

A Quantamental Framework for the Valuation and Risk Analysis of Therapeutics Royalty Investment Vehicles

Use Case: Royalty Pharma (RPRX)

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Introduction

The purpose of this paper is to analyze and value royalty investment vehicles, using **Royalty Pharma** (RPRX) as a case study. Royalty investment vehicles operate as **specialized investment firms** that acquire and manage royalty interests in biopharmaceutical assets, a market segment that has experienced particularly strong growth in recent years.

These vehicles focus on acquiring and managing royalty interests, with core strengths in identifying high-quality assets, structuring royalty acquisitions, and building diversified portfolios that generate cash flows linked to the commercial performance of those assets. The underlying operating partners (pharma or biotech) remain responsible for product development and commercialization.

Accordingly, **the company is evaluated using an investment vehicle methodology**, distinct from the frameworks typically applied to traditional drug developers. This approach underscores how disciplined asset selection, portfolio diversification, and strategic capital deployment can drive sustainable value creation and deliver attractive, risk-adjusted returns for investors.

For this study, dedicated Python code was developed to implement the valuation framework, enabling algorithmic modeling and the generation of long-term financial forecasts and valuation metrics.

The content of this paper is as following:

- Section 1: Revenue Analysis (page 2-4)
- Section 2: Investment Performance Review (page 5-8)
- Section 3: Assets Value Analysis (page 9-13)
- Section 4: Company Valuation (page 14-18)
- Section 5: Methodology and Framework (page 19-22)
- Section 6: Conclusion (page 23)
- Annexes

1 RPRX Portfolio of Assets

RPRX maintains a diversified portfolio of assets composed of royalties on over 50 therapeutics including marketed products and late stage development assets, sourced from multiple companies and across a broad range of therapeutic areas.

The portfolio is composed of long lived assets, with contractual maturities ranging from 5 to 20 years and an **average duration of approximately 12 years**, which underpins visibility and stability in long term cash flow generation.

Portfolio renewal is driven by the selection and acquisition of new royalty streams by the management team, typically funded through internally generated cash flows. The company also employs debt financing as a tool to lower its cost of capital and enhance returns.

In addition to royalty acquisitions, RPRX engages on a more limited basis in corporate financings through loans, primarily linked to development stage products and often structured as a complement to royalty transactions.

1.1 Revenue Portfolio Analysis

1.1.1 Revenue Concentration

At the time of its IPO, RPRX's royalty revenues were highly concentrated, with the top three products accounting for close to **60% of total revenue**. Within this group, Vertex's Cystic Fibrosis Franchise alone represented approximately 25% of royalty revenues.

Since then, the portfolio has become more diversified, with the contribution of the top five products declining by roughly **10 percentage points** and even more for the Top 3.

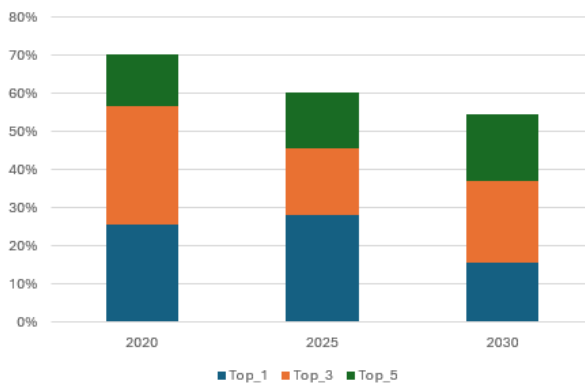


Figure. 1: Cumulative Revenue Share (Top 1, 3, 5) in %

This trend of reduced concentration is expected to continue, with further erosion of the weight of the top five, top three, and single largest contributors over as seen in [Figure 1](#) for 2030 estimates.

1.1.2 Revenue by Product Maturity

The current portfolio shows limited exposure to revenue related to products at the end of the life cycles. By 2030, products with a remaining maturity of one year or less are expected to account for 10% of total revenues ([Figure 2a](#)).

