry barriers are high and other market factors indicate that collusion or oligopoly is likely."[27] Given that Aetna has greater than 20% market share in several MSA health insurance markets condemnation of the merger on the grounds of foreclosure in the pharmacy market is justified.

The potential anticompetitive effects in pharmacy markets should be compared to potential efficiencies. CVS argues that the merger will lead to lower health care costs through integration of pharmacy and medical data[28]. One view is that providing medical data to pharmacists will allow them to better counsel patients. However, CVS-Aetna will likely not have access to electronic health record data for the vast majority of its subscribers. True integration of pharmacy and medical data to guide medical management of patients either in doctors' offices or pharmacies will prove difficult without access to such data. I believe that just medical claims data is not sufficient to enhance the services provided by pharmacists.

Another view is that juxtaposing pharmacy data with medical data the health plan will be able to identify which types of drugs reduce medical spending. Using this insight, the health plan can design a better drug benefit to lower overall health spending. I

[27] Herbert Hovenkamp, Federal Antitrust Policy §9.4, at p. 346 (1994)

[28] https://judiciary.house.gov/wp-content/uploads/2018/02/Moriarty-REVISED-Testimony.pdf, accessed May 22, 2018.

certainly agree that integration of pharmacy and medical data has the potential to lower health care costs. Prior research clearly shows that more generous coverage of certain drugs or so-called value-based benefit designs lower medical spending.[29] However, it is unclear if Aetna already has access to its pharmacy data from CVS and if so, the extent to which the merger will lead to better integration of data.

In my opinion, the potential anticompetitive effects of the merger on pharmacy markets outweigh potential efficiencies from integration of pharmacy and medical claims data. Even if efficiencies exist, they can be achieved through contractual arrangements for sharing data across organizations.

d. Potential effects on competition in PBM markets

PBM markets in the US are uncompetitive or highly concentrated. The top 3 PBMs account for about 70% of the market share. Currently Aetna contracts with CVS for some PBM services, but Aetna has the option to drop CVS and choose another PBM if it is not satisfied with the service. A CVS-Aetna merger would mean that Aetna will not contract with a PBM since it will have its own in house PBM. Given that Aetna is the third largest insurer the merger reduces the size of the PBM market and thus reduces incentives for new PBMs to enter the market. In addition, several of the largest PBMs in the US such as OptumRx, Humana Pharmacy Solutions, and Prime Therapeutics are also owned by health plans. So new stand-alone PBM entry is unlikely given that several health plans already have their own PBMs. It seems likely that the only PBMs vertically integrated with a health plan might be able to effectively compete in this market place.

Some argue that greater market concentration in the PBM market is good for consumers because it helps PBMs negotiate lower prices for drugs. However, there is no empirical evidence that larger PBMs actually reduce drug costs for health plans. On the contrary, recent news stories suggests that several health plans and

[29] https://www.cbo.gov/publication/43741, accessed May 22, 2018.

large employers are unhappy with large PBMs and are seeking alternate models.[30] Prior research on insurance markets suggest that when higher concentration leads to both high monopsony power and higher monopoly power, it can simultaneously lead to lower input prices and higher output prices.

E. Summary

In summary, several segments of the pharmaceutical supply chain are highly concentrated and several players engage in practices that hurt consumers. The acquisition of Aetna by CVS will increase incentives for CVS to be a better PBM for Aetna but it will simultaneously create incentives for CVS to be a worse PBM for health plans competing with Aetna. These incentives will likely reduce competition in health insurance markets. In my opinion, the potential costs of reduced competition in insurance markets outweigh potential benefits of CVS being a better PBM for Aetna. The acquisition of Aetna by CVS will also likely reduce competition in the pharmacy and PBM markets, increasing drug spending and out of pocket costs for consumers. The potential costs of reduced competition in pharmacy and PBM markets due to the merger outweigh potential benefits, if any, of integration of medical and pharmacy data due to the merger. Thus, within each of the specific markets- insurance, pharmacy and PBM- in which the merger is likely to have anticompetitive effects, there are no potential benefits of sufficient magnitude and certainty that would outweigh the anticompetitive effects of the merger. Evaluating whether there are other pathways through which the merger might benefit consumers is beyond the scope of this study.

