A Model of Financial Risk to Payers from Retrospective Price Concessions

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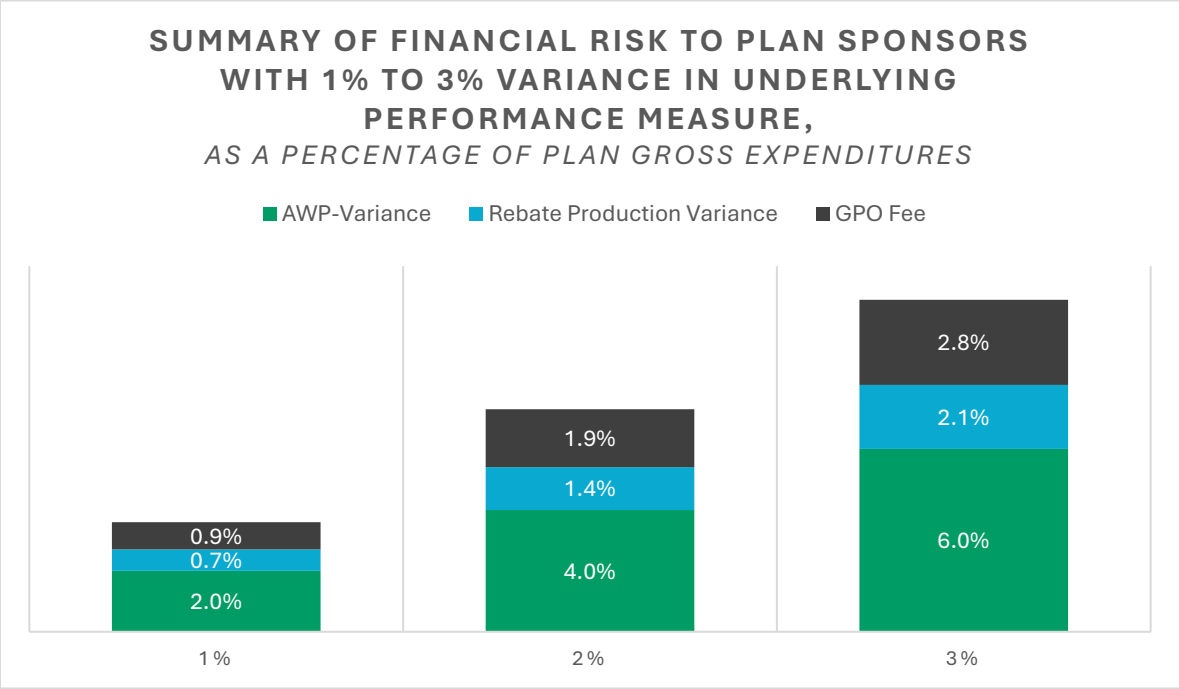
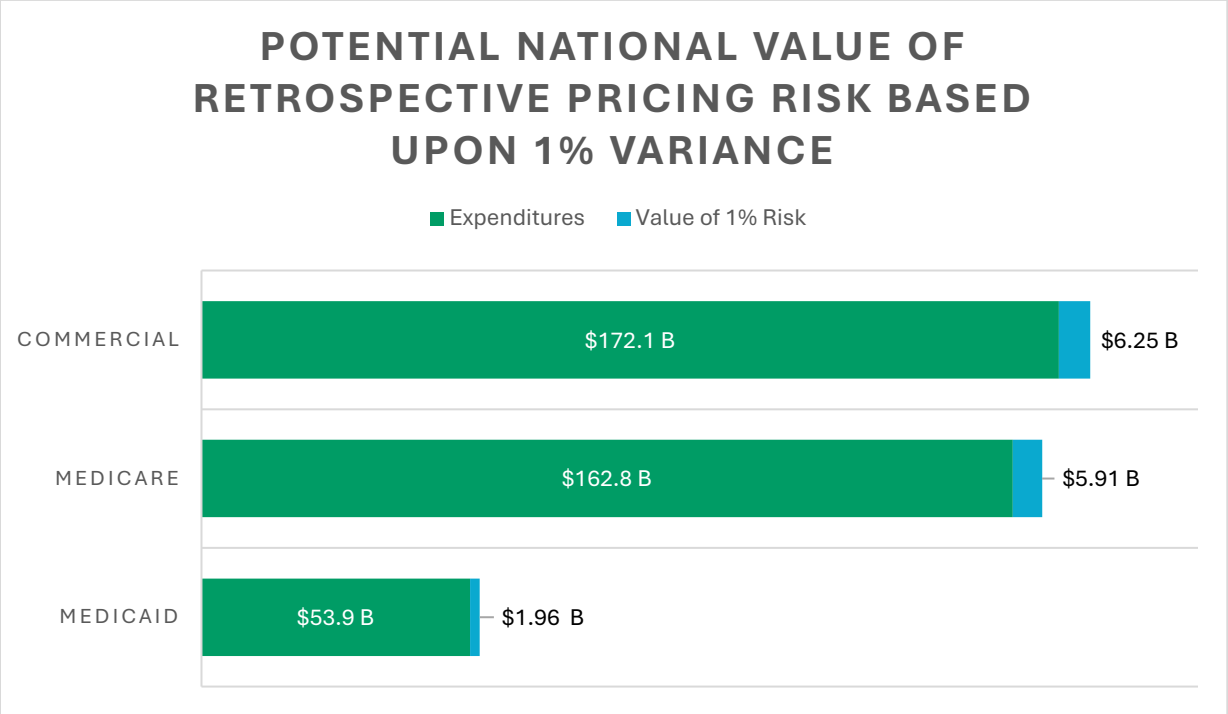
Executive Summary

This paper examines the systemic financial risk embedded in retrospective pricing and rebate guarantees that dominate pharmacy benefit manager (PBM) contracts across commercial, Medicare, and Medicaid markets. While these guarantees are marketed as cost-containment tools, their structure — rooted in benchmark discounts from Average Wholesale Price (AWP), retrospective manufacturer rebates, and affiliated group purchasing organization (GPO) arrangements — introduces significant timing, informational, and reconciliation risk to payers.

Using a model of a commercial plan with $1 million in annual drug expenditures, we quantify how small variances in benchmark pricing and rebate realization translate into material changes in net plan costs. In the modeled plan, aggregate pharmacy reimbursement equates to approximately AWP – 50%. Because this discount is reconciled retrospectively, a 1% variance in AWP performance results in roughly a 2–3% change in total plan expenditures. Similarly, rebates offset approximately 45% of gross spending in the model; a 1% shortfall in rebate realization produces an additional 2–3% increase in net costs. When potential GPO fee retention (1–3% of Wholesale Acquisition Cost [WAC]) is incorporated, total financial exposure attributable solely to retrospective reconciliation structures rises to an estimated 3–5% of annual prescription drug spending.



These findings align with recent federal audits of PBM-managed plans, where unremitted rebates and unpassed discounts equaled approximately 4-5% of total pharmacy expenditures. At the national level, the implications are substantial. In 2024, U.S. net prescription drug spending totaled approximately $467 billion, including $172.1 billion in private insurance, $162.8 billion in Medicare, and $53.9 billion in Medicaid. Applying a 1% variability assumption across AWP and rebate reconciliation suggests up to $14.1 billion in annual prescription drug spending is exposed to retrospective pricing risk. If exposure approaches the 4% levels observed in recent audits, the annualized financial impact could approximate $27.4 billion in the commercial market, $22.5 billion in Medicare, and $7.6 billion in Medicaid.



Collectively, the evidence demonstrates that retrospective PBM guarantees do not eliminate pricing risk — they transfer and monetize it. The timing of reconciliation, definitional flexibility, rebate exclusions (including 340B claims), and PBM GPO fee structures systematically shift financial uncertainty to payers while limiting independent verification. Transitioning toward acquisition-based reimbursement models, point-of-sale price reductions, enhanced audit rights, and shorter reconciliation cycles would materially reduce exposure and improve cost predictability across public and private programs.

This paper was begun and the analytical work was completed prior to enactment of the Consolidated Appropriations Act of 2026 (CAA), which includes significant pharmacy benefit manager (PBM) reforms, affecting commercial group health plans and Medicare Part D. The CAA expands transparency, strengthens audit rights, and in certain markets, limits compensation structures tied to drug prices. These changes are intended to reduce rebate retention and improve plan sponsor oversight.

However, the structural findings of this report remain materially valid. The financial exposure modeled herein arises primarily from the retrospective architecture of PBM guarantees, not solely from the risk of rebate withholding. When a substantial portion of drug value is realized months after the point of sale through aggregate reconciliation, plans continue to bear timing risk, benchmark variance risk, and definitional risk, even in a fully compliant regulatory environment. The mathematical sensitivity demonstrated in this analysis—where small variances in AWP or rebate realization translate into disproportionately large changes in net plan costs—persists so long as pricing remains benchmark-based and reconciled in arrears.

The CAA's enhanced reporting requirements may improve visibility into these dynamics, and greater access to detailed claims and manufacturer remuneration data could make it easier for plan sponsors to model and verify exposure at the individual-plan level. Transparency can improve measurability and oversight, but it does not inherently eliminate the volatility embedded in discount-based pricing systems. Moreover, certain reforms, including compensation "delinking" provisions in Medicare Part D, do not automatically transform commercial PBM arrangements, meaning many employer plans may continue to operate under retrospective AWP-based guarantees unless contractually restructured.

Accordingly, while the CAA represents an important policy development, the economic framework presented in this paper remains applicable. Retrospective pricing systems continue to transfer timing and informational risk to plan sponsors unless value is recognized contemporaneously at the point of sale or through acquisition-based reimbursement models.

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Introduction

Pharmacy benefit managers (PBMs) occupy a pivotal role within the United States pharmaceutical supply chain. In the U.S. prescription drug marketplace, where manufacturers and other drug channel participants frequently compete by offering rebates and other price concessions rather than by lowering list prices, among the core functions of PBMs is a central role in negotiating those discounts and concessions off list price. In this environment, PBMs use their position, leverage and sophistication to secure lower net prices through contract negotiations with drug manufacturers and pharmacies.

Acting as intermediaries between drug manufacturers, pharmacies, and health plan sponsors, PBMs negotiate retail network pricing, administer formularies, and secure manufacturer rebates ostensibly on behalf of employers, unions, and public entities (among other activities). Collectively, the three largest PBMs now control more than 80% of prescriptions filled in the US, a share that has grown alongside consolidation within the sector.[1]

The primary purpose of a PBM is to effectuate prescription drug coverage for plan sponsors. This assures that the benefits of prescription drug insurance are available to covered patients when needed. According to national surveys, the majority of Americans have a form of prescription drug insurance with the source of that insurance most commonly made available through an employer-sponsored health plan tied to the person's employer.[2] However, other sources of prescription drug coverage include federal programs such as Medicare for the elderly and Medicaid for low-income people.[3]

The contracts between payers (i.e., prescription drug insurance plan sponsors) and PBM are often complex, highly technical agreements that are generally marketed as mechanisms to reduce costs through guaranteed discounts and rebates. The financial assurances embedded in these contracts frequently operate retrospectively, meaning the value of pricing discounts and/or rebates are assessed after the plan year has been concluded – long after a claim is adjudicated at the pharmacy counter.

Over the last decade, the prevailing standard PBM contract *architecture* has largely remained unchanged. Financial assurances within contracts tie prescription drug cost to published benchmarks such as the Average Wholesale Price (AWP) or in some smaller but growing instances National Average Drug Acquisition Costs (NADAC). While maximum allowable cost (MAC) guarantees persist for multi-source generic drugs, the MAC pricing can be reconciled against an AWP-based discount, thus hard

to objectively categorized as a true cost-based guarantee. Broadly speaking, the predominant guarantees are tied to AWP, which structure the cost of drugs to the plan sponsor as an aggregate discount for different types of claims, the days' supply of therapy dispensed, and the location where the medications are dispensed. An example of these types of contracting guarantees are provided in **Figure 1** (below).[4]

Figure 1: Example of Plan Sponsor AWP Rates

Pharmacy Pricing and Fee Components	
Retail Non- Specialty Pharmacy – National Network	PPO or HDHP
National Network Brand Discount	AWP – 19.00%
Retail 90 Day Network Brand Discount	AWP –19.25%
Generic - Flat Discount	AWP – 86.00%
Dispensing Fee National Network-Brand and Generic per Claim	$0.40
Dispensing Fee Retail 90 Day-Brand and Generic per Claim	No Dispensing Fee
Mail Order/Maintenance Pharmacy	PPO or HDHP
Brand- Flat Discount	AWP – 25.00%
Generic - Flat Discount	AWP – 88.50%
Dispensing Fee Brand and Generic per Claim	No Fee
Specialty at Retail	PPO or HDHP
Brands	AWP – 17.5% + $0.40 Dispensing Fee
Generic	AWP –40.00% + $0.40 Dispensing Fee
Specialty at Retail Limited Distribution Drugs (With & Without Access)	AWP – 10.00% + $.0.40 Dispensing Fee
Client-Owned Pharmacies	PPO or HDHP
Brand	Pass Through Rates and Fees
Generic	Pass Through Rates and Fees
Dispensing Fee	Pass Through Rates and Fees
Mail/Maintenance Choice	PPO or HDHP
Brand	AWP- 19.50%
Flat Generic Discount	AWP- 91.75%
Dispensing Fee (Brand & Generic)	$0.00 per claim
Administrative Fees	PPO or HDHP
Client Owned Pharmacy Administration Fee	$1.50 per claim
Electronic Claim Administration Fee	$0.00 per claim
Manual Claim Administration Fee	$1.50 per claim

As can be seen in **Figure 1**, the price of prescription drugs above is represented as a discount to AWP that varies whether the medication dispensed is a brand, generic or specialty drug as well as whether the drug is dispensed at retail pharmacies, mail order pharmacies or client-owned pharmacies.

For plans that are guaranteed payment against NADAC, the payment is generally structured as NADAC plus a dispensing fee with the amount of the fee generally varied in a manner similar to that of AWP-based discounts (i.e., different dispensing amounts for claims dispensed at retail, mail, or specialty pharmacies [although not generally by brand or generic status]). An example of this contract can be seen in **Figure 2**[5] (on the next page):

Figure 2: Example of NADAC-Based Plan Sponsor Rates

Lowest of Logic. Sponsor will pay Capital Rx for Covered Pharmaceuticals (except Specialty Drugs and OTC Drugs) dispensed to Members through Capital Rx's exclusive Mail Order Pharmacy an amount equal to the lowest of:

- Pharmacy's U&C Price, or
- National Average Drug Acquisition Cost (NADAC) + $0.00, or
- AWP – 26% + $0.00 for Brand Drugs
- AWP – 86% + $0.00 for Generic Drugs

As you can see in **Figure 2**, while NADAC is a basis for payment, AWP-based guarantees can still bleed into the methodology of a plan sponsor's cost experience. So, while other methods and tools can exist for establishing the pricing guarantees between PBMs and plan sponsors, in general, AWP is the most important benchmark governing a plan sponsor's drug costs.

In addition to establishing the price per claim the plan sponsor can expect to experience in an aggregate manner, the contract generally outlines the retrospective prescription drug rebates (and potentially the associated fees) the plan sponsor should receive based upon the utilization of claims through the plan. In general, prescription drug rebates are a per-brand-claim amount that varies based upon whether the brand claim was dispensed at a retail, mail (i.e., 90-day), or specialty channel. An example of this contract structure is shown in **Figure 3**[6]:

Figure 3: Example of Plan Sponsor Rebate Rates

COMMERCIAL

MEDIMPACT STANDARD PORTFOLIO FORMULARY WITH MEDIUM EDIT PACKAGE REBATE GUARANTEES

Year	Retail 30	Retail 90	Mail Order	Specialty*
2022	$174.68	$513.75	$524.03	$1,541.25
2023	$185.16	$544.58	$555.47	$1,633.73
2024	$196.26	$577.25	$588.79	$1,731.75
2025	$208.04	$611.88	$624.12	$1,835.65
2026	$220.52	$648.60	$661.57	$1,945.79

* Specialty Rebate guarantees are not applicable if Client utilizes a specialty ancillary funding company, however, in such case, one hundred percent (100%) of Specialty Rebates will be passed through to Client.

The contractual guarantees established via PBM-to-plan sponsor contracts are almost universally reconciled in arrears – that is, the PBM reports performance and credits any shortfalls, should they occur, after the close of the plan year. During this interval, the payer often lacks both visibility and the right to independently verify data. Moreover, PBMs frequently reserve contractual authority to adjust key parameters which can impact the retrospective reconciliation of pricing and rebate guarantees. These can include, but are not limited to, the definition of "brand," "generic," or "specialty" drugs; to exclude categories like 340B claims, compound prescriptions, and client-directed

networks; and to channel rebate and other related drugmaker concession collections through affiliates or intermediaries. These design features collectively shift timing and informational risk from the PBM to the payer.