In addition, the portfolio has been significantly rejuvenated since 2022 through investments in late-stage development assets and recently launched products. This shift is reflected in the

declining share of products older than ten years in expected revenues in 2030 compared with 2025 (Figure 2b).

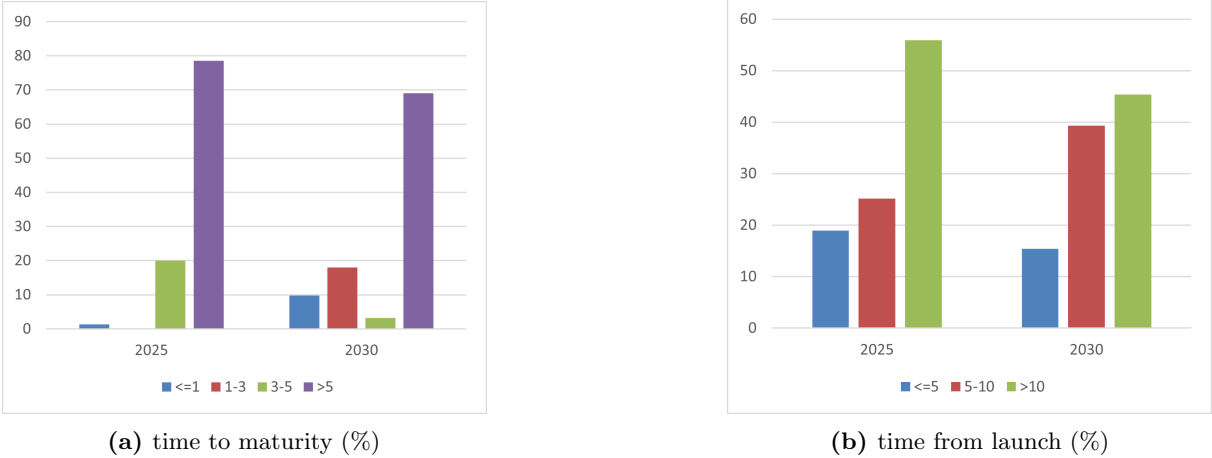


Figure. 2: Split of Portfolio Receipts 2025 & 2030

1.1.3 Portfolio Renewal

Deals signed between 2013 and 2019 generated a peak in royalty receipts of approximately \$1.9 billion in 2022. By comparison, investments executed between 2020 and 2024 are expected to reach a **peak of more than \$2 billion** in royalty receipts by 2029. On average each new investments' millesime provides an incremental of 10% of total revenue after 5 years (Figure 3).

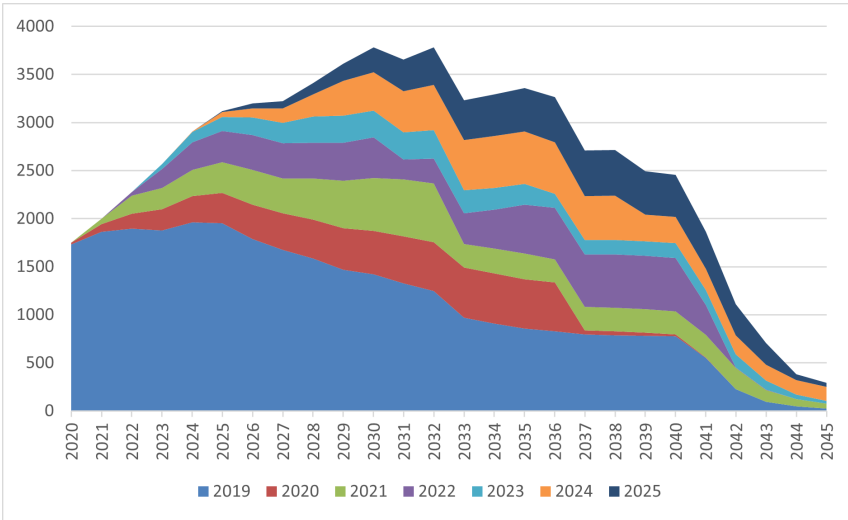


Figure. 3: Royalty Receipts by Millesime \$M

1.2 2030 Outlook and Beyond

RPRX's stated goal of \$4.7 billion in royalty receipts by 2030 appears conservative.