[30] http://prospect.org/article/hidden-monopolies-raise-drug-prices, accessed May 22, 2018.

COMMENTS ON SELECTED ISSUES RE: THE PROPOSED MERGERS OF AETNA AND CVS[1]

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[1] I thank the American Medical Association for supporting my work in preparing this document. These comments reflect my views, not necessarily the views of the American Medical Association or of Northwestern University.

I. Qualifications

I am an Associate Professor of Strategy at the Kellogg School of Management at Northwestern University. I am also a Faculty Research Fellow at the National Bureau of Economic Research (NBER). Much of my research has been focused on health economics and health insurance, particularly on issues involving pharmaceutical markets and regulation. I have published numerous articles on industrial organization, health economics and insurance in journals including the *Review of Economic Studies*, *Review of Economics and Statistics, RAND Journal of Economics*, and *Journal of Health Economics*.

II. Introduction and Background

CVS Health operates both a pharmacy benefit manager (PBM) and pharmacies. As a PBM, they design pharmacy benefits for employers and health plans, including their own Medicare Part D Plans through subsidiary SilverScript Insurance Company. They also operate over 9,000 retail pharmacies. Aetna is a large, national insurer. Approximately half of their revenues were from Medicare (Medicare Part D and Medicare Advantage) and Medicaid products, while the remainder comes from the commercial market. In the latter market, they may not actually bear risk for medical or pharmacy benefits.

Both firms operate in highly concentrated industries, and the merged entity will have substantial overlap in the Medicare Part D market in particular. The level of concentration in both the PBM market and health insurance markets, in particular, have been the subject of recent antitrust scrutiny. In addition to potential harms from horizontal consolidation, the welfare effects of the merger depend on the impact of vertical integration on consumers.

In these comments, I do not cover all the issues relevant to an evaluation of the proposed merger. Instead, I concentrate more narrowly on the economic theory and empirical evidence on:

1. the extent to which market power is likely to harm consumers.
2. the extent to which foreclosure in PBM and health insurance markets could harm consumers.
3. the potential merger specific efficiencies.
4. the likelihood of pass-through of any savings to consumers.

In addition to summarizing previous research, I will draw conclusions based on economic theory. When doing so, I will make any assumptions explicit and be clear about my predictions regarding post-merger behavior.

III. Summary of Conclusions

I first review the extent to which the merger is likely to increase concentration in existing markets. Critically, the proposed merger will lead to increased concentration in the Medicare Part D insurance market. In Section IV below, I focus on describing both the market and the potential harms to consumers due to increased consolidation. Currently, Aetna has a 9% market share among Part D plans, with CVS Health (branded as SilverScripts) has an 24% market share; overlap is even greater in a subset of geographic markets. An increase in concentration could increase firm market power, leading to higher premiums. Economic evidence – from the Part D market and others – suggest that premium increases are likely.

Furthermore, I review the level of concentration in various markets in which CVS Health and Aetna currently operate. I describe the PBM industry, noting that approximately 70% of all prescriptions are processed by one of three firms, including CVS/Caremark. I further discuss adjacent markets, focusing on the specialty pharmacy market, in which 60% of all revenues are collected by one of three firms, including CVS.

In addition to these concerns, the proposed merger could also lead to foreclosure in the PBM or retail pharmacy markets. In particular, the merged entity could increase the cost of PBM services to insurers other than Aetna, the cost of prescription drugs to other payers, or make it difficult for other PBMs to attract customers. In doing so, they may reduce the attractiveness or increase the price of rival insurance products or make entry less likely. While the lack of data on these contractual arrangements has prevented careful empirical examination of these issues, I describe the economic theory and potential merger effects below.

However, it is possible that the merger could increase contracting efficiency by aligning incentives within benefit packages to lead to more efficient investment in enrollee health. I discuss the theoretical and empirical evidence for these efficiencies. This efficiencies are at least partially specific to integration. Alternatively, a potentially large portion of the potential gain could be achieved via contract or the efficiencies could be achieved through the development of an in-house PBM. Given the mix of enrollees in Aetna plans, I also discuss limitations to the size of these efficiencies.

