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Abstract

Misalignment of incentives between large retail-chain pharmacy corporations and community pharmacists may explain inefficiencies in the community pharmacy retail market. I apply the principal-agent problem framework to explain how these misalignments of incentives can lead to unsafe working conditions, increase medication errors, burnout and retention issues with community pharmacists, and financial instability on firms. The first part of the article describes the misalignment of incentives between the large retail-chain pharmacy corporations and community pharmacists followed by a comparison of the market value of the three major retail-chain pharmacy corporations and their association with community pharmacists' salaries and concludes with recommendations to address this principal-agent problem.

Introduction

The principal-agent problem is a type of market failure involving a misalignment of incentives between the owners of a company or firm (principals) and the employees that they hire (agents) to represent their interests.[1,2] This conflict arises when the agents (or employees) do not act in accordance with the interest or expectation of the principals (firm). Principals delegate the agents to represent their interest, oftentimes providing them with decision-making capabilities. However, the principals cannot control the agents, nor do they have the same level of information as the agents (asymmetric information). This conflict can lead to non-Pareto optimal conditions (a situation where at least one person's welfare can be improved without making anyone else worse off), which would result in inefficiency and harm to both the principals and agents.[3]

Misalignment of incentives is a central issue between large retail-chain pharmacy corporations and community pharmacists. For example, large retail-chain pharmacies (principals) hire community pharmacists (agents) to represent their interest to maximize their shareholder value ("shareholder primacy norm").[4] Evidence of this can be traced through the sector's history of poor and unsafe working conditions,[5–7] a focus on prescription fill quotas,[8] and vertical integration with pharmacy benefits managements[9,10] that, in aggregate, highlights a system where profits are prioritized over patient safety. However, community pharmacists are not interested in maximizing profits for the large retail-chain pharmacy corporations. Rather, they are interested in providing high-quality care to their patients and community as detailed in their "*Oath of a Pharmacist*,"[11] which is misaligned with the expectations of the large retail-chain pharmacy corporations to maximize shareholder value. Hence, community pharmacist, particularly those working on large

retail-chain pharmacies, are faced with a conflict between acting on behalf of the principal or fulfilling their oath as a pharmacist.

The principal-agent theory is used to explain the relationship between large retail-chain pharmacy corporations and community pharmacists and the mechanisms that lead to unsafe working conditions, increased medication errors, pharmacist burnout and retention issues, and corporate bankruptcy. It provides a theoretical framework to explain the potential mechanisms that lead to inefficiencies in the community pharmacy market, thereby allowing decision-makers to craft policies to correct for these market failures. However, this is one theory among many to help explain the current inefficiencies associated with the community pharmacy market; other conditions and factors such as rising drug costs[12] and a potential monopsonistic labor market,[13] although salient, will not be discussed. The first part of the article describes the misalignment of incentives between the large retail-chain pharmacy corporations and community pharmacists followed by a comparison of the market value of the three major retail-chain pharmacy corporations and their association with community pharmacists' salaries and concludes with recommendations to address this principal-agent problem.

Misalignment of Incentives

A substantial number of licensed pharmacists work in the community pharmacy setting, which includes independent pharmacies, small and large retail chain pharmacies, supermarkets, mass merchandizers, and health-system retail pharmacies. In a 2024 work survey of pharmacists in the United States (US), 59.1% of pharmacists were working in the community setting, and, among those, 22.4% were working in large retail-chain pharmacies.[5]