The current portfolio, when assessed on a conservative basis that reflects both the success probability of R&D stage assets and probability adjusted tranche activation tied to Evrysdi and Daraxonrasib, is expected to generate approximately **\$3.8 billion in royalties by 2030** (Figure 3). At that point, royalty flows are likely to plateau before gradually declining as assets mature and patent protections expire.

To reach beyond this base case, new investments of \$2.5–2.8 billion per year are projected to deliver an additional \$1.0 billion in royalties by 2030. This estimate is underpinned by a historical track record of achieving an IRR of around 11% and assumes a steady increase in capital deployment, reaching roughly \$3 billion annually by the end of the decade. Together, these dynamics suggest RPRX is well positioned to exceed its \$4.7 billion 2030 revenue target reaching over bn4.85\$.

Royalty receipts are projected to grow at a compound annual growth rate (CAGR) **of around 9% between 2025 and 2030** refer to Annex A.1 Royalty Receipt Forecat for details. Growth is expected to be softer in 2026 and 2027, reflecting the impact of several product expirations, before reaccelerating as new R&D stage products launch and begin to scale.

In a best-case scenario, where rate of royalties for Alyftreck are revised up to 8%, all R&D assets gain approval, all optional tranches are exercised, and peak sales materialize at the high end of forecasts, the current portfolio alone is expected to exceed 2030 royalty revenue guidance and extend current portfolio peak revenue in 2032. (Figure 4).

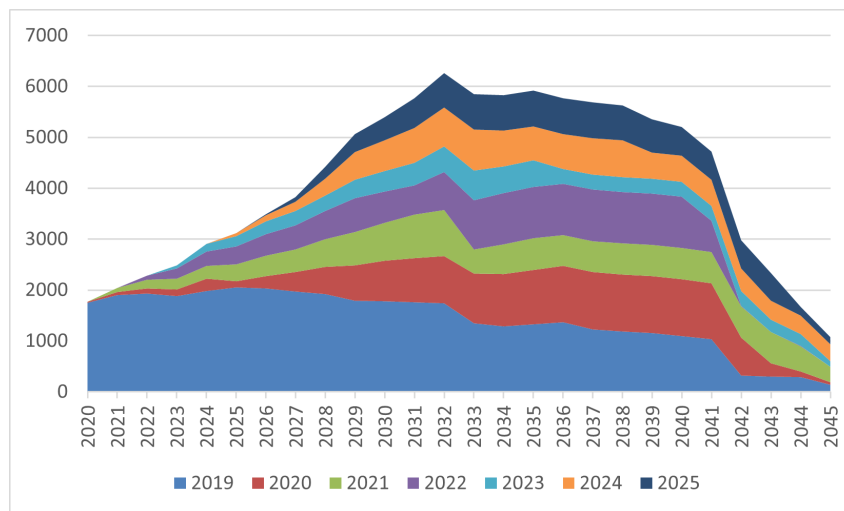


Figure. 4: Royalty Receipts by Millesime \$M, best case

2 Measuring Investment Performance by IRR

The **IRR** of royalty deals executed by RPRX is a key parameter of the company's business model, reflecting the quality of its sourcing, selection, and negotiation capabilities.

The following sections present an analysis of IRRs segmented by year of investment, deal type, product maturity, tranche, and therapeutic area. It should be noted that this type of analysis is subject to a time-related bias: the older the deal, the greater the share of royalty flows already realized, and therefore the lower the sensitivity to estimates.