Finally, I explore the extent to which any cost-savings are likely to be passed on to the consumer in the form of lower out-of-pocket costs or premiums. Theoretically, the magnitude of any cost savings for consumers will depend on the nature of competition in the insurance market.

Given the degree of concentration and horizontal consolidation in the insurance industry, it is reasonable to believe that any cost-savings will increase insurer profits, rather than reducing consumer costs. Empirically, there are reasons to be skeptical that the savings will be realized and ultimately captured by the consumer. Therefore, the potential for harm to consumers from this merger is likely to outweigh any gains.

IV. Pharmacy Benefits in the United States

Health insurance plans typically consist of a "medical benefit" and a "pharmacy benefit," which need not be administered by the same insurer. In particular, health insurers often contract out pharmacy benefits to PBMs, who design formularies, run utilization management programs, establish networks of retail pharmacies, and negotiate rebates from the list prices for pharmaceuticals. Americans obtain pharmacy benefits in a variety of ways. For many, pharmacy benefits are part of the insurance package offered by employers. The insurers who service these contracts with employers may use a PBM to provide drug benefits. There are three large PBMs: Express Scripts, CVS Health, and OptumRx, which is itself owned by UnitedHealth Group. The high level of concentration in the PBM market has attracted attention by antitrust regulators (Brill 2012).

However, not all Americans obtain coverage through an employer. Public financing of pharmacy coverage is also common. In both the Medicaid and Medicare programs, much of the provision of drug coverage is outsourced to private insurers. Duggan and Scott Morton (2006) and Dranove, Ody, and Starc (2018) show that private insurers reduce overall expenditure and prices in the Medicare and Medicaid programs, respectively. However, to understand the impact

of the proposed merger, one must understand prescription drug coverage in the Medicare program in particular.

The Medicare Part D program, enacted under the Medicare Modernization Act in 2003, was introduced in 2006. Medicare beneficiaries can enroll in a private insurance plan that provides prescription drug coverage. For most Medicare beneficiaries not offered a plan by a previous employer, there are two ways to obtain Part D coverage. They can enroll in a stand-alone prescription drug plan (PDP) that only covers prescription drugs or they can enroll in a Medicare Advantage (MA) plan. In MA plans, Medicare pays most or all of the premiums to a private insurer. Most MA plans are managed care plans: in return for reduced choice of providers and utilization review, the Medicare beneficiary obtains more complete coverage, typically including pharmacy coverage. The market share of MA plans have fluctuated over time, primarily because of changes in reimbursement generosity.

Typically, enrollees in PDPs receive their medical coverage from traditional Medicare. Part D is heavily subsidized; as a result, it is financially beneficial for most Medicare beneficiaries to enroll in some form of drug coverage. The program requires insurers to provide coverage at least as generous as the "standard benefit," which has a nonlinear structure in which the beneficiary pays differing out-of-pocket costs depending on the phase of the benefit design. Despite the large number of plan offerings typically available, markets are typically concentrated. Over 50% of Part D beneficiaries enroll in plans offered by three carriers.

The private insurers participating in the Medicare Part D program are free to negotiate drug prices with drug manufacturers and distributors. Most famously, PBMs can obtain "rebates" from manufacturers in exchange for preferred placement on formularies. Essentially,

pharmaceutical manufacturers give plans a discount in exchange for PBMs steering consumers to their drugs. Less well appreciated is negotiation with pharmaceutical distributors and retail pharmacies in particular. While many studies of drug pricing have focused on manufacturers' market power, pharmacy companies are increasingly concentrated as well.

V. Market Concentration

Health insurers sell policies to consumers, often through groups, and purchase services from health care providers. Insurer market power enables an insurer to charge premiums above average costs. Higher premiums could lead to inefficiently low levels of insurance or degradation of insurance quality. In the case of the proposed merger, harm to consumers is likely.

Economists have established that imperfect competition is likely to exist in many insurance markets, with important implications for policy. Leemore Dafny (2010) tests for the presence of imperfect competition in commercial insurance markets and argues that insurer market power is an important feature of the market she studies. In a 2014 paper, I show that the need to establish a credible “brand” and market to consumers can create a barrier to additional entry. As a result, economists typically model insurers as exerting pricing power in markets ranging from Medicare Part D (of particular interest here, see Ho, Hogan, and Scott Morton 2017) to exchanges (Ericson and Starc 2015, Jaffe and Shepard 2018, Tebaldi 2018).