The retrospective nature of these guarantees and flow of dollars have drawn increasing scrutiny from auditors and policymakers. An audit by the U.S. Office of Personnel Management Office of Inspector General (OPM-OIG) of the American Postal Workers Union Health Plan's Pharmacy Operation in 2024 reported that its PBM failed to provide pass-through transparent pricing, resulting in over $14 million in overcharges due to unpassed retail discounts and purchasing concessions.[7] The same audit reported that the PBM's affiliated rebate aggregator (often referred to as a PBM Group Purchasing Organization [PBM GPO]) withheld or delayed more than $15 million in manufacturer rebates, contradicting the plan's guaranteed rebate terms.[8] Collectively, the findings of this audit ($44 million in alleged overcharges) amounted to approximately 4% of total PBM payments over the timeframe of the audit.

A separate OPM OIG review of the Compass Rose Health Plan's Pharmacy Operations reached similar conclusions in 2024, identifying millions in unremitted rebates and timing discrepancies attributable to delayed reconciliation processes and ambiguous contract language.[9] Again, the collective findings of this audit ($18.4 million) represented just over 4% of the total PBM payments over the timeframe of the audit.

Beyond federal programs, recent settlements regarding discount disputes within state-level plans demonstrate the pervasiveness of the challenges in maximizing discount yields through traditional PBM arrangements. In June 2024, a PBM reached a settlement of $45 million with the state of Illinois over allegations that the PBM and its affiliated GPO failed to pass through promised rebates.[10] In September 2025, the Oklahoma attorney general announced a settlement agreement with the PBM for the state public employee plan HealthChoice over allegations that the PBM failed pass through promised rebates and discounts as well.[11]

These findings help illustrate the risks inherent to the complex and retrospective structure of the financial arrangements that govern an overwhelming majority of pharmacy purchases. Across dozens of publicly available PBM contracts with municipalities, school districts, and state agencies, the same contractual structural traits appear consistently[12]:

- Discount guarantees are expressed as percentage reductions from AWP but measured only in aggregate and reconciled retrospectively at the end of the year.

- Rebate guarantees are defined "as received" or "as collected," with payments delayed until manufacturers remit funds to PBM-controlled intermediaries. Again, rebate payments to plan sponsors are only reconciled retrospectively.
- Audit rights are limited in scope or frequency, and often contingent upon PBM approval.
- Exclusion lists for rebates and discounts are extensive, enabling PBMs to remove high-cost or nontraditional drugs from the guaranteed pool.

Such contract architecture creates an environment where much of the plan's expected value exists only in contingent form, dependent on the PBM's future data submissions, definitions, and reconciliation methodology. The payer, meanwhile, assumes financial exposure to timing lags, utilization variability, opaque accounting practices, and often, limited review and audit rights.

The economics literature provides a useful framework for understanding why retrospective PBM guarantees systematically favor intermediaries. Principal-agent theory predicts that when an agent controls both the flow of information and the design of performance metrics, the agent will naturally gravitate toward metrics that are easier to satisfy while appearing rigorous.[13] PBMs operate in precisely this environment: they negotiate the contracts, define the benchmarks against which their own performance is measured, and control the data their clients receive. Retrospective guarantees — evaluated only after the contract period closes, using data the PBM itself produces — are structurally susceptible to this dynamic.

Purpose and Scope of This Paper

This paper examines the systemic risk embedded in the complex and retrospective guarantee structures of PBM-to-payer contracts, focusing on the pricing and rebate mechanisms that dominate the industry. While the introduction outlines findings of these risks to actual payers in a real-world setting, the audits do not necessarily make clear how the retrospective nature of pricing guarantees may contribute to the respective audit findings. Using a model of potential plan sponsor experience based upon the variety of common contract terms and industry trends, we will demonstrate the impact to net prescription drug spending based upon the recognition of retrospective pricing guarantees across a variety of scenarios to demonstrate how retrospective reconciliation confers risk that may not otherwise exist.

Methods

Plan sponsors of health benefits come in a variety of structures and sizes. In general, small-sized companies employ less than 100 people, mid-sized companies have 100 to 999 employees, and large employers are generally those with more than 1,000 employees.[14] To start, we assumed an annual plan sponsor gross drug spend of $1 million dollars. This number was selected as it would equate to an approximate mid-size plan experience with the ability to easily scale the results into higher (10 to 100 million) or lower (i.e., $100,000) experiences.

A million dollars in annual drug spend equates to approximately 700 to 800 covered lives, placing the estimated plan sponsor as a mid-sized group. This is because the typical plan will incur approximately $90 to $140 per member per month (PMPM) in commercial prescription drug costs.[15] While PMPM is a common insurance measure for total healthcare costs, it can be difficult to identify prescription drug specific PMPM costs.[16] In our literature review we found specific prescription PMPM costs ranging from $50.27 on the low-end to $142.08 on the high-end.[17] [18]. The low-end of reported PMPM costs was for medical pharmacy specific (i.e., a sub-set of pharmacy costs; those that are generally administered in a physician office or clinic setting) and therefore was not viewed as reliable. Outside of that observation, the next lowest was approximately $75 PMPM reported by SmithRx.[19] The California Department of Managed Healthcare reported prescription drug PMPM at $91.84.[20] We ultimately elected to go with an assumption of $116 PMPM in prescription-related costs. This is the approximate average of the PMPM observations we have collected in our literature review. We feel it is an appropriate assumption as it is slightly more than the $91.84 observed in California (whose number was specific for large health plans).[21] We feel it is appropriate for a mid-size plan to have a slightly higher average experience as leverage is typically gained with more covered lives to get lower costs. For $1 million dollars in annual prescription drug expenses, this means that we can assume our plan has approximately 714 covered lives reflected in our model assumption in **Figure 4** (later in this report).

From there, the model needs assumptions regarding typical number of prescriptions and average cost per prescription. We estimated the average cost per prescription of brand, generic and specialty prescriptions based upon our prior work and claims data.[22] We validated these figures based upon industry trends (see Appendix). Our model assumes that generic drugs represent approximately 90% of dispensed prescriptions and 16% of gross prescription costs, brands represent 8% of dispensed prescriptions and 32% of gross prescription costs, and specialty medications represent 52% of gross prescription costs and 2% of dispensed prescriptions.[23] In our 2024 study

of prescription drug trends in the state of Washington, we observed generic dispensing rates at 89-90% across commercial pharmacy claims.[24] We further assume a mail-order pharmacy penetration rate of approximately 10% based upon industry self-reporting.[25] [26] Many industry reports identify generic dispensing rates at or exceeding 90% in 2024 and a similar number identify specialty drug expenditures as representing 50% or more of total prescription spending.[27] [28] [29] [30]

To assess the impact of retrospective price concessions on plan sponsor financial obligations for prescription drugs, we also need to develop assumptions regarding discounts and rebates. We attempted to source as many copies of PBM-to-plan sponsor contracts as possible to inform these assumptions in addition to relying upon our consulting experience (see **Appendix**). Based upon these efforts, we have the following assumptions for our theoretical mid-size plan sponsor:

Figure 4: Model Assumptions[31]

Model Assumptions			
Total Gross Pharmacy Expenditures	$1 million	**Total Annual Prescription Claims**	7,283
Per Member Per Month	$116.81	**Total Lives**	714

Category	Location	% of Spend	% of Prescriptions	Total Prescriptions	AWP-Based Discount	Spend Per Rx	Rebate Per Rx
Brand	*Retail*	24.9%	6.2%	454	-19.7%	$550.00	$292.00
Brand	*Retail 90*	7.7%	0.8%	57	-23.2%	$1,358.05	$721.00
Brand	*Mail*	7.6%	0.8%	57	-25.0%	$1,330.89	$700.00
Generic	*Retail*	9.0%	72.5%	5,279	-86.0%	$17.00	
Generic	*Retail 90*	1.6%	9.1%	660	-88.2%	$23.60	
Generic	*Mail*	1.4%	9.1%	660	-88.8%	$21.24	
Specialty	*Specialty*	47.8%	1.6%	117	-20.6%	$4,100.00	$2,000.00

Based upon the above, we would calculate the total AWP value of dispensed claims at $2 million with the resulting aggregate AWP-based discount of $1 million in gross expenditures equal to AWP – 50.3% (this is the experience based upon weighting the generic, brand and specialty AWP-discounts and cost per prescription). This AWP-based discount is closer to the brand and specialty value than the generic based upon the fact that those categories represent 84% of expenditures, only partly off-set by the volume of generic prescriptions (effectively 9 out of every 10 prescriptions is dispensed with a discount of at least AWP – 86% [generic retail]). The calculations of **Figure 4** also

demonstrate that the value of rebates off-sets approximately 45% of gross plan expenditures. On $1 million dollars in gross drug expenditures, $446K in rebates are produced, offsetting 45% of the gross prescription charges. We would calculate the average gross cost per prescription of $137.28 and the average net cost per prescription of $75.97.

We undertook several analyses to try to validate the model. First, our estimated net price per prescription would appear to be approximately aligned with the overall US experience. According to national health expenditures data, the US expends $467 billion in net prescription drug spending.[32] This occurs across an estimated 6.6 billion prescriptions for a calculated net value per prescription of $70.76.[33] The model's $75.97 value per prescription is within 7% of this value. At 52% of prescription costs within our model, specialty medications have an average PMPM of $55.76. This aligns closely with the earlier identified medical pharmacy experience ($50.27) and appears to further validate the model. A more complete accounting of our efforts to validate the model is available within the **Appendix**.

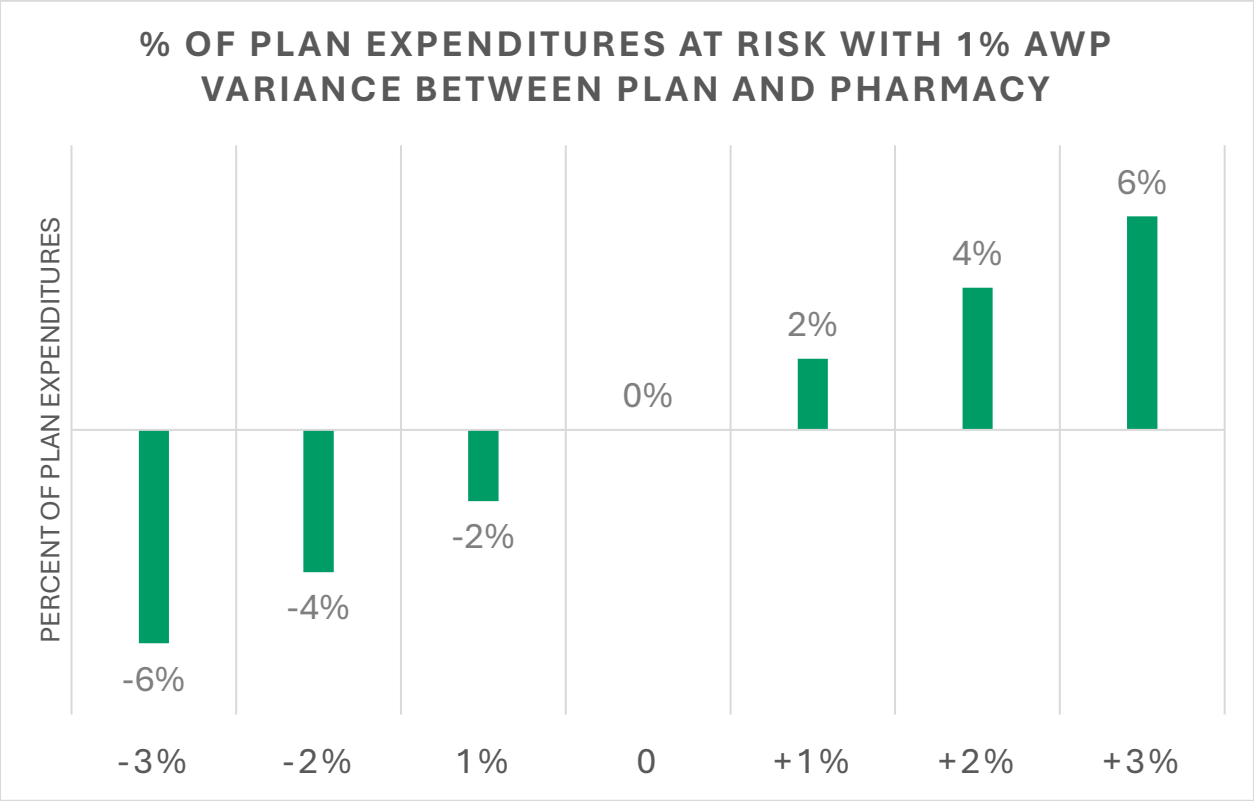
Model

Plan Sponsor AWP Discounts

Based upon **Figure 4**, the total AWP value of prescription claims for $1 million in gross annual drug expenditures is approximately $2 million. This indicates that, across all categories — brand, generic, and specialty drugs, weighted by retail and mail distribution — the effective aggregate discount is approximately AWP – 50%. Because a plan sponsor's actual financial experience from PBM network guarantees is recognized as a deep discount from the AWP benchmark, even small variations in pricing performance can meaningfully alter total expenditures. In simple terms, there is a reason most goods and services outside of healthcare are not routinely sold at half-off; such deep discounts magnify the effects of even minor pricing errors.

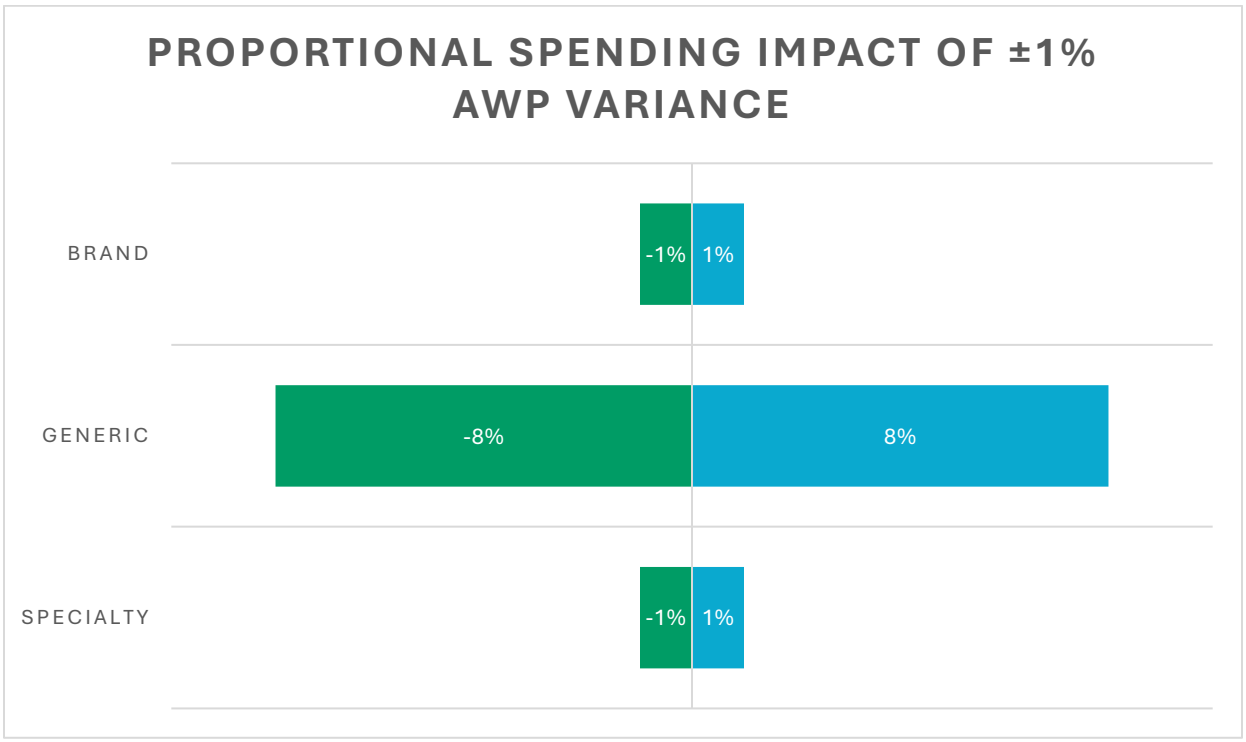
To illustrate this, **Figure 5** (on the next page) contextualizes the value of 1% of total AWP relative to total plan expenditures. The analysis shows the positive and negative effects of ±3% variance in AWP payments to pharmacies, indicating what happens if actual pharmacy AWP-based payments are 3% lower or 3% higher than the contracted guarantees to the plan sponsor.