Refer to *Annex A.5 Deal Portfolio Overview* for the full list of historical deals.

2.1 Evolution of IRR by Year

Since the IPO, the weighted average IRR of signed deals has ranged between **10% and 15%**, broadly in line with the levels communicated by RPRX. The average payback period stands at approximately **eight years**, with fluctuations of around ± 2 years. (Table 1)

The average **MOIC (Multiple of Invested Capital)** is close to 3 times. MOICs tend to be higher for R&D stage product deals, which offset the impact of failed assets and, once adjusted for risk, contribute positively to the overall MOIC.

Data for 2013–2016 mainly reflects large-scale transactions, as information on smaller deals is not available. For the period 2013–2019, the average IRR stands at 11.7%.

Table 1: IRR, Payback, MOIC and Deals by Year

Year	IRR	Payback Years	MOIC	Deals
2013	28.3%	4.3	5.4	Quest
2014	12.4%	9.9	4.7	CFF
2016	5.2%	8.6	1.4	UCLA.1
2017	9.5%	10.0	2.2	Cytokinetics, Perrigo, UCLA.2
2018	9.8%	10.5	2.7	Biohaven, Immunomedics, Zealand
2019	5.2%	8.4	1.3	Arteaus, Ligand, Ultragenyx
2020	8.2%	9.3	2.4	AiCuris, BioCryst, PTC
2021	12.5%	6.4	3.7	BioCryst.2, Dicerna, GlaxoSmithKline, Minerva, Morphosys
2022	10.5%	6.3	2.6	Arrowhead, Theravance
2023	9.8%	8.3	1.9	Ascendis.1, Ferring, Ionis, PureTech, Teva
2024	11.9%	7.7	3.1	Agios, Ascendis.2, Geron, ImmuNext, Pharvaris, Psyadon, Syndax
2025	11.5%	8.9	2.7	Biogen, Revolution, Zenas, BeOne

Historically, the spread between IRR and WACC has averaged roughly 500 basis points (Figure 5). While this spread has fluctuated significantly from peak to trough, it has consistently remained positive since the IPO. However, the trend shows compression during periods of rising interest rates such as in 2023. RPRX's seems has had limited ability to pass higher funding costs on to counterparties when structuring new deals.

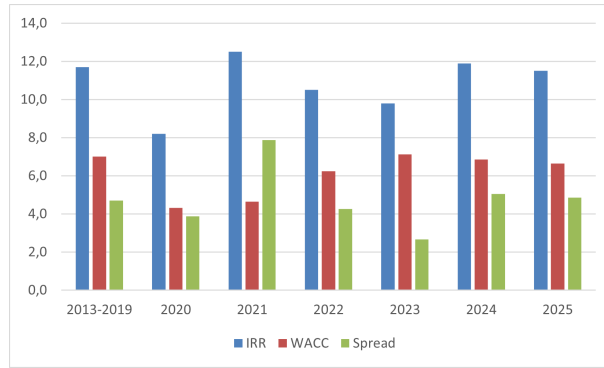


Figure. 5: IRR vs WACC and Spread in %, nb 2019 covers deals up to 2019

2.2 IRR by Product Stage

Royalty deals on marketed products with established sales histories typically generate lower IRRs, reflecting the higher visibility of future cash flows. On average, products on the market for more than five years deliver an IRR of around 6%, compared with higher returns for launch stage assets. This pattern is particularly evident in mature products such as *Tysabri*, *Xtandi*, and *Promacta*, which exhibit mid-single-digit IRRs. These transactions were executed during a period of low interest rates and prior to RPRX's IPO.

Among the marketed product deals, some may have originally been signed with higher IRR expectations, as suggested by the cumulative allowances recorded against the carrying value of these assets on RPRX's balance sheet. Products such as *Gavreto*, *Soliqua*, *Tazverik*, and *Entyvio*, for which no published data are available, appear to have weighed on the overall IRR profile of marketed assets.