Economists have further shown that the extent of competition varies across local markets, and explore the implications of local variation for consumers. The weight of the research indicates that more competing firms or less concentrated local markets lead to lower premiums. Leemore Dafny, Mark Duggan and Subramaniam Ramanarayanan used a merger of two large

national health insurance carriers to measure the effect of changes in local market concentration on employer health insurance premiums (2012). The authors found an increase in local concentration to be statistically associated with a significant increase in employer insurance premiums. As summarized by Leemore Dafny in testimony before the Senate, "There are a number of studies documenting lower insurance premiums in areas with more insurers, including on the state health insurance marketplaces, the large group market (self- and fully insured combined), and Medicare Advantage. A recent study suggests premiums for employer-sponsored fully-insured plans are increasing more quickly in areas where insurance market concentration is rising, controlling for other area characteristics such as the hospital market concentration" (Dafny 2015).

In the Medicare Part D context, a number of studies point to insurer pricing power. Francesco Decarolis, Maria Polyakova, and Stephen Ryan (2017) estimate mark-ups over costs in the order of 9 percent on average. As documented by both Keith Ericson (2013) and Kate Ho, Joseph Hogan, and Fiona Scott Morton (2018), premiums have increased over time as switching costs and, correspondingly, pricing power, have risen. Ericson finds that firms engage in an "invest then harvest strategy," in which initially low premiums grew over time for plans with larger number of enrollees. Ho, Hogan, and Scott Morton explore the impact of alternative policies that reduce consumer switching costs and decrease premiums. Finally, Anna Chorniy, Daniel Miller, and Tilan Tang (2018) find that "premiums that rise by an average of 5.2% across all market and 7.3% in markets in which the merging parties overlap." They also find limited evidence of lower plan generosity.

The relationship between concentration and the split of consumer and producer surplus is found more broadly. Marika Cabral, Michael Geruso, and Neale Mahoney (2018) find that

higher concentration is associated with higher profitability in the MA market. Leemore Dafny, Jonathan Gruber, and Christopher Ody (2015) show that higher insurer concentration leads to higher premiums in the newly created health insurance marketplaces. David Dranove, Anne Gron and Michael Mazzeo (2003) find that an increase in the number of competing HMOs in a given local market are associated with lower insurer profits.

The PBM market is also highly concentrated. Approximately 70% of all prescriptions are processed by one of three firms: Express Scripts, Caremark (owned by CVS Health) and Optum Rx (owned by UnitedHealth, Fein 2017). Both policymakers and economists have raised serious concerns about the lack of competition in the PBM market and its implications for consumers (Brill 2012, Garthwaite and Scott Morton 2018). Furthermore, the market is characterized by price obfuscation: in the absence of a well-functioning, competitive market, byzantine arrangements may harm consumers. While the nature of contracting also makes it difficult for researchers to evaluate the impact of competition on prices, the simultaneous presence of concentration and high and opaque prices is certainly suggestive. The high level of concentration in the PBM market is likely to persist due, in part, to barriers to entry in the industry. The scale required to negotiate favorable discounts from manufacturers makes it difficult for fringe players to compete.

Similar issues may apply in adjacent markets as well. For example, the specialty pharmacy market represents a growing proportion of drug costs. These pharmacies tend to focus on providing medications for consumers with complex medical conditions, including cancer, autoimmune disorders, cystic fibrosis, and HIV/AIDS. While the number of specialty pharmacy locations has increased over time, the market remains extremely concentrated. Nearly 60% of all specialty pharmacies revenues are collected by three largest firms – owned by CVS Health,

Express Scripts, and Walgreens Boots Alliance (Fein, 2017). While the merger does not entail horizontal overlap in this market, the foreclosure arguments described below are likely to apply in this market as well. For example, Aetna may attempt to steer at least a portion of their consumers to CVS's specialty pharmacy in ways that may harm competition or overall consumer welfare. Anticompetitive behavior is especially concerning in this setting, as it may have important clinical, in addition to financial, consequences.