Large retail-chain pharmacy corporations are focused on maximizing shareholder value and adhering to the shareholder primacy norm.[4] However, it's been perceived that pursuit of shareholder primacy has unwittingly downplayed the professional and ethical responsibilities of the pharmacist working in the community setting.[14] Community pharmacists, on the other hand, often are not interested in these corporate incentives and are focused on upholding their professional and ethical responsibilities to providing quality healthcare to their patients and community. Large retail-chain pharmacy corporations expect their pharmacists to not only perform their duties as community pharmacists but also expect them to meet productivity performance measures such as filling and dispensing quotas. According to the California Code, Business and Professions Code, a "quota" is defined as a "fixed number or formula" related to prescriptions filled, services rendered to patients, programs offered to patients, and revenue obtained as a means to evaluate or measure the performance of the pharmacy staff.[15] This practice of using quotas to evaluate the productivity performance of community pharmacists has resulted in unsafe working conditions, increased medication errors, and increased burnout and retention issues.[16,7,8] According to a 2020 survey conducted among community pharmacist in Ohio, 82% of respondents reported either "agreed" or "strongly agreed" with the statement, "*I feel pressure by my employer or supervisor to meet standards or metrics that may interfere with safe patient care*."[7] Furthermore, pharmacists working in large retail-chain pharmacies in Florida reported having higher perceived stress scores compared to pharmacist working in independent pharmacies, with most reporting that working conditions were unsafe for their staff and patients.[8]

The burden of meeting productivity performance-based measures such as prescription quotas contribute to an unsafe work environment where medication errors can occur. Compound this with an increased workload and lack of proper staffing and resources, and the conditions for a medication error increase the probability of a serious sentinel event. In a 2024 workload report, 91% of pharmacists working at chain pharmacies reported having "high" or "excessively high" workload compared to 55% of pharmacists working at independent pharmacies.[5] Additionally, in the same report, 54.9% of community pharmacists responded that they "disagreed" or "strongly disagreed" with the statement that "*My organization is willing to extend resources to help me perform my job to the best of my ability*," and 56.3% of community pharmacists reported that they "disagreed" or "strongly disagreed" with the statement, "*My organization is committed to employee health and well-being*." Similar findings were reported in 2019, suggesting that these practices and culture have been normalized for many years.[17] Furthermore, among community pharmacists working in Florida, over 57% and 31% of respondents reported that staffing issues and predetermined metrics (e.g., quotas) were the biggest contributors to stress at work, respectively.[8] These factors have led to high levels of burnout among community pharmacists resulting in a large number considering leaving the community pharmacy practice to seek employment in non-community pharmacy settings. Between 2022 and 2023, 68.7% of community pharmacists working for large retail-chain pharmacy corporations in Nebraska considered leaving their current employer and 71.1% considered leaving the pharmacy profession due to high levels of burnout and workload (versus 20.0% and 40.0% of pharmacists working in independent pharmacies, respectively).[6]

An example where misalignment of incentives has had disastrous consequences involve the current opioid crisis. Large retail-chain pharmacy corporations have faced multiple lawsuits in their complicit involvement with exacerbating the opioid crisis.[18] Pharmacists working for large retail-chain pharmacy corporations often had their professional clinical judgement regarding appropriate dispensing of narcotics dismissed by managers. Chiu and colleagues reported that Walgreens pharmacy management pressured pharmacists to fill opioid prescriptions and labelling pharmacists' concerns as bad customer service.[19] The excessive focus on profits over safety has resulted in one of the longest and severest epidemic in US history and demonstrates the consequences of misaligned incentives between large retail-chain pharmacy corporations and community pharmacists.

Another factor that has exacerbated the principal-agent problem is the involvement of the pharmacy benefits management (PBM) through vertical integration that do not provide community pharmacies with enough compensation for filling prescriptions.[9,20–22] The reimbursement rate for each prescription fill is often less than the cost of supply (e.g., label and bottle), which means community pharmacies are losing revenue with each fill. This has dangerous consequences as the large retail-chain pharmacy corporations will try to maximize profits by imposing unreasonable prescription fill quotas and decreasing staffing levels, thereby creating an unsafe work environment and causing pharmacist burnout.[23,24] Moreover, the lack of proper reimbursements for prescription fills has led to many pharmacies closing their doors.[25] According Guadamuz and colleagues, 29.4% of pharmacies that were opened between 2010-2020 closed their doors in 2021.[26] Further, Rite-Aid, one of the largest retail-chain pharmacies in the US filed for bankruptcy in October 2023 and, again, in 2025, partly due to poor

reimbursements from PBMs.[27] This was followed by the buyout of Walgreens Boots Alliance by Sycamore Partners and its split into five companies including Walgreens Pharmacy in August 2025.[28]

Relationship between the financial health of retail-chain pharmacy corporations and community pharmacist salaries