Table 2: IRR, MOIC and Ratio by Product Stage

Type	IRR (%)	MOIC	Ratio
Marketed	10.9	2.5	71%
Non-Marketed	17.8	3.9	29%

Note: Ratio corresponds to the share of capital deployment.

At deal signing, the IRR of R&D stage products averages around 18% versus 11% for marketed products (Table 2), even after accounting for investments in failed assets and the probability of attrition across development stages. The structuring of RPRX's transactions, with milestone-based payments tied to key events such as positive clinical results, regulatory approvals, or sales thresholds, helps to mitigate risk and thereby enhances the aggregate IRR profile.

Given the relatively limited number of R&D stage transactions undertaken by RPRX, and notwithstanding the company's expertise in asset selection, industry standard probability assumptions have been applied in this analysis.

Further details on expected IRR scenarios on major products are provided in Annex A.6.

2.3 IRR by Deal Type

2.3.1 Synthetic vs Vanilla agreement

Royalty Pharma engage in so called **Vanilla agreement** in which RPRX acquire all or part of the royalty stream from the licensor and **Synthetic agreement** where RPRX co-finance the development or launch of a therapeutics against a slice of therapeutics sales.

But in term of IRR, according to assumptions there is **no material difference** in between synthetic and “vanilla” royalty transactions([Table 3](#)).

Table 3: IRR, MOIC and Ratio by Deal Type

Type	IRR (%)	MOIC	Ratio
Vanilla	12.1	2.8	83%
Synthetic	13.2	3.5	17%

Deals that incorporate a debt financing component generally deliver double digit IRRs, assuming no default by the counterparty. For example, the debt financing provided for the development of *Omecamtiv* is expected to generate an IRR of 17% even in the event of product failure or discontinuation by Cytokinetics. For transactions such as those with Teva, Morphosys, and Cytokinetics, loan repayments have been included in the projected cash flow streams.

2.3.2 Deal Tranches

Tranches refers to deal structure agreement in which against achievement of milestones and payment of additional funding by RPRX, the latter receive an additional stake of Royalties.

For the limited number of transactions involving optional additional tranches, the inclusion of these options does not materially alter the IRR, underscoring the **alignment of interests** between counterparties.

Table 4: IRR by Tranche for Daraxonrasib

Product	Tranche	IRR_10 (%)	IRR Mean (%)	IRR_90 (%)	Max (%)
Daraxonrasib	1 & 2	15.3	18.8	21.6	23.0
Daraxonrasib	3	14.0	18.0	20.9	22.6
Daraxonrasib	4	14.1	18.4	21.5	23.5
Daraxonrasib	5	13.5	18.2	21.7	23.6

The 2025 Daraxonrasib transaction ([Table 4](#)) provides a representative example. The deal structure illustrates the optionality available to *Revolution Medicines* and the alignment created through tranche-based financing. The analysis assumes the product reaches the market, with IRR outcomes modeled across sales and launch-timing scenarios. The decile, mean, and maximum IRRs reported capture the full range of modeled scenarios. Specifically:

- **IRR 10** corresponds to sales generated from a restricted indication (second-line pancreatic cancer).
- The **maximum IRR** reflects an expanded addressable market, including multiple KRAS-driven cancers such as lung cancer.
- A sales cap applies once annual revenues exceed \$8 billion.

2.3.3 Repeat transaction on portfolio Assets

RPRX capitalize on existing relationships to increase its stake of Royalties for product already in the portfolio as well as for new products.

Similarly to tranches, the execution of complementary transactions on portfolio existing product to increase RPRX's royalty share has limited impact on the IRR of the product, but significantly enhance the Royalty Asset Value at RPRX's benefit.