VI. Foreclosure

Vertical mergers may lead a newly integrated distributor to stop selling products to a downstream firm's rivals, a practice known as vertical foreclosure. Such arrangements raise antitrust concerns, since rivals may be excluded from a market altogether or, more commonly, forced to use higher cost means to bring their products to market. Empirical evidence on the extent and impact of foreclosure in the health care industry is limited. Therefore, in this section, I outline the likely effects of integration and highlight the potential for vertical foreclosure in the affected markets.

a. Insurance Markets

The main concern is that merged entity could raise its rival's costs along two dimensions. First, the merged entity could increase the cost of PBM services to insurers other than Aetna; price increases could be facilitated by the lack of competition and opaque nature of pricing in the PBM market. Although Aetna is the third largest insurer in the United States, foreclosure may be a risky strategy, as it involves not aggressively bidding for a large fraction of the market. Aggressive bidding is unlikely especially to the extent that it will strengthen the position of Aetna's rivals in the downstream insurance market. While high market concentration is often a

cause for concern, it is particularly worrisome in the PBM market. Opaque pricing and the rebate structure give both the pharmaceutical manufacturer and the PBM incentives to allow higher list prices and higher rebates.

Second, and perhaps more important, the merged entity could increase the cost of prescription drugs to other payers. This effect may be especially important in the market for generic drugs, which are generally competitive at the wholesale, but not the retail level and represent a large fraction of total fills. In recent years, prices for some generic molecules (even particularly old ones whose branded equivalents' patents expired decades ago) have increased substantially.

b. PBM Markets

The ability to raise rivals' costs has important implications beyond the firms currently participating in the industry. In particular, the potential for vertical foreclosure could reduce the attractiveness of entry in either the PBM or insurance markets. PBMs know that they will have few potential customers absent Aetna, and, perhaps more importantly, non-integrated insurers will face weakly worse terms. Even if the PBM and health insurance markets were competitive, the merged firm could reduce future competition in the insurance market. If the merged entity is successful, future entry may require capabilities to be a payer, PBM, and provider, which may be difficult and especially costly for potential new entrants to replicate. In addition, the merger could make it less likely that fringe PBMs or new entrants can compete effectively for Aetna's business; high concentration and existing vertical arrangements between insurers and PBMs exacerbate the extent to which this will harm the profitability of such players.

Furthermore, the proposed merger may lead to fewer competitors in the PBM space for several reasons. First, Aetna has stated publicly that one alternative to the merger would be to build an in-house PBM (Sabatino 2018). Such a PBM could potentially add a meaningful competitor in a concentrated space. Second, despite claims that larger firms such as Amazon are poised to enter this space, the merger may impede future entry. In addition to the proposed merger, additional consolidation, including Cigna's proposed acquisition of Express Scripts, is likely in this market (Thomas, Abelson, and Bray 2018). Therefore, the merger may have negative implications for consumers in both the health insurance and PBM markets.

VII. Potential Efficiencies

The welfare impacts of vertical mergers depend on both the potential for foreclosure and the potential for efficiencies. CVS and Aetna have cited a number of potential efficiencies that could result from the merger. The merging entities claim that the combined company "could provide integrated community-based health care that would improve patient health outcomes, increased integration of data and analytics that would lower costs, and improved coordination to treat chronic disease" (Garthwaite 2018). In this section, I explore the extent to which improved coordination through combined contracting is likely to arise and to what extent any such efficiencies may be merger-specific.

The merging parties could better align incentives within insurance contracts. Specifically, PBMs may not always design insurance benefits in order to minimize overall medical expenditure if they are not fully at risk. Insurers that offer combined medical and pharmacy benefits may do more to increase drug adherence and reduce hospitalizations: for example, they

may ensure that patients are taking blood pressure medication to prevent cardiac events and avoid the associated costs.

Empirical evidence supports this hypothesis. In work with Robert J. Town, we find Medicare Advantage Part D (MA-PD) plans that cover drug and medical expenditures tend to be designed to keep consumers out of the hospital, as compared to stand-alone PDPs that only cover drugs. MA insurers charge consumers lower copays for preventative medications—which effectively means sending consumers the right price signals. Outside of the direct impact on plan enrollment, the PDPs have little incentive to consider the influence of their benefit design decisions on enrollee medical care utilization.