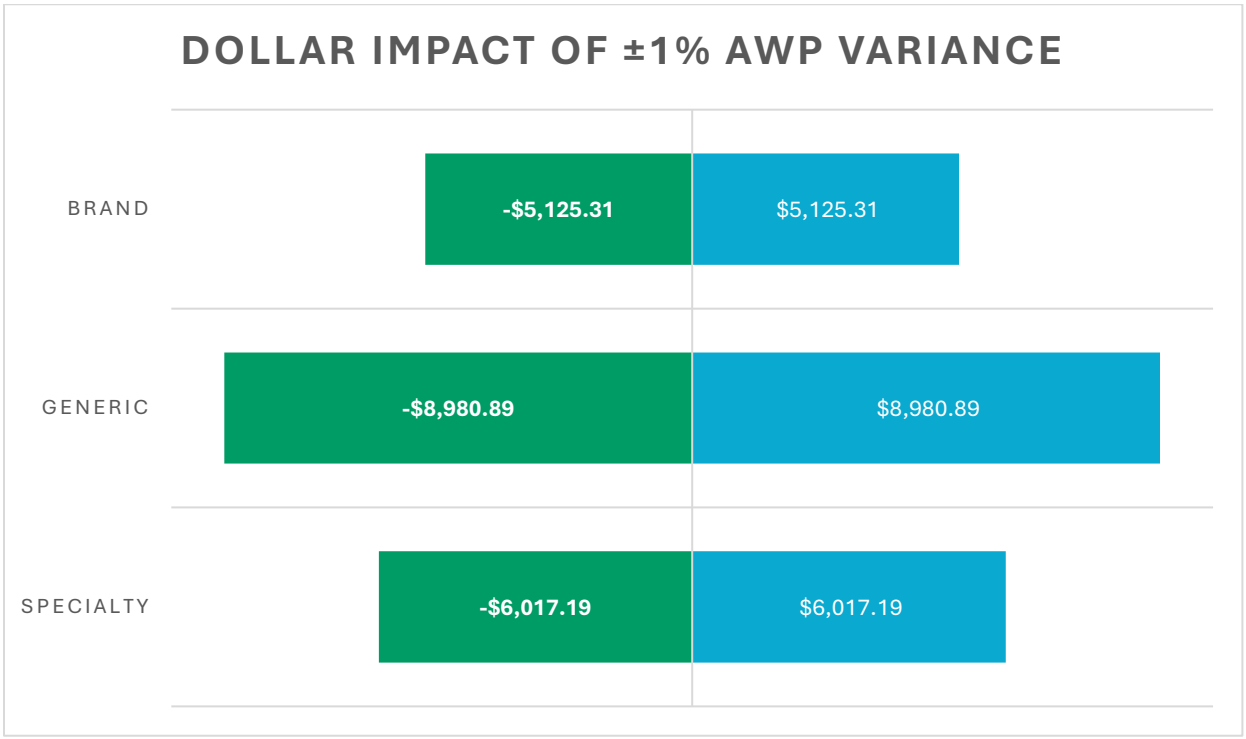
Figure 5: Percent of Plan Expenditures Impacted by AWP-Variance



As shown in **Figure 5**, because the collective AWP discount is approximately AWP – 50.3%, a 1% variance in actual AWP experience translates into a change in total plan expenditures of 2%. However, as identified previously in this paper, the AWP-based discounts are differentiated by product type (i.e., brand, generic, and specialty) as well as pharmacy channel (i.e., retail or mail). The differentiation in AWP-based discounts by product type plays a key role in the observations in **Figure 6** (on the next page).

Figure 6: Value of 1% AWP Variance by Product Category



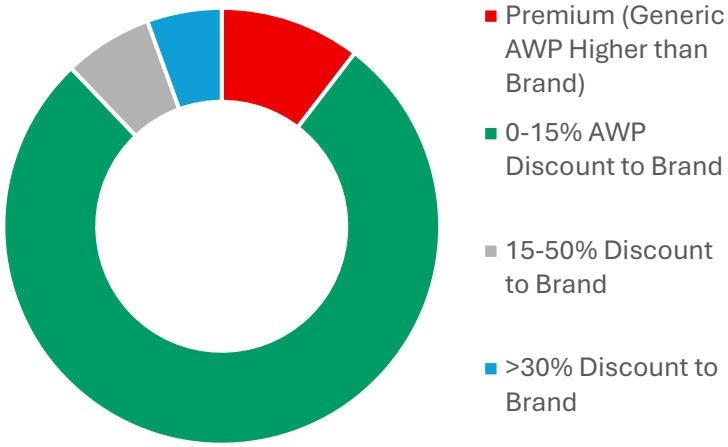


While brand and specialty drugs account for the majority of total plan spending, they do not drive the majority of the financial risk associated with AWP-based pricing in **Figure 6**. Instead, the greatest proportional exposure arises from generic drugs. This

conclusion may seem counterintuitive at first, given generics' much smaller share of total expenditures. However, the structure of AWP-based discounting makes generics far more sensitive to even small changes in the underlying AWP values.

The key issue is how AWP interacts with the discount. Although generic drugs typically carry AWP values that are similar to, or only modestly lower than, comparable brand drugs, they are discounted far more aggressively.[34] In simple terms, the sticker prices (AWPs) for generic drugs directionally cluster near the sticker prices for the brand drugs with which they can be interchanged for, despite the fact that the actual pharmacy acquisition costs for the generics are substantially lower than those brands. For example, a brand drug might be discounted by roughly 20% off AWP, while a generic equivalent might be discounted by nearly 87%. Because generics are priced at such a steep reduction, the final amount the plan actually pays is only a small fraction of the published AWP. When the paid amount is that compressed, any inaccuracy in the AWP — no matter how minor — gets amplified when translated into the final discounted price.

46brooklyn Research Analysis of Generic AWP Value Relative to Equivalent Brand AWP,
1 Month After Generic Entry[32]



To better understand this concept, consider two items that each start at a price of $100. The first item is discounted to $80, similar to how brand-name prescriptions are priced. The second item is discounted much more steeply to $13, like generic prescriptions. If the discount from the original $100 price changes by just 1%, the first item's price will adjust by approximately $0.80. However, the second item will also see a similar absolute change of $0.80, despite its much lower price. This means that the $0.80 reduction has a much greater effect on the second item's price, since it represents a larger percentage of the $13 price compared to the percentage impact on the $80 price. In simpler terms, the deeper discount on the second item results in a relatively larger impact on its final price. This is exactly what is at risk with generic drugs when using Average Wholesale Price (AWP) discounting.

The greater discount to AWP on generics relative to brands helps explain mathematically why a 1% variance in generic AWP pricing produces an 8% change in

generic expenditures, whereas the same 1% variance produces only about a 1% change in brand or specialty spending. Even though generics represent less than 20% of total plan expenditures, the steep discounting structure means that getting the AWP correct for generics has an outsized influence on the accuracy of overall plan experience. In other words, generics introduce the largest proportional financial risk – not because they cost the most in absolute terms, but because their pricing is the most sensitive to errors in the AWP benchmark (given the deep discount associated with generic AWP-based pricing discounts).

This relationship is depicted in **Figure 6**, which quantifies the effect of a 1% AWP variance on each product category. The figure highlights how the combination of similar AWP list prices and substantially deeper discounts makes the generic category much more volatile than brands or specialty drugs. Even modest discrepancies in generic AWP values can cascade into meaningful differences in actual plan expenditures, underscoring why precise AWP management is especially important for this category.

Variance in plan sponsor payments versus pharmacy reimbursements – commonly known as "spread pricing" – is highly relevant to contracts with AWP-based guarantees. Spread pricing arises when there is a difference between the amount a PBM pays a pharmacy and the amount it charges the plan sponsor for the same prescription. PBM contracts may explicitly allow or prohibit spread pricing; examples of such contractual language are shown in **Figures 7 & 8** below:

Figure 7: Contract Language that Disallows PBM Spread[35]

Reimbursement Rates: Reimbursement rates quoted are average effective pharmacy network rates including dispensing fees, before rebates.
Prescryptive bills actual pharmacy reimbursement rate paid to pharmacy without spread.

Figure 8: Contract Language that Allows PBM Spread[36]

DRUG CHARGES – ADDITIONAL PROVISIONS

- Cigna Home Delivery Pharmacy's discounts are applied to the manufacturer average wholesale price (AWP) for the dispensed size (or to the AWP for the manufacturer-packaged quantity closest to the dispensed size, if there is no AWP for the dispensed size).
- Cigna Home Delivery Pharmacy will be reimbursed through the Bank Account for the price (discounted as per this Schedule) for replacement prescriptions shipped by Cigna Home Delivery Pharmacy which are reported as lost or damaged despite Cigna Home Delivery Pharmacy's shipment to the Participant's correct name and address.
- The amount paid to the Retail Pharmacy for Brand, Generic, or Specialty Drug Claims may or may not be equal to the amount charged to Employer, and CHLIC will absorb or retain any difference.

In the market, this potential variance is often categorized by PBMs as "Risk Mitigation Pricing."[37] PBMs state that their customers desire predictability in pricing with the understanding being that AWP-based guarantees provide predictable pricing to plan sponsors. In other words, if actual pharmacy payments by the PBM go up or down, the

plan sponsor's AWP-based guarantee ensures that their experience is fixed regardless of the provider payment differences. In this framing, the PBM absorbs the volatility in pharmacy payments, and the sponsor simply pays the guaranteed AWP-discounted rate.

However, the earlier analysis of AWP variance demonstrates that this "stability" comes at a cost. The structure of AWP-based pricing – especially the extreme discounts applied to generics – creates substantial sensitivity to even small changes in the underlying AWP benchmark. A 1% variance in generic AWP results in an 8% change in generic expenditures, meaning that any party guaranteeing a fixed AWP-discounted rate must account for potentially significant swings in actual reimbursement costs. Economically, this can function as a risk premium: the plan sponsor pays more than the expected value of claims to transfer variance risk to the PBM, while the PBM prices that risk in a way that is favorable to its own financial position.

Several public investigations illustrate how this risk premium materializes as spread retained by the PBM. For example, consider the Ohio Medicaid audit of spread pricing in 2018. The audit found spread pricing equivalent to 8.8% of expenditures ($5.71 per prescription on average), with the majority of the spread occurring in generic drugs (spread of more than 31% for generic drugs was identified).[38] Kentucky Medicaid reported similar findings in their audit with an overall spread of $124 million (13% gross drug cost) in one year despite only 57.6% of all claims being transacted in a spread model.[39] Maryland's audit found $72 million in spread, amounting to a sizable $6.96 per prescription.[40] Florida's Medicaid analysis found $113 million in spread pricing.[41] More recent examples, such as those of the OIG Audit of the US Postal Service Workers Union or Compass Rose plan found that PBM spread pricing was equivalent to 1% and 1.2% of total paid pharmacy claim value respectively.[42] [43]

Spread Pricing

Employers often assume that "pass-through" or "transparent" pricing eliminates PBM spread pricing. In practice, spread pricing can persist in multiple forms – some explicit and others embedded in retrospective or aggregate calculations. Understanding these structures is beneficial for evaluating true net drug costs.

Traditional Spread Pricing – *The PBM charges the plan sponsor a higher amount for a prescription than it reimburses the dispensing pharmacy at the point of sale, retaining the difference as spread.*

Effective Rate Spread Pricing – *The plan sponsor and pharmacy are initially paid the same rate at the point of sale, but a retrospective effective rate guarantee in the contract later adjusts payments, creating a pricing gap. This may involve cross-subsidization across claim types or payer segments within a network.*

As PBM pricing models continue to evolve, effective plan sponsor oversight requires an understanding of how different approaches to drug prices operate.

In practice, "risk mitigation" may function less as a safeguard for plan sponsors and more as a mechanism through which PBMs protect and enhance their own margins. The PBM assumes limited exposure given their control over the pharmacy networks they manage and prices the risk to ensure a positive spread; the plan sponsor, meanwhile, bears the cost of that premium embedded in the AWP guarantee. In other words, real-world evidence confirms the risks inherent in AWP-based discount payments and the potential for inflated plan sponsor costs (which, at times, occur despite plan sponsors seeking non-spread arrangements in their contracts).[44] AWP-based guarantees may appear to provide pricing stability, but the combination of deeply discounted benchmarks, high variance sensitivity — especially for generics — and PBM network pricing practices creates a financial structure where the plan sponsor pays a substantial premium for perceived predictability. The guarantee does not eliminate risk; it monetizes it, and the PBM captures the value.

The risks demonstrated throughout this analysis are largely artifacts of pricing systems that rely on list prices, deep discounts, and retrospective guarantees. When reimbursement is tied to a benchmark like AWP — especially with steep generic discounts — the underlying variance becomes a source of financial exposure for plan sponsors and a source of margin opportunity for PBMs. These dynamics persist because the price paid to the pharmacy and the price charged to the plan sponsor can be meaningfully disconnected even if tied to the same AWP-value.[45]

Acquisition-based reimbursement models offer a pathway to eliminate much of this risk. Frameworks such as CapitalRx's NADAC model, and the CVS TrueCost model align both pharmacy payment and plan sponsor payment to an acquisition-based price rather than a discounted list price.[46] By anchoring reimbursement to the pharmacy's actual acquisition cost — and by removing percentage-based discounts and retrospective guarantees — the pricing structure becomes inherently more stable. Variance in AWP no longer propagates through the system, hidden spreads are minimized or eliminated, and the PBM's ability to monetize volatility is sharply reduced.

Plan Sponsor Rebates

Having established the risks associated with AWP-based guarantees, it is equally important to examine how retrospective rebates that plan sponsors receive from PBMs influence overall plan prescription drug expenses. According to industry observers, significant differences between the list price of brand medications and the net price of their products exist. In 2024, at least six drug manufacturers self-reported the average discount from their products' list price and net price (**Figure 9** on the next page).[47]

Figure 9: Drug Manufacturer Net Price Examples vs. Wholesale Acquisition Cost (WAC)

Drug Company	Average Reported Reduction From List Price
Bristol Myers Squibb	-49%
Eli Lilly and Company	-60%
Johnson & Johnson	-58%
Sanofi	-36%
Takeda	-43%
UCB	-54.1%

For a brand medication like Bristol Myers Squibb's Eliquis, the drug with the most expenditures in Medicare, a 49% reduction in list price would take an otherwise $550 product down to $275.[48] Eli Lilly's GLP-1 Zepbound, which has a list price of over $1,000, would mean that a 60% reduction in price would have it cost $400. While government programs like Medicaid, 340B, and the Department of Veterans Affairs can enjoy savings for medicines that can exceed 63 to 77% off retail prices, for commercial plan sponsors, research has identified that rebates represent 27% of total pharmacy spending, although individual plan sponsors may experience higher or lower amounts.[49] [50]

Brand and specialty medications constitute roughly 80% of gross plan expenditures on prescription drugs; however, the effective prices paid for these products may be reduced by half or more once retrospective manufacturer rebates are applied to their costs. In practical terms, this means that a large portion of the value of every claim is not fixed at the point of sale. Instead, it is contingent upon a rebate returned months later through complex rebate and reconciliation processes.

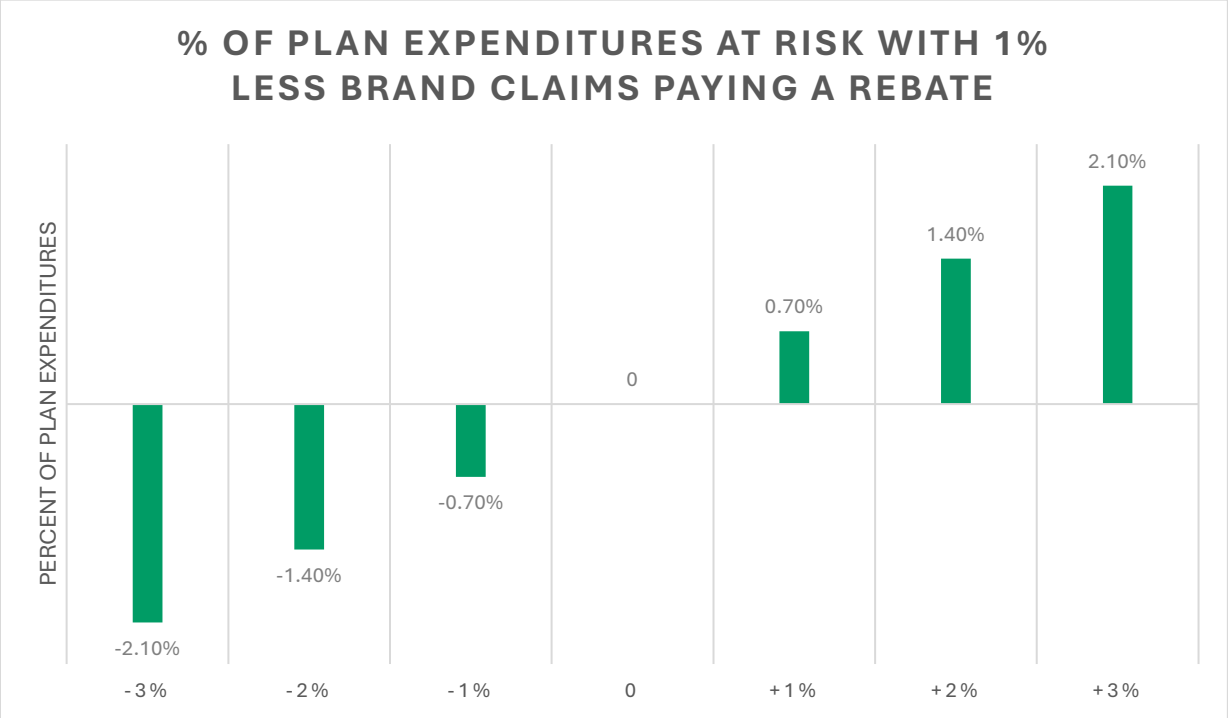
This structure introduces meaningful financial risk for plan sponsors. Much like the variance risk demonstrated earlier with AWP-based discounting, any system where a significant share of the drug's value is delivered retrospectively creates the possibility that the full expected amount will not be realized. If half the value of a brand claim depends on rebate capture, then half the value of every claim is also at risk. When rebates do not materialize as projected — whether due to formulary mix, utilization shifts, or contract misalignment — the plan pays more than it would have under a lower, more certain upfront price.