The financial health, defined as the liquidity and leverage, of three large retail-chain pharmacy corporations was compared with the salaries of community pharmacists from 2014 to 2023 (**Supplement A**). Financial health data on the three large retail-chain pharmacy corporations were sourced from their 10-K reports, which are publicly available on the US Securities and Exchange Commission (SEC) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system website (https://www.sec.gov/edgar/search/#). Annual salaries of community pharmacists were sourced from the US Bureau of Labor and Statistics (BLS). Community pharmacists were identified using the occupation code 29-1051 and the North American Industry Classification System (NAICS) category 456100 – Health and Personal Care Retailers.

Table 1 summarizes the financial health parameters (e.g., current ratio, debt ratio, debt-to-equity ratio, and equity multiplier) of three large retail-chain pharmacy corporations in the US (Rite-Aid Corporation, Walgreens Boots Alliance, and CVS Health Corporation) from 2014 to 2023. Rite-Aid Corporation had an average debt ratio of 0.98 indicating that it was mainly financed by debt. Likewise, its average debt-to-equity ratio was 29.44 suggesting that it was financing its operations with debt relative to its equity and increasing its risk for bankruptcy. Although Rite-

Aid Corporation had an average current ratio of 1.47, this liquidity may not be enough to meet all its debt obligations. This likely eventually led to Rite-Aid Corporation filing for Chapter 11 bankruptcy in October 2023 and, then again, in 2025.[29]

Given the consolidation power of large retail-chain pharmacy corporations (e.g., monopsony market), there might be an association between the market value of these corporations and the salaries of community pharmacists, which can provide insight into the potential principal-agent problem. **Figure 1** illustrates the inflation-adjusted (US$2023) average annual salary of community pharmacists from 2014 to 2023. Overtime, there was a decrease in the inflation-adjusted annual salary of community pharmacist suggesting that they were not being properly compensated by large retail-chain pharmacy corporations. If they had been, then it would have been reasonable to expect annual salaries to have both kept up and, perhaps, exceeded inflation.

Systematic risk of large retail-pharmacy corporations

The systematic risks (betas) of the three large retail-chain pharmacy corporations were estimated using linear regression models with 2023 as the reference year. The monthly yield of the S&P500 was regressed to the monthly returns of the three largest retail-pharmacy corporations. The 1-year, 3-year, and 5-year systematic risks were estimated. Results were presented as the average systematic risk with their corresponding 95% confidence interval (CI).

Table 2 summarizes the 1-year, 3-year, and 5-year systematic risks for the three largest retail-chain pharmacy corporations. Rite-Aid Corporation's systematic risk (β_{RAD}) was negatively

associated with the S&P500 yield indicating that their returns decreased as the market returns increased. This was consistent across the 1-year, 3-year, and 5-year average systematic risks. Although these betas were not statistically significant, the negative associations provide insight into the financial issues associated with Rite-Aid Corporation leading to their bankruptcy in October 2023 and, again, in October 2025.[29]

The systematic risks (β_{WBA}) of Walgreens Boots Alliance were positively associated with the S&P500 for the 1-year, 3-year, and 5-year averages, but the 1-year beta was approximately equal to the market (β_{WBA}= 1.0178; 95% CI: -0.3565, 2.3920), which is an indication that the shares were as risky as the market. This likely contributed to the subsequent buyout of Walgreens Boots Alliance and its eventually split into smaller companies.[28] Similarly, CVS Health Corporation had systematic risks (β_{CVS}) that were positively associated with the market, but the betas were consistently around 0.39 at the 1-year, 3-year, and 5-years averages. This indicated that the shares of CVS Health Corporation were less risky when compared to the market.

Examination of the systematic risks identified areas that could be indicators of a struggling firm that may be wrestling with their priorities while maintaining their core mission and values. While large retail-chain pharmacy corporations seek to maximize their shareholder values, this may have the unintended consequences of neglecting the core mission of the pharmacist to improve the "*welfare of humanity and relief of suffering [their] primary concerns*," which does not always align with the shareholder primacy norm.[11] Rite-Aid Corporation's returns were negatively

associated with the market, which may highlight the struggles of the firm as they navigated a complex healthcare market often in conflict with the goals and values their agents.