A potentially large portion of the potential gain could be achieved via contract. An insurer could put the PBM at risk for at least part of medical spending. Under such a contract, there will be an implicit trade-off: as the PBM faces higher powered incentives, they must also be compensated for taking on additional risk. Because insurers will not fully internalize the benefits of optimal insurance design across treatment modalities, it is impossible to achieve the savings without fully internalizing the risk associated with total spending – without taking on all of the risk associated with medical expenditure. Furthermore, as the health care landscape changes and emphasizing paying for value more and more, contracting issues are likely to become more acute.

These efficiencies could be achieved via merger or, alternatively, by developing an in-house PBM. Other players have pursued the latter approach. The savings are also potentially limited to the set of contracts joint to Aetna and CVS in which Aetna does not already control the formulary: plans in which the merged entity is *at risk* for both medical and pharmacy benefits.

In the Part D market, efficiencies will be limited by the (lack of) consumer switching from stand-alone plans to MA-PD plans. In the commercial market, efficiencies will be limited to fully insured contracts; these efficiencies do not apply to administrative services only contracts, which compose a significant fraction of Aetna's business.

VIII. Pass-Through of Cost Savings

Any savings obtained as a result of the merger could increase insurer profits or reduce premiums and increase plan generosity. Insurers frequently claim that cost savings will be passed through nearly one-for-one to consumers; however, theoretically, incidence will depend on the degree of competition in the market and enrollee selection. Consider pass-through under monopoly. When the monopolist sets price equal to marginal revenue, the decrease in price due to a reduction in marginal costs is smaller than under perfect competition because the marginal revenue curve is steeper than the demand curve. Under linear demand and constant marginal costs, we expect a pass-through rate of one-half, as the marginal revenue curve is twice as steep as the demand curve.

In work with Mark Duggan and Boris Vabson, we found that while an increase in MA reimbursement was successful in attracting more providers, it provided lackluster benefit to consumers. Only about one fifth of the additional reimbursement was passed through in the form of lower premiums, co-pays, or deductibles. The remaining 80 percent went to insurers' profits and advertising. While other estimates (Cabral, Geruso, and Mahoney 2018) find greater pass-through of reimbursements to consumers, all estimates in the literature imply incomplete pass-through: at least some of the benefits accrue to the supply side of the market. Similarly, we

should be skeptical of claims that the merged entity will naturally craft more competitively priced insurance products for employers and individual consumers.

Furthermore, a separate set of issues arises in the PBM market, in which confidential rebates may or may not be passed along to the consumer. In a competitive market, we expect PBMs to try to attract consumers by promising them a greater share of rebates. However, given firm behavior and price opacity in the PBM market, it is likely that a substantial fraction of any rebates are retained by the PBM. To the extent that the merger increases concentration in the PBM industry, it is even less likely that savings will accrue to the consumer.

IX. Conclusions

My comments do not cover all the issues involved in evaluating the proposed merger. Instead, I focus on the research relevant to insurer market power, foreclosure, a subset of the most achievable efficiencies, and their impact on consumer costs.

I argue that the markets in which CVS Health and Aetna operate are typically highly concentrated. I describe concentration in the PBM industry, the specialty pharmacy market, and, critically, the Medicare Part D market, in which the merging firms have substantial overlap. Economic research has shown that concentration in insurance markets leads to higher premiums for consumers. Furthermore, the merged entity has the potential to foreclose future entry or raise the costs of current rivals. Both insurer market power and the potential for foreclosure are likely to have negative impacts on consumer welfare.

There may be potential efficiencies that are created by the merged entity. I focus on one – the alignment of medical and pharmacy benefits – that may only be fully achieved through

integration, but may be partially achieved via contract or achieved through the development of an in-house PBM. I argue that any cost efficiencies are not likely to translate into lower premiums or more attractive benefit packages for consumers. Therefore, I conclude that the potential harm to consumer welfare from the proposed merger is likely to outweigh the potential gains.