From a financial perspective, the presence of risk should imply the opportunity to earn a risk premium. Yet under current rebate-based pricing models, plan sponsors absorb substantial uncertainty without receiving any obvious compensatory advantage. The structure offers no premium to the purchaser for carrying rebate risk; rather, it relies on the plan sponsor tolerating volatility in exchange for the hope of future savings. If an

equivalent or better net price can be obtained through an upfront, verifiable, transparent pricing model, then accepting unrewarded risk makes little economic sense.

To demonstrate the risks inherent with retrospective rebates we will begin our analysis as we did with the AWP discount - starting with an analysis of what value is at risk if 1% of brand prescriptions do not produce their anticipated rebates. As can be seen in **Figure 10** below, failing to capture rebates on just 1% of brand claims can affect overall plan sponsor financial performance to a similar degree seen with prior AWP variability.

Figure 10: % of Commercial Plan Expenditures at Risk with 1% Less Brand Drug Claims Paying a Rebate



When it comes to rebates, more so than with pharmacy network performance, it is highly unlikely that additional claims will be rebated. Rebates are based upon the dispensed brand prescriptions and so unless more brand prescriptions are dispensed, there is little opportunity for additional rebates to be produced. Alternatively, there is a reasonable degree of risk that dispensed brand prescriptions will not produce rebates.

Most PBM contracts include a list of conditions which will result in rebates not being provided to plan sponsors. These are typically referred to as "rebate exclusions." Many of these may reflect the contract terms and conditions between the PBM and drug manufacturer; however, the impact to the plan exists regardless of the origin of the

issue. Example of the contract terms that govern these exclusions are provided below (**Figure 11** below):

Figure 11: Example of Contractual Rebate Exclusions

The following are excluded from the Rebate guarantees:

a. compound drug Claims
b. Eligible Member submitted (DMR) Claims
c. over the counter (OTC) drug Claims
d. vaccine Claims
e. Subrogation Claims
f. biosimilar Claims
g. multi-source brand Claims not having a DAW 1 or 2
h. Claims older than one hundred eighty (180) days
i. 340B pharmacies
j. repackaged NDC Claims
k. secondary payer Claims
l. Claims from entities eligible for federal supply schedule prices
m. Claims where the Eligible Member pays more than fifty percent (50%) of the cost of the Claim outside of the deductible
n. one hundred percent (100%) Eligible Member Copayment Claims
o. Claims in which Client implements any exception logic to allow Formulary excluded or non-preferred Claims to process.
p. Non Drug Claims (excluding insulin and diabetic test strips)

In our professional consulting work reviewing plan sponsor arrangements with PBMs, we note that the example above is not unique, as these types of exclusions are relatively standard across commercial PBM contracts.[51]

While any instance of a plan sponsor being deprived of drugmaker price concessions can represent a significant financial loss, among the rebate exclusions delineated above, perhaps no exclusion can be more impactful than lost rebates on 340B claims.

There is significant documentation that 340B providers (known as Covered Entities) and their contract pharmacies are growing in their share of prescription dispensing activities. From 2023 to 2024, discounted purchases under the program grew 23%, or $15.1 billion with the Congressional Budget Office (CBO) identifying that 340B's rapid expansion is being driven by the strategic choices of hospitals and clinics, not by broader drug pricing trends or overall market dynamics.[52] At recent report from the state of Minnesota identified that 42% of 340B providers' prescription dispensing activities are related to

The 340B Drug Pricing Program

The federal 340B Drug Pricing Program allows certain hospitals and clinics to purchase drugs at statutorily discounted prices. The program is intended to help eligible providers stretch limited resources and support access to care for vulnerable populations. Eligibility is based on provider characteristics rather than patient insurance status, meaning 340B-priced drugs may be dispensed to commercially insured patients.

To prevent manufacturers from providing both an up-front discount and a retrospective rebate on the same drug, claims designated as 340B are generally excluded from manufacturer rebate eligibility (either via statute or contracts). As hospital participation and contract pharmacy arrangements have expanded, the share of commercially insured utilization subject to 340B exclusions has grown.

For plan sponsors, the relevance of 340B lies in its interaction with rebate-based guarantees where 340B exclusions reduce realized rebate amounts.

commercial claims sponsors, 24% are related to Medicare and 20% are related to Medicaid (see **Figure 12** below).

Figure 12: Minnesota Summary of 340B Activity by Payer Type Grouping, 2023[53]

Table 3: Summary by payer type grouping, 2023

Payer Type	Drug Fills (Count)	% of Drug Fills	Payments Received ($)	Net 340B Revenue ($)	% of Net 340B Revenue	Average Net 340B Revenue Per Drug Fill ($)
Commercial	1,921,639	42%	908,854,110	343,236,687	54%	179
Medicare	1,107,475	24%	351,595,699	197,064,198	31%	178
Minnesota Health Care Programs (MHCP)	932,441	20%	169,854,222	86,587,184	14%	93
Other	640,023	14%	53,538,210	3,374,283	1%	5
Total	**4,601,577**	**100%**	**1,483,842,241**	**630,262,352**	**100%**	**137**

Source: MDH, Health Economics Program analysis of 2023 data reported by Covered Entities under the Minnesota 340B Covered Entity Report.

In U.S., there are an estimated 19 prescriptions dispensed per person per year, which means the 4.6 million 340B prescriptions dispensed in Minnesota in 2023 represent approximately 4% of the estimated 110 million prescriptions dispensed in Minnesota that year.[54] In 2023, the most recent year for which data is available, purchases of 340B products by 340B Covered Entities reached $66 billion.[55] As a portion of national health expenditures, which in 2023 were $450 billion for prescription drugs and $978 billion for physician and clinical services, this 340B amount equates to up to 4.6%.[56] If we assume that 4% of brand prescriptions become ineligible for retrospective rebates due to 340B claim status, rebates for plan sponsors are reduced by 4.4% for the plan sponsor, raising net expenditures for plan sponsors by 3%. The 4% number is derived based upon overall fills; however, 340B providers may have incentives to preferentially dispense and/or seek fills of brand medications as opposed to generics as brand medications may be associated with greater 340B "savings" for Covered Entities.[57] [58] [59] If we assume maximum potential impact, that is assume that 100% of the 340B prescriptions are brand, then the impact of 4% of overall prescriptions would correlate to 40% of brand prescriptions (brand prescriptions are 10% of overall prescriptions, if 4% comes exclusively out of this 10% then the impact to brands is 4 out of 10 brand prescriptions would be 340B).[60] At this level, 17.6% of gross expenditures would be at risk and the rebate offset would decrease from 45% of gross expenditures to 27% of gross expenditures and a net price per prescription of $100.15 per prescription

(instead of $75.97). Note that the 27% rebate offset aligns with the previously identified research of plan sponsor rebate percentage.

Another risk to plan sponsors associated with relying on retrospective rebates – rather than lower up-front prices – arises from the role of PBM-affiliated group purchasing organizations (GPOs). GPOs are entities that negotiate purchase terms with manufacturers on behalf of their members. In the PBM context, these organizations may be used to aggregate purchasing or rebate arrangements.

Under federal law, specifically the Anti-Kickback Statute and its safe harbor provisions, rebates received by a Group Purchasing Organization (GPO) must be structured as legitimate price reductions for its members under the discount safe harbor.[61] In contrast, fees paid to the GPO must adhere to the GPO safe harbor requirements.[62] To comply with the GPO safe harbor, a GPO must have a written agreement with each member that specifies the GPO's compensation. This compensation is limited to either a contract administrative fee of 3% or less of the purchase price, or the agreement must clearly outline the amount (or, if not known, the maximum amount) that the GPO will receive from the manufacturer. This amount can be a fixed sum or a fixed percentage of the purchase value.

Some PBM contracts can contain rebate language that highlights the role of rebates as discounts (with or without distinguishing whether those amounts flow directly to the plan sponsor or are retained within affiliated GPO arrangements). Consider the following commercial contract example (**Figure 13**):

Figure 13: PBM Contract Terms Defining Rebates as Price Discounts Aligned with Anti-Kickback Statute[63]

Pharmaceutical Contracts and Rebates. The applicable Exhibit and corresponding Attachment(s) to the Pricing Agreement detail the Rebates to be paid or credited by Caremark to Participating Group subject to the terms of this Agreement and the Pricing Agreement. It is the intention of the parties that, for purposes of the Federal Anti-Kickback Statute, all Rebates shall constitute and shall be treated as discounts against the price of drugs within the meaning of 42 U.S.C. 1320a 7b(b)(3)(A). Rebates are subject to the following terms and conditions:

Historically, drug manufacturers negotiated **rebates** with PBMs in exchange for favorable placement of their drugs on PBM formularies. These rebates were typically paid **retrospectively** and were tied to formulary positioning and expected utilization, giving PBMs leverage over which drugs plans covered and at what tier. Manufacturers

agreed to pay large rebates to PBMs as a condition of preferred placement, creating a system where higher list prices and larger rebates became intertwined in contracting.[64]

As plan sponsors became more sophisticated in their efforts to contract with PBMs, plans sponsors pushed for more rebate transparency – up to and including passing through all manufacturer remuneration onto plan sponsors.[65] Under existing federal anti-kickback protections (the "discount safe harbor"), rebates negotiated by PBMs were treated as legitimate price concessions as long as they met specific legal requirements, insulating them from liability. A regulatory effort during the Trump administration sought to replace this with protections only for discounts that were reflected at the point of sale and for fixed manufacturer-PBM service fees.[66] Although the rule faced implementation challenges and industry opposition, it highlighted the tension between retrospective rebates and fees versus upfront pricing.

Around the same time as the Trump administration rule regarding rebate safe harbor protections, PBMs and their affiliates began to expand the use of PBM GPOs. While GPOs may be able to secure larger negotiated discounts due to scale, they also add another layer between manufacturers and plan sponsors, potentially increasing the opportunity for rebate retention and fee arbitrage (at the very least, it increases the difficulty for a plan sponsor to negotiate a PBM contract that passes through all manufacturer revenue with the PBM).

As PBMs have ceded their negotiations with drug manufacturers to GPOs, it is important to recognize that risks to plan sponsors from retrospective rebates may exist within the structure of the GPO. Plan sponsors are generally not members of PBM GPOs meaning that they are not necessarily assured that the rebates or other price concessions of the GPO are to their benefit. Examples of how these may be communicated via the contract are highlighted in **Figure 14** below:

Figure 14: Examples of Plan Sponsor Contract Language Regarding Rebate Value[67] [68]

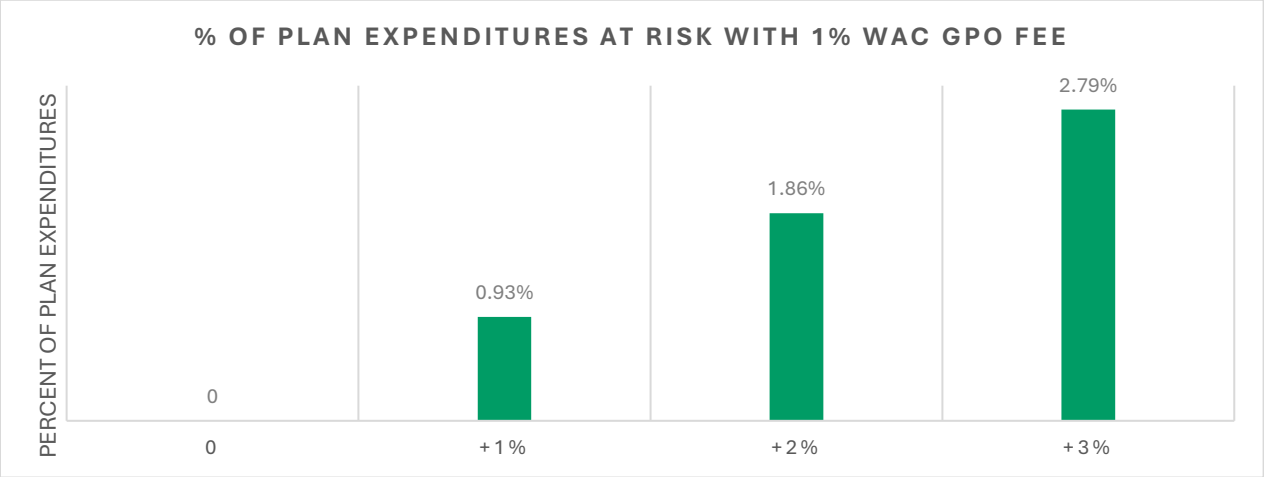
"Rebate" means any discount or rebate that OptumRx receives from Drug Manufacturers, in OptumRx's capacity as a group purchasing organization for Client, that is contingent upon and related directly to Member use of a Prescription Drug during the Term. "Rebate" does not include Manufacturer Administrative Fees, price protection amounts or any discount, price concession or other direct or indirect compensation OptumRx receives for the purchase of a Prescription Drug or for the provision of any product or service.

3. ESI retains all right, title and interest to any and all actual Rebates received from manufacturers, except that ESI shall pay Employer Group amounts equal to the Rebate amounts allocated to Employer Group, as specified above, from ESI's general assets (neither Employer Group, its Members, nor Employer Group's plan retains any beneficial or proprietary interest in ESI's general assets). Employer Group acknowledges and agrees that neither it, its Members, nor its Plan shall have a right to interest on, or the time value of, any Rebate payments received by ESI during the collection period or moneys payable under this Section. **No Rebates shall be paid (or applied as an additional AWP discount if Option 3, Applied Rebates, is chosen) until**

Furthermore, if manufacturers are paying fees to the GPO, those fees may not be passed onto plan sponsors given the structure of GPO contract fees and commercial plan sponsor contracts. It seems reasonable, given the regulatory structure of GPOs, to assume that at least 3% of purchase price may remain at the GPO level as opposed to being provided to plan sponsors. As way of validation, the OIG Audit of Compass Rose found Ascent (a PBM GPO) was responsible for withholding a portion of the plan's rebates. The listed amount, $10.6 million was approximately 4% of the value of pharmacy claims paid during the timeframe ($283.9 million).[69] Similarly, an OIG audit of the American Postal Service Workers Union found that Ascent withheld $15.8 million in plan rebates which corresponded to approximately 5% of the value of pharmacy claims paid during the time frame ($348.9 million).[70]

We can model the impact of potential GPO fee value to plan sponsors given that the AWP value of brands has a fixed relationship to the Wholesale Acquisition Cost (WAC); namely WAC x 1.2 = AWP for brand medications. The following figure (**Figure 15**) displays the result of 1% to 3% of WAC fee being retained by the GPO.