Recommendations

Common strategies to address the principal-agent problem include aligning incentives between the principals and agents, establishing direct monitoring systems, and negotiating cooperative solutions between the principals and agents.[30] As shown on Figure 1, data on community pharmacists' salary indicate that they have not been properly compensated necessitating the development of strategies to address this issue. To help align the community pharmacist's incentives with the firm, several large retail-chain pharmacy corporations have implemented employee stock purchase plans. For example, CVS Health Corporation has an employee stock purchase plan available for community pharmacists as part of their employee benefits where they can purchase common stock at a 10% discount from the fair market value.[31] Community pharmacists would be aligned with the large retail-chain pharmacy corporation's interest through this strategy, but it may compromise the community pharmacist's priority to provide quality patient care. However, it is unclear whether community pharmacists opt into this program and if these incentives fully compensate salary depression over the last decade.

Establishing direct monitoring systems have been suggested as a potential strategy to address the principal-agent problem; however, this may be associated with negative externality in the form of unsafe work environment and increased potential for medication errors.[7,32] Several studies have reported that predetermined metrics and quotas were identified by community pharmacists as the biggest factors associated with unsafe working conditions.[7,8,16,17] Given the market failure

associated with this principal-agent problem, governmental action in the form of legislation may be needed. For instance, California passed a law prohibiting chain community pharmacies from using quotas to measure the performance of pharmacy staff to address the concerns of rising medication errors due to unsafe work environments in 2021.[15,33] Shortly afterwards in October 2022, Walgreens Boots Alliance, one of the largest retail-chain pharmacies in the US announced that they would abandon the use of quotas for productivity performance-based evaluations of pharmacy staff.[34] However, these changes have not eliminated the use of these productivity performance-based metrics, and misaligned incentives between large retail-chain pharmacy corporations and community pharmacists have continued to result in unsafe environments, increased medication errors, and increased burnout and retention issues.

To address unsafe working conditions due to understaffing and resulting in increased medication errors, California Governor Gavin Newsom signed into law the "Stop Dangerous Pharmacies Act" (AB 1286) in 2024.[35] This bill, the first of its kind, requires large retail-chain pharmacies to staff their pharmacies with at least one pharmacy technician or clerk to assist with pharmacy-related services and to report all medication errors. Although current California law requires that pharmacies include a pharmacy staff to assist the pharmacist, this law has not been enforced. The new bill will empower pharmacists to make staffing decisions instead of the large retail-chain pharmacy corporations thereby improving working conditions and reducing medication errors.

Moreover, in October 2025, California's governor signed into law Senate Bill 41 (SB-41) that impose upon pharmacy benefits managements (PBMs) a fiduciary duty to their clients, ban "spread pricing" (profiting from the difference in costs between health plans and pharmacies),

and providing fair reimbursement to pharmacies.[36] This bill has important implications for pharmacies by improving reimbursement rates for each prescription filled thereby allowing for an improved profit margin. For community pharmacists, this could lead to reduced burden from the large retail-chain pharmacy corporations to increase revenue through unreasonable prescription fill quotas. However, future evaluations will need to assess the effectiveness of this policy on the principal-agent problem.

Negotiating cooperative solutions between the principals and agents may be a potential strategy to address the principal-agent problem.[30] This involves identifying shared interest and establishing trust between the stakeholders. For instance, a "*quid pro quo*" culture could align incentives and trust whereby the community pharmacists adhere to the quotas established by the firm in return for leniency or fringe benefits. Further studies will be needed to determine if cooperative solutions are practiced between the large retail-chain pharmacy corporations and community pharmacists and whether desired outcomes are achieved.