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MSA-Level Markets Where Aetna is the First or Second Largest Health Insurer, 2016

We examined health insurance markets at the metropolitan statistical area (MSA) level and searched for markets where Aetna had a significant market share. We did this for two product markets: *i*) the combined HMO+PPO+POS+EXCH (i.e. commercial) market and *ii*) the Medicare Advantage market.

We found the following:

- In 15 percent (57) of the 389 MSAs studied, Aetna had the first or second largest market share in the *combined HMO+PPO+POS+EXCH* market.
- In 3 percent (11) of the 389 MSAs studied, Aetna had a *combined HMO+PPO+POS+EXCH* market share of 30 percent or greater.
- In 4 percent (15) of the 389 MSAs studied, Aetna had a *combined HMO+PPO+POS+EXCH* market share of 25 percent or greater.
- In 10 percent (39) of the 389 MSAs studied, Aetna had a *combined HMO+PPO+POS+EXCH* market share of 20 percent or greater.
- In 15 percent (57) of the 389 MSAs studied, Aetna had a *combined HMO+PPO+POS+EXCH* market share of 17 percent or greater.

- In 16 percent (60) of the 381 MSAs studied, Aetna had the first or second largest market share in the *Medicare Advantage* market.
- In 8 percent (32) of the 381 MSAs studied, Aetna had a *Medicare Advantage* market share of 30 percent or greater.
- In 11 percent (40) of the 381 MSAs studied, Aetna had a *Medicare Advantage* market share of 25 percent or greater.
- In 16 percent (62) of the 381 MSAs studied, Aetna had a *Medicare Advantage* market share of 20 percent or greater.
- In 21 percent (79) of the 381 MSAs studied, Aetna had a *Medicare Advantage* market share of 17 percent or greater.

The following two tables report the MSA-level markets where Aetna had the first or second largest market share in 2016. The first table (pp. 2-3) pertains to the combined HMO+PPO+POS+EXCH product market, and the second table (pp. 4-5) is for the Medicare Advantage market. Each table shows Aetna's rank in each MSA-level market—i.e. whether it had the first or second largest market share.

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MSA-Level Markets Where Aetna is the First or Second Largest Health Insurer
Combined HMO+PPO+POS+EXCH Market

State	MSA	Aetna's share	rank
AK	Anchorage, AK	53	1
AK	Fairbanks, AK	59	1
AZ	Flagstaff, AZ	22	2
AZ	Phoenix-Mesa-Scottsdale, AZ	20	2
CT	New Haven-Milford, CT	17	2
CT	Waterbury, CT	16	2
DC	Washington-Arlington-Alexandria, DC-VA-MD-WV	16	2
DE	Dover, DE	11	2
DE	Wilmington, DE-MD-NJ	23	2
FL	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	35	1
FL	Jacksonville, FL	18	2
FL	Sarasota-Bradenton-Venice, FL	27	2
GA	Atlanta-Sandy Springs-Marietta, GA	16	2
GA	Gainesville, GA	13	2
GA	Hinesville-Fort Stewart, GA	12	2
GA	Macon, GA	18	2
GA	Valdosta, GA	13	2
GA	Warner Robins, GA	14	2
IA	Ames, IA	26	2
IL	Bloomington-Normal, IL	18	2
IL	Rockford, IL	12	2
IN	South Bend-Mishawaka, IN-MI	23	2
KS	Wichita, KS	37	2
ME	Bangor, ME	20	2
ME	Lewiston-Auburn, ME	22	2
ME	Portland-South Portland, ME	16	2
MI	Ann Arbor, MI	6	2
MO	Columbia, MO	40	2
MO	Joplin, MO	24	2
MO	Springfield, MO	37	1
NC	Durham, NC	25	2
ND	Bismarck, ND	53	1
NJ	Atlantic City, NJ	7	2
NJ	Camden, NJ	35	2
NJ	Edison, NJ	21	2
NJ	Newark-Union, NJ-PA	22	2
NJ	Ocean City, NJ	9	2
NJ	Trenton-Ewing, NJ	33	2
NJ	Vineland-Millville-Bridgeton, NJ	28	2
NY	Ithaca, NY	46	1
OH	Weirton-Steubenville, WV-OH	20	2

state	MSA	Aetna's share	rank
PA	Philadelphia, PA	25	2
SC	Sumter, SC	9	2
TX	Beaumont-Port Arthur, TX	22	2
TX	El Paso, TX	23	2
UT	Ogden-Clearfield, UT	21	2
UT	St. George, UT	18	2
VA	Blacksburg-Christiansburg-Radford, VA	18	2
VA	Charlottesville, VA	41	2
VA	Danville, VA	11	2
VA	Richmond, VA	19	2
VA	Roanoke, VA	23	2
WA	Wenatchee, WA	10	2
WI	Appleton, WI	14	2
WI	Oshkosh-Neenah, WI	20	2
WV	Charleston, WV	20	2
WV	Morgantown, WV	25	2