Figure 15: % Plan Expenditures at Risk Due to GPO Fees



To be clear, the nature of the GPO may mean that it is inappropriate to categorize these GPO fees as a wrongful loss to plan sponsors. This is because the safe harbor focuses on the relationship between the GPO, its members, and suppliers. Sharing the value of these fees may ultimately come down to contract language (which may require plan sponsors to recognize value from drug manufacturers outside of "rebates", which the definition of what is and is not a rebate can come down to contract definitions as well). To be clear, contracts between plan sponsors and PBMs can contain terms that

explicitly acknowledge that these fees exist and are not for plan sponsors. Consider the following example (**Figure 16**):

Figure 16: Disclosure of Fees to Plan Sponsors[71]

Disclosure of Manufacturer Fees. In accordance with Section 8.1 of this Agreement, Caremark or its affiliates may hold contracts with pharmaceutical companies relating to products covered under this Agreement. In connection with such contracts, Caremark or its affiliates may have a financial relationship with such pharmaceutical companies and may receive and retain fees or other compensation from pharmaceutical companies for services rendered and property provided to pharmaceutical companies, including, without limitation, administrative fees that range between [redacted] of the Wholesale Acquisition Cost ("WAC") of the products dispensed across Caremark's book of business. In addition, Caremark or its affiliates may receive concurrent or retrospective discounts from pharmaceutical companies which are attributable to or based on products purchased by Caremark affiliated dispensing pharmacies. The

While the contract terms may make plain that these monies exist and are not intended for plan sponsors, the fact that PBMs had rebate relationships before establishing their GPOs, it seems reasonable to question if the rebate value would otherwise be increased but for the presence of GPOs and associated GPO fees.

Additional Considerations

The model presented in this paper focuses on the direct pricing impact of retrospective discounts and rebates but does not capture all potential financial effects associated with vertically integrated PBM business models.

First, manufacturer payments to PBM-affiliated specialty and mail-order pharmacies may function as a form of indirect rebate retention. As PBMs increasingly own or control dispensing entities, manufacturer concessions tied to distribution, data, or performance may accrue at the pharmacy level rather than being reported as rebates subject to plan sponsor pass-through guarantees. This phenomenon can reduce the transparency of net drug pricing even when plan sponsor contracts nominally require full rebate pass-through (to the extent that plan sponsors believe rebates represent all forms of drug manufacturer remuneration).

Second, retrospective pricing mechanisms impose a cash-flow cost on plan sponsors that is not reflected or described within our model. Under retrospective AWP-based discount guarantees or rebate-based pricing concessions, plan sponsors can pay higher prices at the point of sale and receive the full value of price concessions months later (when an assessment of the pricing guarantee is actually made). During this interval, plan sponsors effectively finance the difference between gross and net drug costs. Even when guarantees are ultimately met, this timing gap represents a real

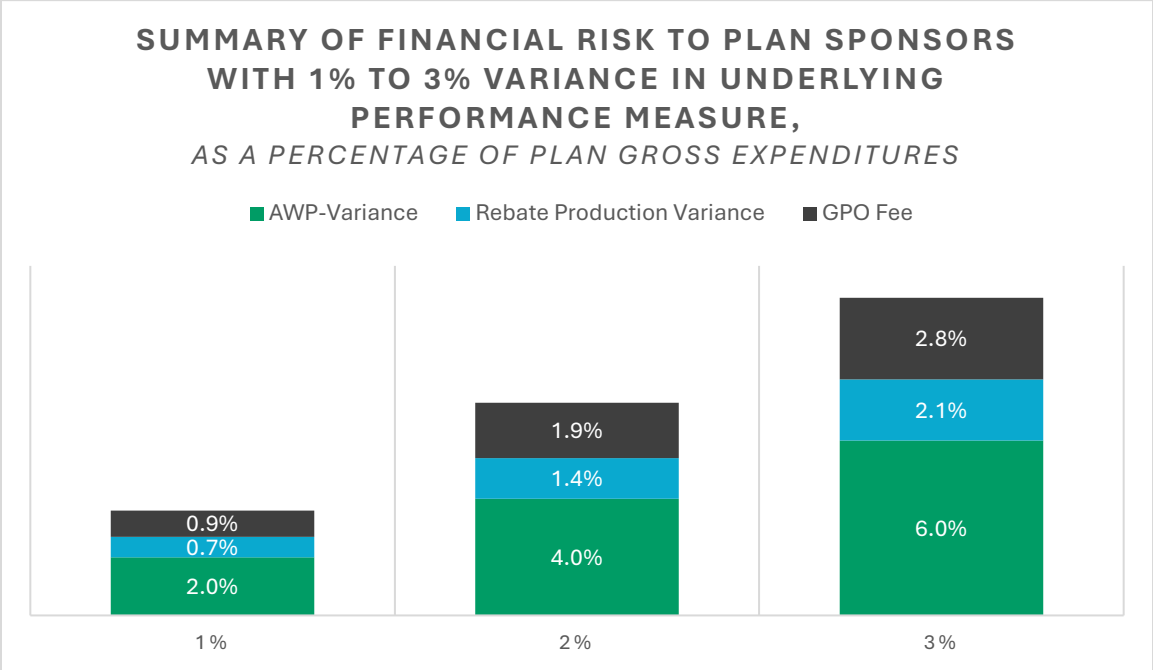
economic cost in the form of foregone interest, constrained liquidity, and increased budget volatility – particularly for self-funded employers and public plans operating under fixed appropriations.

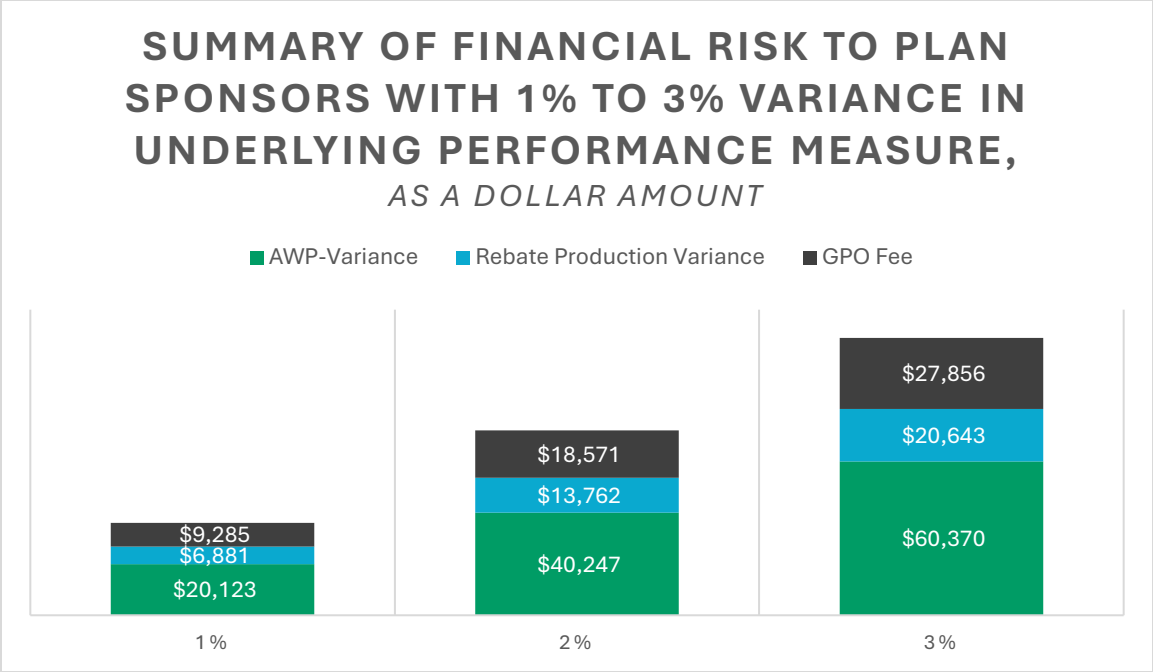
Taken together, these considerations reinforce a central conclusion of this analysis: the financial risks associated with retrospective price concessions extend beyond any underperformance (should it occur). Intermediary retention of manufacturer value, vertical integration, and delayed cash flows all contribute to a system in which plan sponsors bear timing and informational risk that is difficult to observe, verify, or price ex ante.

Summary

This analysis quantifies the degree of financial exposure plan sponsors assume under PBM contract structures that are governed by complex contractual arrangements and reconciled through retrospective pricing guarantees. Using a model based on $1 million in annual drug expenditures for a mid-sized employer, we estimated the proportional impact of three common retrospective mechanisms: (1) AWP variance, (2) brand rebate underperformance, and (3) GPO fee retention. As shown in **Figure 17** (below and on the next page), a 1% change in AWP realization or rebate capture equates to approximately 2-3% of total plan expenditures respectively, while GPO fees retained at the 1–3% level of wholesale acquisition cost represent an additional 0.9-2.8% of potential exposure. Collectively, these mechanisms can place 3–5% of total prescription drug spending at risk due solely to the timing and structure of retrospective reconciliation and the difficulty in verifying contract payment performance independent of PBMs.

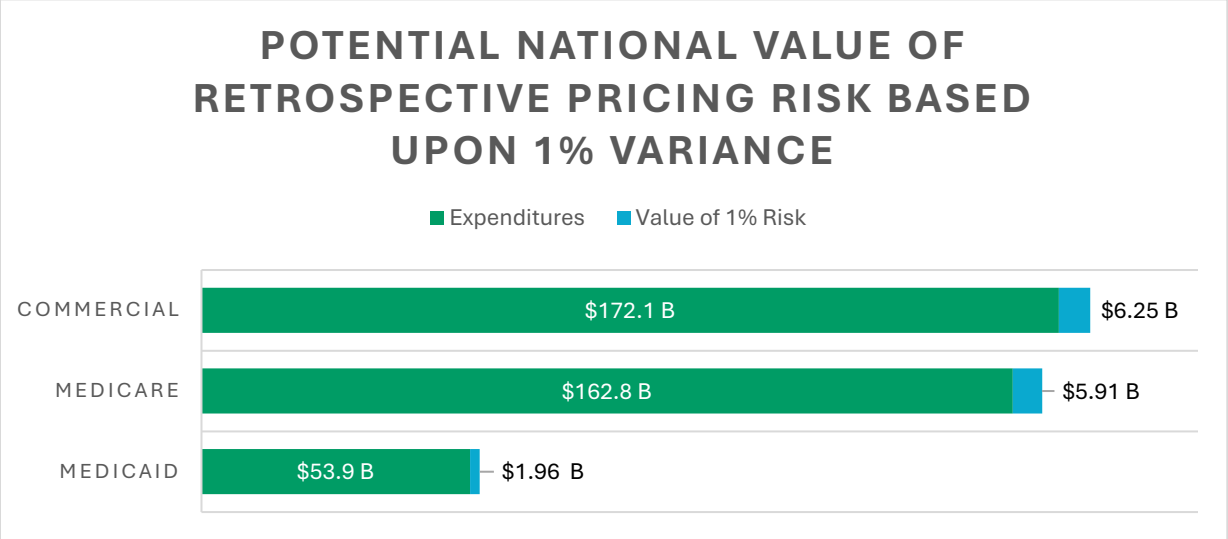
Figure 17: Summary of Retrospective Risk





At a national scale, this exposure is material. In 2024, the last year for which data is available, the National Health Expenditure (NHE) data identifies $467 billion in annual prescription drug expenditures with $172.1 billion recognized in private health insurers, $162.8 billion in Medicare, $53.9 billion in Medicaid and the rest in other health insurance programs.[72] The NHE data includes a reduction based upon rebates but it still represents a means to approximate the total impact of these retrospective price concessions. A 1% variability in AWP-based discount and retrospective rebate, as well as a GPO fee withheld of 1% of WAC, represents up to $14.1 billion in national prescription drug expenditures that may be at risk (**Figure 18**):

Figure 18: Potential National Value Estimate of Retrospective Risk



These findings closely align with recent OIG audits of PBM-managed plans such as the American Postal Workers Union and Compass Rose Health Plan, where unremitted rebates and unpassed discounts represented approximately 4% of total PBM payments. This in turn means that if we were to apply the 1% variability in our model up to 4%, the total implication is $27.4 billion to commercial plan sponsors, $22.52 billion in Medicare and $7.6 billion to Medicaid programs annually (assuming equal representation of effects across all payer types).

Taken together, the model and real-world evidence indicate that retrospective price concessions — whether in the form of benchmark discounts, rebates, or administrative offsets — systematically transfer financial and informational risk from PBMs to plan sponsors. The deferred recognition of value inherent in these arrangements limits transparency, delays reconciliation, and increases the likelihood of underrealized cost savings.

The implications are clear: if value were recognized at the point of sale or through contemporaneous acquisition-based pricing – essentially building drug costs from the ground up rather than deriving it retrospectively as concessions off inflated list prices – plan sponsors would face materially less exposure to timing variance and definitional ambiguity. In practical terms, the shift from retrospective to transparent, acquisition-based reimbursement structures represents the most direct path toward improving cost predictability and ensuring that negotiated value is fully realized.

Discussion

The findings of this analysis demonstrate that the retrospective and complex design of standard PBM financial guarantees systematically benefits the intermediary rather than the plan sponsor. Retrospective price concessions — whether in the form of spread pricing, delayed rebate reconciliation, rebate exclusions like 340B claims, or administrative fees retained through PBM-affiliated group purchasing organizations (GPOs) — create conditions where the PBM controls both the flow of funds and the verification of contractual performance – often requiring plans to further retain accountability agents like consultants, data analysts, accountants, and/or attorneys in order to attempt to minimize loss and obtain the full value of contractual guarantees.

By structuring value recognition after the close of the plan year, PBMs gain a timing advantage that allows them to manage financial outcomes in a manner favorable to their own aggregate performance while limiting plan sponsors' ability to independently validate results. This timing asymmetry effectively transfers financial and informational risk to plan sponsors, who must rely on PBM-reported data to determine whether contractual guarantees have been satisfied. In addition, the deferral of rebates and other price concessions imposes a cash-flow cost on plan sponsors, who must finance higher point-of-sale drug expenditures months in advance of reconciliation, even when guarantees are ultimately met.

While PBMs characterize these retrospective mechanisms as "risk mitigation" or "predictability" features, the evidence suggests they function more as instruments of risk transfer. The PBM's ability to define terms such as "eligible claim," "brand," and "specialty," and to exclude categories such as 340B prescriptions, compound drugs, biosimilars, or claims processed through client-directed networks, creates latitude to manage reported outcomes. Similarly, the use of PBM-controlled GPOs allows a portion of a drug's purchase price to be retained as administrative fees, reducing the effective rebate value returned to plan sponsors. Collectively, these contractual and structural features contribute to the persistence of unrecognized financial leakage in the form of spread, delayed reconciliation, and incomplete pass-through of the value of manufacturer price concessions.

Plan sponsors seeking to mitigate these risks may consider several strategies that align incentives more directly with transparent and contemporaneous pricing. Transitioning from AWP-based guarantees to acquisition cost-based reimbursement (such as NADAC or AAC) can reduce exposure to benchmark variance by tying plan sponsor payments closer to actual provider acquisition costs. Expanding audit rights to include PBM affiliates, rebate aggregators, and GPO entities ensures greater visibility into the

disposition of funds derived from manufacturer price concessions. Additionally, contracting for shorter reconciliation intervals — quarterly rather than annual — can limit the magnitude of timing-related distortions and reduce plan sponsor cash flow strain. Finally, incorporating point-of-sale price reductions or real-time rebate pass-through provisions can materially decrease the dependence on retrospective settlement and improve the accuracy of cost reporting.

In sum, the retrospective and complex nature of PBM guarantees and rebate reconciliation transforms what appears to be a predictable cost-control mechanism into a deferred and largely unverifiable financial process. The design advantages inherent to these arrangements consistently favor the PBM through timing, definition, and data control. Plan sponsors, meanwhile, absorb the volatility associated with delayed recognition of discounts and rebates. Addressing these asymmetries through transparent, acquisition-based pricing and contemporaneous reporting represents a practical path toward reducing systemic risk and ensuring that negotiated value is fully realized by the payer.