Conclusions

In this article, I applied the principal-agent theory framework to understand the misalignment between large retail-chain pharmacy corporations and community pharmacists and its consequences. Pharmacists (agents) are delegated to represent the interests of the large retail-chain pharmacy corporations (principals), but their commitment to their professional oath and service to community are in direct conflict with the rent-seeking behaviors of large retail-chain pharmacy corporations. This conflict may have led to unsafe working conditions, increased medication errors, increased burnout and retention issues, and corporate bankruptcy. Recently,

legislation has been developed to address the issues of staffing, medication errors, and quotas to improve patient and community safety. However, the implications of these legal interventions have yet to be determined. Lastly, financial analysis of these large retail-chain pharmacy corporations provided insight into the financial health as these firms struggle to find an equilibrium between maximizing shareholder value and addressing pharmacists' values. Establishing the relationship between financial health and the principal-agent problem remains challenging and will require further research. Ultimately, understanding and addressing the principal-agent problem between large retail-chain pharmacy corporations and community pharmacists will lead to desirable Pareto improvements in the form of better health outcomes for our communities, increased job satisfaction, and financial stability in an evolving and complex healthcare market.

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Tables

Table 1. Liquid and leverage ratios for three major retail pharmacy chains in the United States, 2014 to 2023.

Company	Liquidity and Leverage Ratios	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average
Rite-Aid Corp.	Current ratio (Current assets / Current liabilities)	1.71	1.70	1.52	1.69	1.37	1.68	1.34	1.30	1.18	1.21	1.47
	Debt ratio (Total debt / Total assets)	1.30	0.99	0.95	0.95	0.82	0.84	0.93	0.93	0.99	1.09	0.98
	Debt-to-equity ratio (Total debt / Total equity)	-4.29	152.84	18.40	17.88	4.61	5.40	13.01	14.18	85.12	-12.73	29.44
	Equity multiplier (Total assets / Total equity)	-3.29	153.84	19.40	18.88	5.61	6.40	14.01	15.18	86.12	-11.73	30.44
CVS Health Corp.	Current ratio (Current assets / Current liabilities)	2.77	3.53	3.76	3.86	2.60	3.11	3.42	3.37	2.91	2.76	3.21
	Debt ratio (Total debt / Total assets)	0.49	0.59	0.61	0.60	0.70	0.71	0.70	0.68	0.69	0.69	0.65
	Debt-to-equity ratio (Total debt / Total equity)	0.96	1.48	1.56	1.52	2.36	2.47	2.31	2.09	2.20	2.26	1.92
	Equity multiplier (Total assets / Total equity)	1.96	2.52	2.56	2.52	3.36	3.47	3.31	3.09	3.20	3.26	2.92
Walgreens and Boots Alliance, Inc.	Current ratio (Current assets / Current liabilities)	1.38	1.38	1.19	1.07	0.82	0.73	0.67	0.72	0.75	0.63	0.93
	Debt ratio (Total debt / Total assets)	0.45	0.45	0.54	0.57	0.58	0.67	0.76	0.70	0.66	0.71	0.61
	Debt-to-equity ratio (Total debt / Total equity)	0.81	0.81	1.20	1.33	1.47	1.89	3.12	2.40	2.03	2.41	1.75
	Equity multiplier (Total assets / Total equity)	1.81	1.81	2.20	2.33	2.55	2.80	4.12	3.41	3.07	3.41	2.75

Table 2. 2023 betas for the pharmacy corporations, 1-year, 3-year, and 5-year*

Firm	Beta	95% CI	P-value
Rite-Aid Corporation			
1-year beta	-1.2369	(-6.3932, 3.9193)	0.605
3-year beta	-0.4577	(-2.3802, 1.4648)	0.632
5-year beta	-0.1260	(-1.4291, 1.1771)	0.847
Walgreen Boot Alliance			
1-year beta	1.0178	(-0.3565, 2.3920)	0.130
3-year beta	0.9203	(0.4624, 1.3783)	<0.001
5-year beta	0.5183	(0.1386, 0.8980)	0.008
CVS Health Corporation			
1-year beta	0.3852	(-0.8432, 1.6136)	0.501
3-year beta	0.3952	(0.0771, 0.7133)	0.016
5-year beta	0.3971	(0.1107, 0.6835)	0.007

* Market beta was based on the S&P 500 index.

1-year, 2023

3-year, 2021-2023

5-year, 2019-2023

Figure

Figure 1. Annual salary of community pharmacists ($USD 2023), 2014-2023