Notes:

1. Source: Competition in Health Insurance Markets: A Comprehensive Study of U.S. Markets, 2017 Update, which uses data from the Managed Market Surveyor,
2. "state" is the state in which the MSA is located; "rank" = 1 or 2 if Aetna's the largest or second largest insurer in the market, respectively.

MSA-Level Markets Where Aetna is the First or Second Largest Health Insurer
Medicare Advantage Market

state	MSA	Aetna's share	rank
AR	Fayetteville-Springdale-Rogers, AR-MO	19	2
AR	Hot Springs, AR	19	2
CT	Danbury, CT	27	2
CT	New Haven-Milford, CT	23	2
CT	Waterbury, CT	27	2
DE	Dover, DE	30	2
DE	Wilmington, DE-MD-NJ	50	1
FL	Sarasota-Bradenton-Venice, FL	21	2
IA	Ames, IA	39	1
IA	Cedar Rapids, IA	41	2
IA	Des Moines, IA	59	1
IA	Iowa City, IA	49	1
IA	Sioux City, IA-NE-SD	67	1
IL	Davenport-Moline-Rock Island, IA-IL	30	2
IL	Rockford, IL	37	1
IL	Springfield, IL	21	2
KS	Lawrence, KS	45	2
KS	Topeka, KS	39	1
KS	Wichita, KS	58	1
MD	Hagerstown-Martinsburg, MD-WV	23	2
ME	Bangor, ME	36	2
ME	Portland-South Portland, ME	26	2
MO	Jefferson City, MO	25	2
MO	Joplin, MO	36	2
MO	Kansas City, MO-KS	39	2
MO	Springfield, MO	38	1
NC	Durham, NC	24	2
NE	Lincoln, NE	62	1
NE	Omaha-Council Bluffs, NE-IA	35	2
NJ	Atlantic City, NJ	37	1
NJ	Camden, NJ	47	1
NJ	Edison, NJ	23	2
NJ	Newark-Union, NJ-PA	24	2
NJ	Ocean City, NJ	23	2
NJ	Trenton-Ewing, NJ	31	2
NJ	Vineland-Millville-Bridgeton, NJ	47	1
OH	Cincinnati-Middletown, OH-KY-IN	21	2
OH	Cleveland-Elyria-Mentor, OH	22	2
OH	Columbus, OH	26	2
OH	Dayton, OH	15	2
OH	Mansfield, OH	27	2

state	MSA	Aetna's share	rank
OH	Sandusky, OH	41	1
OH	Springfield, OH	46	1
OH	Toledo, OH	33	1
OH	Weirton-Steubenville, WV-OH	48	1
OH	Youngstown-Warren-Boardman, OH-PA	29	2
PA	Erie, PA	34	2
PA	Harrisburg-Carlisle, PA	40	1
PA	Lancaster, PA	47	1
PA	Lebanon, PA	39	2
PA	Scranton--Wilkes-Barre, PA	16	2
PA	Williamsport, PA	35	2
PA	York-Hanover, PA	45	1
TX	Abilene, TX	23	2
UT	Logan, UT-ID	21	2
WV	Charleston, WV	18	2
WV	Huntington-Ashland, WV-KY-OH	12	2
WV	Morgantown, WV	22	2
WV	Parkersburg-Marietta-Vienna, WV-OH	16	2
WV	Wheeling, WV-OH	31	2

Notes:

1. Source: Author's calculations of data from the Managed Market Surveyor,
2. "state" is the state in which the MSA is located; "rank" = 1 or 2 if Aetna's the largest or second largest insurer in the market, respectively.