Appendix

Sourced Contracts

Figure 19: City of Everett, Washington, August 20, 2024[73]

Pharmacy Pricing and Fee Components	
Retail Non- Specialty Pharmacy – National Network	**PPO or HDHP**
National Network Brand Discount	AWP – 19.00%
Retail 90 Day Network Brand Discount	AWP –19.25%
Generic - Flat Discount	AWP – 86.00%
Dispensing Fee National Network-Brand and Generic per Claim	$0.40
Dispensing Fee Retail 90 Day-Brand and Generic per Claim	No Dispensing Fee
Mail Order/Maintenance Pharmacy	**PPO or HDHP**
Brand- Flat Discount	AWP – 25.00%
Generic - Flat Discount	AWP – 88.50%
Dispensing Fee Brand and Generic per Claim	No Fee
Specialty at Retail	**PPO or HDHP**
Brands	AWP – 17.5% + $0.40 Dispensing Fee
Generic	AWP –40.00% + $0.40 Dispensing Fee
Specialty at Retail Limited Distribution Drugs (With & Without Access)	AWP – 10.00% + $.0.40 Dispensing Fee
Client-Owned Pharmacies	**PPO or HDHP**
Brand	Pass Through Rates and Fees
Generic	Pass Through Rates and Fees
Dispensing Fee	Pass Through Rates and Fees
Mail/Maintenance Choice	**PPO or HDHP**
Brand	AWP- 19.50%
Flat Generic Discount	AWP- 91.75%
Dispensing Fee (Brand & Generic)	$0.00 per claim
Administrative Fees	**PPO or HDHP**
Client Owned Pharmacy Administration Fee	$1.50 per claim
Electronic Claim Administration Fee	$0.00 per claim
Manual Claim Administration Fee	$1.50 per claim

Pricing for Specialty drugs listed on CVS's Specialty Fee Schedule	
	Discount Rate
Exclusive	AWP - 21%
Open	AWP – 17%
New to Market Brand & Generic Drugs	AWP -15%
New to Market limited and exclusive distribution drugs	AWP – 10%
Dispensing fee	$0.00

Rebates as follows are for clients on our contract and are effective January 2025 – December 2025.*

Rebates	
Standard Control Choice Formulary	**2 Tier Qualifying, 3 Tier Non-Qualifying, & 3 Tier Qualifying (per brand claim)**
Retail	$365.00
Specialty at Retail	$365.00
Mail/Maintenance Choice	$789.00
Specialty at CVS Health Specialty	$3690.00
Advanced Control Specialty at CVS Health Specialty	$3763.00
Advanced Control Choice Formulary	**2 Tier Qualifying, 3 Tier Non-Qualifying, & 3 Tier Qualifying (per brand claim)**
Retail	$372.00
Specialty at Retail	$372.00
Mail/Maintenance Choice	$804.00
Advanced Specialty at CVS Health Specialty	$3763.00
Basic Control Formulary	**2 Tier Qualifying, 3 Tier Non-Qualifying, & 3 Tier Qualifying (per brand claim)**
Retail	$310.00
Specialty at Retail	$310.00
Mail/Maintenance Choice	$670.00
Specialty at CVS Health Specialty	$3136.00
Advanced Control Specialty at CVS Health Specialty	$3763.00
Standard Opt-Out Formulary	**2 Tier Qualifying, 3 Tier Non-Qualifying, & 3 Tier Qualifying (per brand claim)**
Retail	$292.00
Specialty at Retail	$292.00
Mail/Maintenance Choice	$631.00
Specialty at CVS Health Specialty	$2952.00
Advanced Control Specialty at CVS Health Specialty	$3763.00

*Please Note:

- Other fees, terms and conditions apply – please see the CVS/Caremark Add'l Fees, Pricing, and Terms & Condition section.
- Please see Participating Group Agreement and supplement documents for full Terms and Conditions.
- Standard implementation requires a minimum of 100 days prior written notice. PrudentRx requires a minimum of 130 days pr written notice.

Figure 20: Hillsborough County Aviation Authority, Florida, August 2022[74]

Pharmacy Discounts & Fees

Pricing Arrangement	Traditional
Network	Aetna National Network
Employees	600

RETAIL			
	08/01/2022	**08/01/2023**	**08/01/2024**
Brand Discount	AWP - 19.50%	AWP - 19.60%	AWP - 19.70%
Generic Discount	AWP - 84.00%	AWP - 84.20%	AWP - 84.40%
Dispensing Fee	$0.70 per script	$0.70 per script	$0.70 per script

MAIL ORDER PHARMACY			
Mail Benefit Type	Mail Order Pharmacy		
	08/01/2022	**08/01/2023**	**08/01/2024**
Brand Discount	AWP - 25.00%	AWP - 25.10%	AWP - 25.20%
Generic Discount	AWP - 88.00%	AWP - 88.20%	AWP - 88.40%
Dispensing Fee	$0.00 per script	$0.00 per script	$0.00 per script

SPECIALTY PHARMACY			
Network	Specialty Network		
Product List	Aetna Specialty Product List		
	08/01/2022	**08/01/2023**	**08/01/2024**
Discount	AWP - 20.00%	AWP - 20.10%	AWP - 20.20%

Rebates

REBATES			
Formulary	Standard Opt Out Formulary		
Plan Design	3 Tier Qualifying *(In Force Today)		
Rebate Terms	Customer will receive the following guaranteed rebates:		
	08/01/2022	**08/01/2023**	**08/01/2024**
Retail	$195.51 Per Brand Script	$214.67 Per Brand Script	$234.95 Per Brand Script
Mail Order	$521.91 Per Brand Script	$578.16 Per Brand Script	$632.78 Per Brand Script
Specialty	$1,537.77 Per Brand Script	$1,691.54 Per Brand Script	$1,851.37 Per Brand Script

REBATES			
Formulary	Standard Opt Out Formulary		
Plan Design	3 Tier Non-Qualifying		
Rebate Terms	Customer will receive the following guaranteed rebates:		
	08/01/2022	**08/01/2023**	**08/01/2024**
Retail	$166.18 Per Brand Script	$182.47 Per Brand Script	$199.71 Per Brand Script
Mail Order	$443.62 Per Brand Script	$491.43 Per Brand Script	$537.87 Per Brand Script
Specialty	$1,537.77 Per Brand Script	$1,691.54 Per Brand Script	$1,851.37 Per Brand Script

Figure 21: City of Orange Beach, January 2023[75]

PARTICIPATING PHARMACY	
BRAND	
• **PPO**	AWP – 20%
GENERIC	
• **PPO**	AWP – 85.75%
RETAIL MAINTENANCE NETWORK (84-90 DAYS' SUPPLY)	
BRAND	
• **PPO**	AWP – 23.5%
GENERIC	
• **PPO**	AWP – 85.75%
MAIL SERVICE PHARMACY	
BRAND	
• **PPO**	AWP – 25%
GENERIC	
• **PPO**	AWP – 88.75%

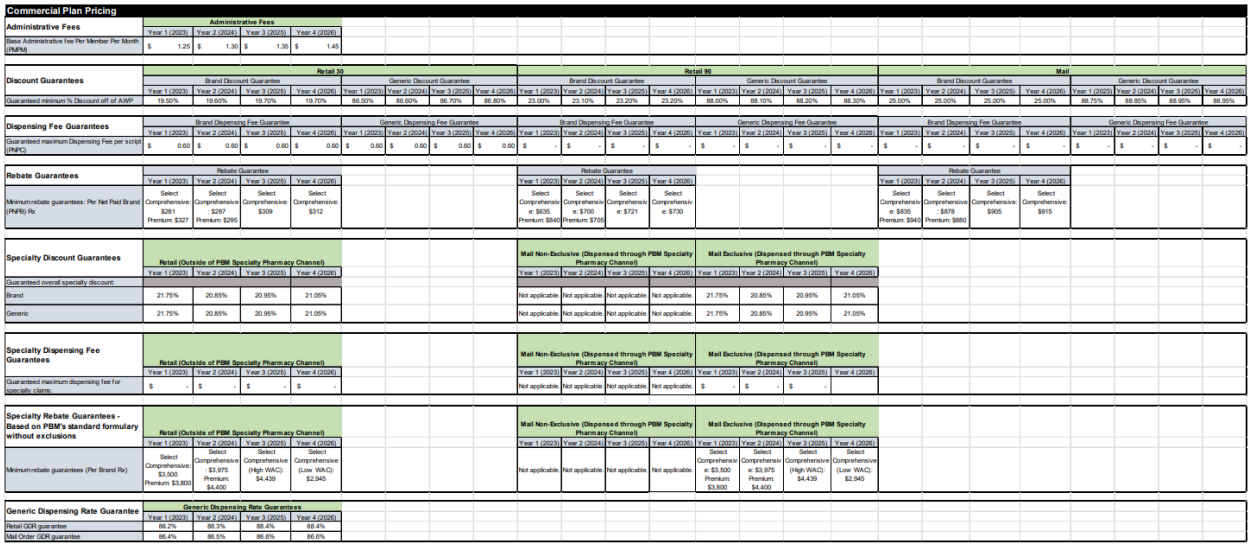
REBATES PER BRAND DRUG	FORMULARY: ESI NATIONAL PREFERRED
PARTICIPATING PHARMACIES (1-83 DAYS' SUPPLY)	
• **PPO**	$265.00 per Brand Drug claim
RETAIL MAINTENANCE NETWORK (84-90 DAYS' SUPPLY	
• **PPO**	$700.00 per Brand Drug claim
MAIL SERVICE PHARMACY	
• **PPO**	$700.00 per Brand Drug claim
SPECIALTY PRODUCTS	
• **PPO**	$2,600.00 per Brand Drug claim

Figure 22: Teton County, April 2024

PARTICIPATING PHARMACY	
BRAND	
▪ **PPO/HDHP**	AWP – 20.1%
GENERIC	
▪ **PPO/HDHP**	AWP – 86.3%
RETAIL MAINTENANCE NETWORK (84-90 DAYS' SUPPLY)	
BRAND	
▪ **PPO/HDHP**	AWP – 23.55%
GENERIC	
▪ **PPO/HDHP**	AWP – 86.3%
MAIL SERVICE PHARMACY	
BRAND	
▪ **PPO/HDHP**	AWP – 25%
GENERIC	
▪ **PPO/HDHP**	AWP – 88.75%

REBATES PER BRAND DRUG	FORMULARY: ESI NATIONAL PREFERRED
PARTICIPATING PHARMACIES (1-83 DAYS' SUPPLY)	
▪ **PPO/HDHP**	$282.00 per Brand Drug claim
RETAIL MAINTENANCE NETWORK (84-90 DAYS' SUPPLY	
▪ **PPO/HDHP**	$755.00 per Brand Drug claim
MAIL SERVICE PHARMACY	
▪ **PPO/HDHP**	$755.00 per Brand Drug claim
SPECIALTY PRODUCTS	
▪ **PPO/HDHP**	$3,405.00 per Brand Drug claim

Figure 23: State of Michigan, January 2025[76]



Commercial Plan Pricing

Administrative Fees

Administrative Fees	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Base Administrative fee Per Member Per Month (PMPM)	$ 1.25	$ 1.30	$ 1.35	$ 1.45

Discount Guarantees

	Retail 30								Retail 90								Mail							
	Brand Discount Guarantee				Generic Discount Guarantee				Brand Discount Guarantee				Generic Discount Guarantee				Brand Discount Guarantee				Generic Discount Guarantee			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Guaranteed minimum % Discount off of AWP	19.50%	19.60%	19.70%	19.70%	86.50%	86.60%	86.70%	86.80%	23.00%	23.10%	23.20%	23.20%	88.00%	88.10%	88.20%	88.30%	25.00%	25.00%	25.00%	25.00%	86.75%	86.85%	86.95%	86.95%

Dispensing Fee Guarantees

	Brand Dispensing Fee Guarantee				Generic Dispensing Fee Guarantee				Brand Dispensing Fee Guarantee				Generic Dispensing Fee Guarantee				Brand Dispensing Fee Guarantee				Generic Dispensing Fee Guarantee			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Guaranteed maximum Dispensing Fee per script (PNPC)	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Rebate Guarantees

	Rebate Guarantee				Rebate Guarantee					Rebate Guarantee			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)		Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Minimum rebate guarantees: Per Net Paid Brand (PNPB) Rx	Select Comprehensive: $281 Premium: $327	Select Comprehensive: $287 - Premium: $295	Select Comprehensive: $309	Select Comprehensive: $312	Select Comprehensive: $635 - Premium: $640	Select Comprehensive: $700 - Premium: $706	Select Comprehensive: $721	Select Comprehensive: $730		Select Comprehensive: $835 - Premium: $940	Select Comprehensive: $878 - Premium: $880	Select Comprehensive: $905	Select Comprehensive: $915

Specialty Discount Guarantees

	Retail (Outside of PBM Specialty Pharmacy Channel)				Mail Non-Exclusive (Dispensed through PBM Specialty Pharmacy Channel)				Mail Exclusive (Dispensed through PBM Specialty Pharmacy Channel)			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Guaranteed overall specialty discount:												
Brand	21.75%	20.85%	20.95%	21.05%	Not applicable.	Not applicable.	Not applicable.	Not applicable.	21.75%	20.85%	20.95%	21.05%
Generic	21.75%	20.85%	20.95%	21.05%	Not applicable.	Not applicable.	Not applicable.	Not applicable.	21.75%	20.85%	20.95%	21.05%

Specialty Dispensing Fee Guarantees

	Retail (Outside of PBM Specialty Pharmacy Channel)				Mail Non-Exclusive (Dispensed through PBM Specialty Pharmacy Channel)				Mail Exclusive (Dispensed through PBM Specialty Pharmacy Channel)			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Guaranteed maximum dispensing fee for specialty claims:	$ -	$ -	$ -	$ -	Not applicable.	Not applicable.	Not applicable.	Not applicable.	$ -	$ -	$ -	

Specialty Rebate Guarantees - Based on PBM's standard formulary without exclusions

	Retail (Outside of PBM Specialty Pharmacy Channel)				Mail Non-Exclusive (Dispensed through PBM Specialty Pharmacy Channel)				Mail Exclusive (Dispensed through PBM Specialty Pharmacy Channel)			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Minimum rebate guarantees (Per Brand Rx)	Select Comprehensive: $3,500 Premium: $3,800	Select Comprehensive: $3,975 Premium: $4,400	Select Comprehensive (High WAC): $4,439	Select Comprehensive (Low WAC): $2,945	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Select Comprehensive: $3,500 Premium: $3,800	Select Comprehensive: $3,975 Premium: $4,400	Select Comprehensive (High WAC): $4,439	Select Comprehensive (Low WAC): $2,945

Generic Dispensing Rate Guarantee

	Generic Dispensing Rate Guarantees			
	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Retail GDR guarantee	88.2%	88.3%	88.4%	88.4%
Mail Order GDR guarantee	86.4%	86.5%	86.6%	86.6%

Figure 24: City of Mesa, Arizona, 2022[77]

Pharmacy Network Guarantees.

COMMERCIAL AND WRAP PROGRAMS

Retail (includes specialty at retail):

January 1, 2022 – December 31, 2022
Brand Effective Rate: AWP – 19.25% + $0.45 Dispensing Fee
Generic Effective Rate: AWP – 84.75% + $0.45 Dispensing Fee

January 1, 2023 – December 31, 2023
Brand Effective Rate: AWP – 19.25% + $0.45 Dispensing Fee
Generic Effective Rate: AWP – 85.00% + $0.45 Dispensing Fee

January 1, 2024 – December 31, 2024
Brand Effective Rate: AWP – 19.25% + $0.45 Dispensing Fee
Generic Effective Rate: AWP – 85.25% + $0.45 Dispensing Fee

January 1, 2025 – December 31, 2025
Brand Effective Rate: AWP – 19.25% + $0.45 Dispensing Fee
Generic Effective Rate: AWP – 85.50% + $0.45 Dispensing Fee

January 1, 2026 – December 31, 2026
Brand Effective Rate: AWP – 19.25% + $0.45 Dispensing Fee
Generic Effective Rate: AWP – 85.75% + $0.45 Dispensing Fee

Mail Order (MID):
Mail order will be arranged and/or provided through the MedImpact Direct Mail Order Pharmacy Program. Mail pricing is based on a minimum average days' supply of eighty-four (84) or greater.

January 1, 2022 – December 31, 2022
Brand Effective Rate: AWP – 25.00% + $0.00 Dispensing Fee
Generic Effective Rate: AWP – 88.00% + $0.00 Dispensing Fee

January 1, 2023 – December 31, 2023
Brand Effective Rate: AWP – 25.00% + $0.00 Dispensing Fee
Generic Effective Rate: AWP – 88.25% + $0.00 Dispensing Fee

January 1, 2024 – December 31, 2024
Brand Effective Rate: AWP – 25.00% + $0.00 Dispensing Fee
Generic Effective Rate: AWP – 88.50% + $0.00 Dispensing Fee

January 1, 2025 – December 31, 2025
Brand Effective Rate: AWP – 25.00% + $0.00 Dispensing Fee
Generic Effective Rate: AWP – 88.75% + $0.00 Dispensing Fee

January 1, 2026 – December 31, 2026
Brand Effective Rate: AWP – 25.00% + $0.00 Dispensing Fee
Generic Effective Rate: AWP – 89.00% + $0.00 Dispensing Fee

Specialty Pharmacy (MID)*:
Specialty will be arranged and/or provided through the MedImpact Direct Specialty Pharmacy Program. MedImpact will maintain a price list of specialty rates for Specialty Pharmacies. MedImpact will update such price lists on at least a monthly basis, including the addition of any newly introduced specialty products to the market or any national drug code ("NDC") additions for existing specialty products. Such price list shall be made available to Client upon request.

January 1, 2022 – December 31, 2026
Overall Effective Rate: AWP – 21.50% + $0.00 Dispensing Fee

*Specialty Pharmacy guarantees are not applicable if Client utilizes a specialty ancillary funding company.

COMMERCIAL

MEDIMPACT STANDARD PORTFOLIO FORMULARY WITH MEDIUM EDIT PACKAGE REBATE GUARANTEES

Year	Retail 30	Retail 90	Mail Order	Specialty*
2022	$174.68	$513.75	$524.03	$1,541.25
2023	$185.16	$544.58	$555.47	$1,633.73
2024	$196.26	$577.25	$588.79	$1,731.75
2025	$208.04	$611.88	$624.12	$1,835.65
2026	$220.52	$648.60	$661.57	$1,945.79

* Specialty Rebate guarantees are not applicable if Client utilizes a specialty ancillary funding company, however, in such case, one hundred percent (100%) of Specialty Rebates will be passed through to Client.

Figure 25: County of Lehigh, 2024[78]

Guarantee Basis	Brand	Generic	Brand	Generic	Brand	Generic
Retail 30 Discounts	20.02%	92.40%	20.12%	93.07%	20.22%	93.68%
Retail 30 Dispensing Fees	$10.68	$10.68	$10.68	$10.68	$10.68	$10.68
Retail 90 Discounts	20.26%	94.41%	20.36%	94.50%	20.46%	94.50%
Retail 90 Dispensing Fees	$10.68	$10.68	$10.68	$10.68	$10.68	$10.68
Mail Discounts	26.21%	96.90%	26.30%	97.17%	26.40%	97.42%
Mail Dispensing Fees	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Specialty Open Discounts	N/A	N/A	N/A	N/A	N/A	N/A
Specialty Open Dispensing Fees	N/A	N/A	N/A	N/A	N/A	N/A
Specialty Exclusive Discounts	N/A	N/A	N/A	N/A	N/A	N/A
Specialty Exclusive Dispensing Fees	N/A	N/A	N/A	N/A	N/A	N/A

Exclusions	*Per Brand Rx*	*Per Brand Rx*	*Per Brand Rx*
Retail 30	$330.00	$355.00	$380.00
Retail 90	$900.00	$950.00	$1,000.00
Mail	$850.00	$900.00	$950.00
Specialty Retail (Open)	N/A	N/A	N/A
Specialty Mail (Open)	N/A	N/A	N/A
Specialty Retail (Exclusive)	N/A	N/A	N/A
Specialty Mail (Exclusive)	N/A	N/A	N/A

Figure 26: Summary of Contract Observations

		City of Everett	Hillsborough	City of Orange	Teton County	City of Mesa	County of Lehigh	State of Michigan
Brand	Retail	-19.0%	-19.7%	-20.0%	-20.1%	-19.3%	-20.1%	-19.7%
	Retail 90	-19.3%		-23.5%	-23.6%		-20.4%	-23.2%
	Mail	-25.0%	-25.2%	-25.0%	-25.0%	-25.0%	-26.3%	-25.0%
Generic	Retail	-86.0%	-84.4%	-85.8%	-86.3%	-85.5%	-93.1%	-86.7%
	Retail 90	-88.5%		-85.8%	-86.3%		-94.5%	-88.2%
	Mail	-91.8%	-84.4%	-88.8%	-88.8%	-88.8%	-97.2%	-89.0%
Specialty	Retail	-17.5%	-20.2%			-21.5%		-21.0%
	Mail	-21.0%						-21.0%
	LDD	-10.0%						

Rebates	Retail	$365	$372	$310	$292	$235	$200	$265	$282	$208	$355	$309
	Retail 90	$789	$804	$670	$631			$700	$755	$612	$950	$721
	Mail	$789	$804	$670	$631	$633	$538	$700	$755	$624	$900	$905

Specialty	$3,690	$3,763	$3,136	$2,952	$1,851	$1,851	$2,600	$3,405	$1,836	$4,439

Validation of Model

To assess the reasonableness of the assumptions underlying **Figure 4**, we conducted a series of external and internal validation checks. Collectively, these analyses indicate that the model produces utilization patterns, cost structures, and pricing dynamics that align closely with national benchmarks and published industry data.

Alignment of Expenditure Distribution with National Spending Patterns

The model allocates 84% of total drug expenditures to brand and specialty products, despite these categories representing only 9% of prescriptions. This distribution mirrors national experience. Analyses by the IQVIA Institute for Human Data Science show that brand and specialty therapies account for more than 80% of U.S. prescription-drug spending while representing a small fraction of overall prescription volume.[79] CMS National Health Expenditure (NHE) data similarly demonstrate rising spending, and IQVIA demonstrates that this spending is generally concentrated among high-cost therapeutic classes.[80] [81] The model's expenditure mix is therefore consistent with established U.S. drug-spending patterns.

Specialty Utilization Consistent with Commercial Population Benchmarks

The model's assumption that specialty drugs comprise 1.6% of prescriptions is consistent with published commercial benchmarks. Reports from several major PBMs — including Express Scripts, CVS Caremark, and Prime Therapeutics — typically place specialty utilization rates between 1% and 2% of all prescriptions in commercially insured populations.[82] [83] [84]

AWP-Based Discounts Reflect Industry-Standard Pricing

Category-specific AWP discounts used in the model fall within typical commercial contracting ranges. Industry reporting indicates brand drug discounts commonly fall between 15% and 25% off AWP, specialty product discounts between 15% and 25%, and generic drugs frequently are reimbursed at 75% to 90% below AWP.[85] [86] The model's assumed discounts (brand 19%–25%, specialty 20.6%, generics 86%–89%) therefore reflect market-standard pricing relationships. The resulting blended AWP-based discount of 50.3% is mathematically coherent given the model's combination of high generic volume and high brand/specialty expenditure weight.

Rebate Performance Compatible with Published Market Ranges

The model produces total rebates of approximately $446,000 on $1 million in gross drug expenditures (44.6% rebate offset). Published commercial analyses show that rebate yields commonly range from 30% to 50% of brand-drug spending, with higher blended rebate levels observed in plan populations with significant specialty utilization.[87] [88] [89] The model's aggregate rebate level is therefore consistent with expected commercial rebate performance.

Gross and Net Cost per Prescription Align with National Estimates

The model yields a gross cost per prescription of $137.28 and a net cost per prescription of $75.97. These values align closely with national data. CMS reports $449.7 billion in net prescription-drug spending in 2023.[90] IQVIA estimates total U.S. prescription volume at approximately 6.6 to 6.7 billion prescriptions annually.[91] This implies a national average net cost per prescription of approximately $68.14. The model's estimate is therefore within 11% of a national benchmark — an expected level of variance given differences in payer mix, specialty burden, and formulary design.

PMPM Consistency with Commercial Market Expectations

The model produces a pharmacy PMPM of $116.81 for 714 covered lives. Commercial pharmacy PMPM values typically range between $90 and $140 in populations with moderate to high specialty exposure.[92] [93] [94] [95] [96] [97] The model's PMPM sits squarely within this expected band. Furthermore, our estimated net PMPM is $64.58. This is in line with the net PMPM of SmithRx at $73 and Navitus at $50.61.[98]

Comparison to Public Programs & Audits

The self-managed, self-funded Prescription Drug Plan operated by the University of Michigan published their 2024 prescription drug plan cost and utilization information. As can be seen below, the program which served approximately 123K individuals had total drug expenses in excess of $269 million with a PMPM cost of $142.08 per member after the reduction from rebates (see below):[99]

2024 Prescription Drug Plan Costs and Utilization

Table 1: Cost and Utilization Metrics, 2024.

	2024	2023	Change
Average Monthly Enrollment	123,185	120,820	+1.96%
Total Claim Count	1,301,943	1,232,341	+5.65%
Traditional Claim Count	*1,269,481*	*1,202,975*	*+5.53%*
Specialty Claim Count	*32,462*	*29,366*	*+10.54%*
Plan Expenses	$210,021,497	$204,647,603	+2.63%
Claim Costs	*$269,238,695*	*$246,619,543*	*+9.17%*
Operational Costs, Rebates, and other Discounts	*-$59,217,199*	*-$41,971,940*	*-41.09%*
PMPM Costs	$142.08	$141.15	+0.66%

PMPM: Per-Member-Per-Month.

The health plan recognized price reductions of approximately 21% from rebates. The reduction in net prescription drug spending increased significantly from 2023-to-2024. In 2024, rebates offset just 17% of plan prescription drug costs. Interesting, relying upon the estimated rebates from our model, specialty rebates would have been $55 million (based upon 32K specialty claims) which suggests rebate production was less than anticipated. The audits of Compass Rose and United States Postal Service Workers Union found rebates of 31% and 32% respectively.

Limitations

While the findings presented in this paper provide valuable insights into the financial risks associated with retrospective PBM pricing and rebate guarantees, several limitations should be noted regarding the scope and precision of the analysis.

First, the model relies on assumptions derived from publicly available PBM-to-plan sponsor contracts and industry benchmarks rather than from proprietary claims data. Although these sources are representative of common contracting structures, individual plan experiences can vary significantly based on negotiation leverage, covered population demographics, and formulary design. The assumptions used for discount levels, rebate amounts, and dispensing patterns — such as the 90% generic dispensing rate and 52% specialty cost share — reflect current national trends but may not precisely match the experience of any specific plan sponsor.

Second, the analysis models static conditions using a fixed annual drug spend of $1 million. This approach allows proportional extrapolation but does not capture the effects of temporal variability, such as seasonal utilization patterns, changes in formulary mix, or mid-year manufacturer price adjustments. Similarly, it does not account for the impact of emerging therapies or biosimilars, which may alter both the average wholesale price (AWP) benchmarks and rebate dynamics in future periods. It also does not account for any differences in exposure that may exist between larger and smaller plan sizes (i.e., a larger plan sponsor may be more likely to experience a claim for a rare genetic condition that a smaller plan is not).

Third, while rebate assumptions were informed by public audits, manufacturer disclosures, and contract examples, actual rebate flows are highly confidential and subject to complex intermediary arrangements. The precise timing of rebate accruals, manufacturer payment schedules, and the role of PBM-affiliated rebate aggregators cannot be independently verified. As such, modeled rebate risk should be interpreted as directional rather than definitive.

Fourth, the analysis focuses on aggregate financial exposure rather than patient-level or therapeutic class-level variability. The risk distribution within categories such as specialty oncology or chronic disease management may be materially different from the aggregate figures reported here.

Finally, the paper assumes that all other plan functions — such as formulary compliance, clinical management, and utilization controls — remain constant. In practice, changes in these operational areas may amplify or mitigate the financial effects of retrospective pricing and rebate reconciliation.

Despite these limitations, the model provides a conservative and transparent framework for quantifying the magnitude and direction of retrospective risk exposure faced by plan sponsors. While precise figures may vary, the underlying structural finding remains robust: retrospective pricing and rebate mechanisms introduce timing and informational asymmetry that systematically favor PBMs. Future research using real-world claims data or contract-level audits could refine these estimates and further validate the model's applicability across plan types and market segments.

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About 3 Axis Advisors, LLC

3 Axis Advisors is an elite, highly specialized consultancy that partners with private and government sector organizations to solve complex, systemic problems and propel industry reform through data driven advocacy. With a primary focus on identifying and analyzing U.S. drug supply chain inefficiencies and cost drivers, 3 Axis Advisors offers unparalleled expertise in project design, data aggregation and analysis, investigative research, and public education. 3 Axis Advisors arms clients with independent data analysis needed to spur change and innovation within their respective industries. 3 Axis Advisors co-founders were instrumental in exposing the drug pricing distortions and supply chain inefficiencies embedded in Ohio's Medicaid managed care program that ultimately uncovered more than $244 million in secret prescription drug mark-ups and inspired a national reckoning on hidden cost drivers within the prescription drug supply chain. They are also the co-founders of 46brooklyn Research, a nonprofit organization dedicated to improving the transparency and accessibility of drug pricing data for the American public. To learn more about 3 Axis Advisors LLC, visit www.3axisadvisors.com.

References

[1]Drug Channels Institute. The Top Pharmacy Benefit Managers of 2024: Market Share and Key Industry Developments. Published March 31, 2025. Available from: https://www.drugchannels.net/2025/03/the-top-pharmacy-benefit-managers-of.html

[2] Kaiser Family Foundation. Employer-Sponsored Health Insurance 101. Published April 15, 2026. Available from: https://www.kff.org/health-costs/health-policy-101-employer-sponsored-health-insurance/?entry=table-of-contents-who-is-covered-by-employer-sponsored-health-insurance

[3] Kaiser Family Foundation. Medicaid Enrollment and Unwinding Tracker. Published April 24, 2026. Available from: https://www.kff.org/medicaid/medicaid-enrollment-and-unwinding-tracker/

[4] City of Everett and Healthcare Management Administrators, Inc. Administrative Services Agreement. Dated August 20, 2024. Available from: https://lfportal.everettwa.gov/WebLink/0/edoc/1842923/Healthcare%20Management%20Administrators%20(HMA)%202202025.pdf

[5] Hancock, PG. December 13th BOCC Meeting. Dated December 15, 2023. Available from: https://minutes.monroe-clerk.com/WebLink/DocView.aspx?id=432750&dbid=0&repo=Monroe-County-Clerk-of-the-Court

[6] MedImpact. Exhibit B-3-a. Dated June 23, 2021. Available from: https://apps.mesaaz.gov/purchasingcontracts/Documents/%7B9A3FE6EC-45A2-498F-95A6-C7F025187EA8%7D_0.pdf#page=25

[7] Office of Inspector General. *Audit of the American Postal Workers Union Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc.* Washington, DC: US Office of Personnel Management; March 27, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2024-10/2022-SAG-029.pdf

[8] Ibid

[9] U.S. Office of Personnel Management, Office of the Inspector General. Audit of Compass Rose Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc. for Contract Years 2017 through 2022. Report No. 2023-SAG-019. Washington, DC: U.S. Office of Personnel Management; November 14, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2025-01/2023-SAG-019.pdf

[10] The State of Illinois Office of the Attorney General of Illinois. Settlement Agreement. Signed June 24, 2024. Available from: https://www.statnews.com/wp-content/uploads/2024/07/CVS-OAG-final-settlement-agreement-6-24-24-Fully-Executed-Redacted.pdf

[11] Oklahoma Attorney General. Drummond secures$32M in settlement with CVS Caremark. Published September 9, 2025. Available from: https://oklahoma.gov/oag/news/newsroom/2025/september/drummond-secures-32m-in-settlement-with-cvs-caremark.html

[12] 46brooklyn Research, LLC. Drug Channel Contracts. Available from: https://www.46brooklyn.com/channel-contracts

[13] Mattingly TJ, Hyman DA, Bai G. Pharmacy Benefit Managers: History, Business Practices, Economics, and Policy. *JAMA Health Forum*. 2023;4(11):e233804. doi:10.1001/jamahealthforum.2023.3804

[14] Brown, L. Small, Medium, or Large: Does Business Size Matter? Published June 20, 2025. Available from: https://www.yourdigitalresource.com/post/does-business-size-matter

[15] Feller, M, Madden, R, Holcomb, K. Part D trend insights: Initial snapshot of 2024 trends through Q3. Published February 3, 2025. Available from: https://www.milliman.com/en/insight/part-d-trend-insights-snapshot-2024-q3; Gross Part D PMPM were as high as $430 per Milliman

[16] PMPM can also vary based upon product mix or changes in market, such as that which may occur with growing GLP-1 use.

[17] Prime Therapeutics. Medical Pharmacy Trend Report. 2025 Fifteenth Edition. Available from: https://issuu.com/primetherapeutics/docs/2025_medical_pharmacy_trend_report?fr=sODQ4ZTgzNDUwNjE

[18] Human Resources Benefits Office University of Michigan. The Prescription Drug Plan's 2024 Annual Report. Available from: https://hr.umich.edu/sites/default/files/2024_um_pdp_annual_report.pdf

[19] SmithRx. Defining Modern PBM Fees: A New Era of Transparency and Value. Published October 15, 2024. Available from: https://smithrx.com/blog/defining-modern-pbm-fees-a-new-era-of-transparency-and-value

[20] Department of Managed Healthcare. Health Plan Aggregate Premium Rate Report. Available from: https://www.dmhc.ca.gov/Portals/0/Docs/DO/HealthPlanAggregatePremiumRateReport2024.pdf

[21] SmithRx Observation $73, California observation $91.84, Human Resources Benefits Office University of Michigan $141.15 & $142.08, Massachusetts Center for Health Information and Analysis: $136

[22] Internal 3 Axis Advisors, LLC sources include past state-project work (as published on our website) as well as work with commercial payer datasets to evaluate drug spending as part of our consulting work. https://www.3axisadvisors.com/projects

[23] Note that we are relying upon broad industry trends and observations as opposed to a specific specialty definition or designation (which does not generally exist in the market).
[24] 3 Axis Advisors, LLC. Understanding Drug Pricing from Divergent Perspectives: State of Washington Prescription Drug Analysis. Published June 25, 2024. Available from: https://www.3axisadvisors.com/projects/2024/6/25/understanding-drug-pricing-from-divergent-perspectives-state-of-washington-prescription-drug-pricing-analysis-jh92
[25]United Health Group. Increased Use of Home Delivery Pharmacies by Commercially Insured Individuals Can Save Consumers and Employers an Additional $23 Billion on Prescription Drug Costs over 10 Years. Published September 2024. Available from: https://www.unitedhealthgroup.com/content/dam/UHG/PDF/2024/2024.09_uhg_home_delivery_savings.pdf#:~:text=The%20volume%20estimate%20assumes%20home%20delivery%20pharmacies,30%2Dday%20supply%20of%20generic%20or%20brand%20prescriptions
[26] Khandelwal, N, Duncan, I, Rubinstein, E, et. Al. Medicaid Adherence for 90-Day Quantities of Medication Dispensed Through Retail and Mail Order Pharmacies. Am J Manag Care. 2011;17(11):e427-e434. Available from: https://cdn.sanity.io/files/0vv8moc6/ajmc/54ed7a67ed19c4afe975cf13aa8e1b710210eefa.pdf/ead8d0365e457a8feea63dcd346bb306.pdf
[27] Association of Accessible Medicines. The US Generic & Biosimilar Medicines Savings Report. Published September 2024. Available from: https://accessiblemeds.org/wp-content/uploads/2025/01/AAM-2024-Generic-Biosimilar-Medicines-Savings-Report.pdf
[28] Assistant Secretary for Planning and Evaluation Office of Health Policy. Generic Drug Utilization and Spending Among Medicare Part D Enrollees in 2022. Published March 7, 2024. Available from: https://aspe.hhs.gov/sites/default/files/documents/920ec8349c53a362b27e3b10669dafd4/generic-drug-landscape-ib.pdf
[29] NFP. 2024 NFP US Pharmacy Benefits Trend Report. Available from: https://www.nfp.com/media/jlmbqulo/2024-rx-trend-report.pdf
[30] Xevant. 2023 Drug Trend Report. Published May 2024. Available from: https://www.xevant.com/wp-content/uploads/2024/05/Xevant-2023-Drug-Trend-Report-FINAL.pdf
[31] Note, in constructing the model and displaying values in this paper, rounding may occur which results in slight variances in summed values. In general, the effects of rounding impact the values by 0.1% of less.
[32] Centers for Medicare & Medicaid Services. NHE Fact Sheet. Published January 14, 2026. Available from: https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/nhe-fact-sheet
[33] IQVIA. The Use of Medicines in the US 2023. Published May 2, 2023. Available from: https://www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/the-use-of-medicines-in-the-us-2023
[34] 46brooklyn Research. Drug price increases have slowed, but new analysis shows launch prices pushing costs into orbit. Published October 15, 2019. Available from: https://www.46brooklyn.com/research/2019/10/11/three-two-one-launch-rfmyr
[35] City of Everett and Healthcare Management Administrators, Inc. Administrative Services Agreement. Dated August 20, 2024. Available from: https://lfportal.everettwa.gov/WebLink/0/edoc/1842923/Healthcare%20Management%20Administrators%20(HMA)%202202025.pdf
[36] School Board of Brevard County, Florida. Board Agenta Item. August 27, 2025. Available from: https://agenda.brevardschools.org/content/files/e-24-391-p-dr-medical-and-pbm-agreement_1.pdf
[37] PCMA. Small and Mid-Sized Employers Rely On Spread Pricing for Predictable, Fixed Pricing. Published May 31, 2023. Available from: https://www.pcmanet.org/pcma-blog/small-and-mid-sized-employers-rely-on-spread-pricing-for-predictable-fixed-pricing/05/31/2023/
[38] Ohio Auditor of State. Auditor's Report: Pharmacy Benefit Managers Take Fees of 31% on Generic Drugs Worth $208M in One-Year Period. Published August 16, 2018. Available from: https://ohioauditor.gov/news/pressreleases/details/5042
[39] Langreth, R. Drug Middlemen Took $123.5 Million in Hidden Fees, State Claims. Bloomberg. February 21, 2019. https://www.bloomberg.com/news/articles/2019-02-21/drug-middlemen-took-123-5-million-in-hidden-fees-state-claims
[40] Maryland Department of Health. Maryland's 2019 Report on the Maryland Medical Assistance Program and Managed Care Organization that Use Pharmacy Benefit Managers – Audit and Professional Dispensing Fees. Published January 3, 2020. https://cdn.ymaws.com/www.marylandpharmacist.org/resource/resmgr/legislative/mcoauditreport.pd
[41] Jackson, M. PBM markups cost state Medicaid estimated $113 million. Published December 8, 2020. https://www.floridapharmacy.org/news/542471/PBMMarkups-Cost-State-Medicaid-Estimated-113-million.htm
[42] Office of Inspector General. *Audit of the American Postal Workers Union Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc.* Washington, DC: US Office of Personnel Management; March 27, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2024-10/2022-SAG-029.pdf

[43] U.S. Office of Personnel Management, Office of the Inspector General. Audit of Compass Rose Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc. for Contract Years 2017 through 2022. Report No. 2023-SAG-019. Washington, DC: U.S. Office of Personnel Management; November 14, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2025-01/2023-SAG-019.pdf
[44] Note that in several of the aforementioned audits, PBM spread occurred even in contracts with pass-through pricing requirements.
[45] As demonstrated, a small variance in AWP-value can confer significant differences in net pricing experience
[46] Presumably, in a transparent manner whereby the PBM client and pharmacy are operating off the same acquisition-price benchmark.
[47] Drug Channels Institute. 2024 Gross-to-Net Realities at 9 Top Drugmakers: A New Era of Market Access. Published July 22, 2025. Available from: https://www.drugchannels.net/2025/07/2024-gross-to-net-realities-at-9-top.html
[48] Centers for Medicare & Medicaid Services. Medicare Part D Drug Spending Dashboard. Published May 29, 2025. Available from: https://data.cms.gov/tools/medicare-part-d-drug-spending-dashboard
[49] Park, E. New CBO Study Compares Net Prices for Brand-Name Drugs Among Federal Programs, Finds Medicaid Gets Largest Discounts. Published February 22, 2021. Available from: https://ccf.georgetown.edu/2021/02/22/new-cbo-study-compares-net-prices-for-brand-name-drugs-among-federal-programs-finds-medicaid-gets-largest-discounts/
[50] Center for Improving Value in Healthcare. Drug Rebates Impact Rising Prescription Drug Spending and Continue to Increase for High Cost Drugs Like Brand and Specialty. Available from: https://civhc.org/2021/08/13/prescription-drug-rebates/#:~:text=Across%20all%20payers%2C%20rebates%20represent,from%2025%25%20to%2027%25.&text=In%202019%2C%20rebates%20represented%2018,at%20info@civhc.org
[51] 46Brooklyn Research, LLC. Drug Channel Contracts. Available from: https://www.46brooklyn.com/channel-contracts
[52] Drug Channels Institute. 340B Hit $81 Billion in 2024 (+23%). Published December 15, 2025. Available from: https://www.drugchannels.net/2025/12/340b-hit-81-billion-in-2024-23-why-cms.html
[53] Minnesota Department of Health. 340B Covered Entity Report to the Legislature. Published November 25, 2024. Available from: https://www.health.state.mn.us/data/340b/docs/2024report.pdf
[54] Ho JY. Life Course Patterns of Prescription Drug Use in the United States. Demography. 2023 Oct 1;60(5):1549-1579.
[55] Drug Channels Institute. The 340B Program Reached $66 Billion in 2023 – Up 23% vs. 2022. Published October 22, 2024. Available from: https://www.drugchannels.net/2024/10/the-340b-program-reached-66-billion-in.html
[56] Centers for Medicare & Medicaid Services. NHE Fact Sheet. Published January 14, 2026. Available from: https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/nhe-fact-sheet#:~:text=Physician%20and%20clinical%20services%20expenditures,the%207.8%25%20growth%20in%202022
[57] Fein AJ. Challenges for Managed Care from 340B Contract Pharmacies. J Manag Care Spec Pharm. 2016 Mar;22(3):197-203. https://www.jmcp.org/doi/epdf/10.18553/jmcp.2016.22.3.197
[58] United States Government Accountability Office. Drug Discount Program Federal Oversight of Compliance at 340B Contract Pharmacies Needs Improvement. Published June 2018. Available from: https://www.gao.gov/assets/gao-18-480.pdf
[59] Mulligan, K. The 340B Drug Pricing Program: Background, Ongoing Challenges and Recent Developments. Published October 14, 2021. Available from: https://schaeffer.usc.edu/research/the-340b-drug-pricing-program-background-ongoing-challenges-and-recent-developments/
[60] For the purposes of our analysis, we assume brand and specialty
[61] 42 CFR 1001.952(h)
[62] 42 CFR 1001.952(j)
[63] CaremarkPCS Health, LLC and Employers Health Purchasing Corporation. Amended and Restated Prescription Benefits Services Agreement. Effective January 1, 2024. Available from: https://www.lancaster.ne.gov/DocumentCenter/View/25325/C-24-0789-PDF
[64] House Committee on Oversight and Accountability Staff. The Role of Pharmacy Benefit Managers in Prescription Drug Markets. Published July 2024. Available from: https://oversight.house.gov/wp-content/uploads/2024/07/PBM-Report-FINAL-with-Redactions.pdf
[65] Mercer. Understanding the debate over PBMs. Published August 1, 2024. Available from: https://www.mercer.com/en-us/insights/us-health-news/understanding-the-debate-over-pbms/
[66]Applied Policy. Trump Administration Finalizes Rule to Prevent PBM Rebates Almost Two Years After Initial Proposal. Published November 20, 2020. Available from: https://www.appliedpolicy.com/trump-administration-finalizes-rule-to-prevent-pbm-rebates-almost-two-years-after-initial-proposal/
[67] UMR, Inc. and City of Joplin, MO. *Administrative Services Agreement*, Contract No. 76-414552. Effective January 1, 2021. Available from: https://www.joplinmo.org/AgendaCenter/ViewFile/Item/6432?fileID=34097

[68] Express Scripts, Inc. and City of Ann Arbor. *2022 Amendment to Express Scripts, Inc. Employer Group Pharmacy Benefit Management Agreement* (originally dated July 1, 2011). Effective January 1, 2022. Available from: https://a2gov.legistar.com/View.ashx?M=F&ID=10700870&GUID=B411FEC2-4210-4A10-BAEF-B2F05D98E93E

[69] U.S. Office of Personnel Management, Office of the Inspector General. Audit of Compass Rose Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc. for Contract Years 2017 through 2022. Report No. 2023-SAG-019. Washington, DC: U.S. Office of Personnel Management; November 14, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2025-01/2023-SAG-019.pdf

[70] Office of Inspector General. *Audit of the American Postal Workers Union Health Plan's Pharmacy Operations as Administered by Express Scripts, Inc.* Washington, DC: US Office of Personnel Management; March 27, 2024. Available from: https://www.oversight.gov/sites/default/files/documents/reports/2024-10/2022-SAG-029.pdf

[71] CaremarkPCS Health, LLC and Employers Health Purchasing Corporation. Amended and Restated Prescription Benefits Services Agreement. Effective January 1, 2024. Available from: https://www.lancaster.ne.gov/DocumentCenter/View/25325/C-24-0789-PDF

[72] Centers for Medicare & Medicaid Services. NHE Fact Sheet. Published January 14, 2026. Available from: https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/nhe-fact-sheet

[73] City of Everett and Healthcare Management Administrators, Inc. Administrative Services Agreement. Dated August 20, 2024. Available from: https://lfportal.everettwa.gov/WebLink/0/edoc/1842923/Healthcare%20Management%20Administrators%20(HMA)%202202025.pdf

[74] Aetna Life Insurance Company and Hillsborough County Aviation Authority. Master Services Agreement. Effective August 1, 2022. Available from: https://www.tampaairport.com/sites/default/files/2022-47%20-%20%20Contract%20Third%20Party%20Administrative%20Services%20-%20Master%20Service%20Agreement.pdf

[75] RxBenefits, Inc and City of Orange Beach. Addendum to Administrative Services Agreement. Effective January 1, 2023. Available from: https://web.archive.org/web/20230509065809/https://www.orangebeachal.gov/AgendaCenter/ViewFile/Item/669?fileID=6328

[76] State of Michigan Procurement. Contract Change Notice. Effective September 1, 2022. Available from: https://www.michigan.gov/dtmb/-/media/Project/Websites/dtmb/Procurement/Contracts/014/220000001116.pdf

[77] MedImpact and Mesa, Arizona. Agreement Pursuant to Solicitation. Effective June 23, 2021. Available from: https://apps.mesaaz.gov/purchasingcontracts/Documents/%7B9A3FE6EC-45A2-498F-95A6-C7F025187EA8%7D_0.pdf

[78] McGriff Insurance Services. Pharmacy Benefit Management (PBM) Services. Dated May 8, 2024. Available from: https://go.boarddocs.com/pa/lehc/Board.nsf/files/D9AN4X5E2CB8/$file/CapitalRx%20-%20PBM%20RFP%2024%20-%20County%20of%20Lehigh.pdf

[79] IQVIA Institute for Human Data Science. *The Use of Medicines in the United States 2024: Usage and Spending Trends and Outlook to 2028*. IQVIA; 2024. https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/the-use-of-medicines-in-the-us-2024/the-use-of-medicines-in-the-us-2024-usage-and-spending-trends-and-outlook-to-2028.pdf

[80] Centers for Medicare & Medicaid Services, Office of the Actuary. National Health Expenditures 2024 Highlights. Baltimore, MD: U.S. Department of Health and Human Services; February 2026. Available at: https://www.cms.gov/files/document/highlights.pdf

[81] IQVIA Institute for Human Data Science. The Use of Medicines in the U.S. 2025: Understanding Medicine Use and Spending Trends. IQVIA Institute; May 2025. Available at: https://www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/the-use-of-medicines-in-the-us-2024

[82] Express Scripts. *Drug Trend Report*. Express Scripts; various years.

[83] CVS Caremark. *Drug Trend Report*. CVS Health; various years.

[84] Prime Therapeutics. *Specialty Drug Management Report*. Prime Therapeutics; various years.

[85] IPD Analytics. "Drug Pricing Part 1: Key Terms, Stakeholders, and Brand Drug Pricing Processes." Updated April 10, 2025. https://www.ipdanalytics.com/post/brand-drug-pricing

[86] Kaiser Family Foundation. *Prescription Drug Costs and Pricing*. KFF; various publications.

[87] IQVIA Institute for Human Data Science. *The Use of Medicines in the U.S. 2024: Usage and Spending Trends and Outlook to 2028*. IQVIA; 2024.

[88] CVS Caremark. *Drug Trend Report*. CVS Health; various years.

[89] U.S. Government Accountability Office. *Prescription Drugs: Rebates and Discounts in the Commercial Market*. GAO; various years.

[90] Centers for Medicare & Medicaid Services. *National Health Expenditures 2023 Highlights*. CMS; 2024.

[91] IQVIA Institute for Human Data Science. *The Use of Medicines in the United States 2024: Usage and Spending Trends and Outlook to 2028*. IQVIA; 2024.
[92] CHIA. Drivers of Commercial Prescription Drug Spending. Available from: https://www.chiamass.gov/reports/drivers-commercial-rx-drug-spending/
[93] Human Resources Benefits Office University of Michigan. The Prescription Drug Plan's 2024 Annual Report. Available from: https://hr.umich.edu/sites/default/files/2024_um_pdp_annual_report.pdf
[94] Department of Managed Healthcare. Health Plan Aggregate Premium Rate Report. Available from: https://www.dmhc.ca.gov/Portals/0/Docs/DO/HealthPlanAggregatePremiumRateReport2024.pdf
[95]SmithRx. Defining Modern PBM Fees: A New Era of Transparency and Value. Published October 15, 2024. Available from: https://smithrx.com/blog/defining-modern-pbm-fees-a-new-era-of-transparency-and-value
[96] Feller, M, Madden, R, Holcomb, K. Part D trend insights: Initial snapshot of 2024 trends through Q3. Published February 3, 2025. Available from: https://www.milliman.com/en/insight/part-d-trend-insights-snapshot-2024-q3
[97] Feller, M, Liner, D. Navigating new waters: How the Inflation Reduction Act alters government funding for Medicare Part D. Published August 6, 2024. Available from: https://www.milliman.com/en/insight/navigating-new-waters-inflation-reduction-act-medicare-part-d
[98] Navitus. Drug Trends Report 2024. Available from: https://navitus.com/drug-trend-reports/2024-snapshot/#dtr-download
[99] Human Resources Benefits Office University of Michigan. The Prescription Drug Plan's 2024 Annual Report. Available from: https://hr.umich.edu/sites/default/files/2024_um_pdp_annual_report.pdf