The PTC *Evrysdi* transaction provides a clear example (Table 5):

Table 5: IRR Evolution of Evrysdi by transaction

Year	Product	IRR	Comments
2020	Evrysdi	7.7%	1st deal with cap
2022	Evrysdi	10.3%	Increase of sales expectations
2023	Evrysdi	11.0%	2d deal
2024	Evrysdi	10.8%	3d deal, PTC option trigger
2025	Evrysdi	11.9%	Remaining option triggering

- The **initial deal** of royalties acquired from PTC on Evrysdi generated an IRR of 8%, which subsequently improved following upward revisions to product expectations.
- A **second deal**, signed in 2023 for incremental share of PTC's Royalties on Evrysdi while reducing the effect of the cap to royalty flow, delivered a slightly higher IRR than the first deal.
- In 2024, PTC exercised an **option to divest** an additional royalty share to RPRX.
- In our current base scenario, we assume **50% probability** of the acquisition of the full royalty stream from PTC by year end.

3 Asset Value Analysis

The Royalty Asset Value of each deal is calculated by **discounting the future royalty streams from the products** related to the deal and product using historical WACC to obtain the Net Present Value of the Asset. The valuation is sensitive to a number of key drivers, including sales forecast, expected end date of royalty flows, launch probabilities, contractual terms, and the discount rate applied to the projected cash flows. *Further details are provided in section 5: Methodology of this paper.*

3.1 Historical Evolution of Royalty Asset Value

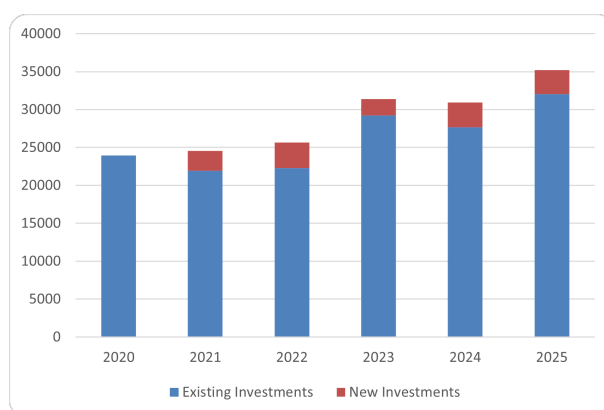


Figure. 6: Historical Royalty Asset Value per Year in \$M

In 2022, growth in Royalty Asset Value was negatively impacted by rising interest rates, with the U.S. 10Y yield exceeding 4% in the fourth quarter.

The 2024 decline versus 2023 was primarily attributable to increased risk perception around royalties from the Cystic Fibrosis Foundation (CFF) franchise, which accounted for 43% of Royalty Asset Value and 34% of royalty receipts in 2023. This reflected heightened expectations of Trikafta cannibalization by Aliftræk following positive Phase 3 results published in early 2024, combined with concerns over a potential reduction in royalty rates (Vertex guided to a mid-single-digit rate)

The **recovery in 2025** was driven by upward revisions to consensus forecasts, de-risking of several legacy deals, and the signing of new royalty agreements.

As of the latest assessment, RPRX's Royalty Asset Value stands at **\$35 billion**, the highest level since the company's IPO.

Main drivers of historical changes

Outside of yearly new investments, the main year-over-year variations in Royalty Asset Value by product are summarized in the table below (Table 6), with the primary driver of each change highlighted in bold. It should be noted that mature products are subject to the natural erosion of discounted value over time.

Table 6: Yearly Asset Value Changes and Commentary

Product	2021	2022	2023	2024	2025	Comment
CFF	-9%	-17%	-10%	-31%	-24%	Positive CT results of Alytreck
TYSABRI	-23%	-10%	-19%	-12%	-18%	Consensus downward revision
XTANDI	-6%	-27%	-11%	-11%	-22%	Consensus downward revision
PROMACTA	-20%	-24%	-15%	-27%	-33%	Consensus downward revision
IMBRUVICA	-21%	-13%	-21%	-15%	-13%	Consensus downward revision
CABOMETYX	–	17%	-15%	-9%	-13%	Consensus downward revision
OMECAMTIV	35%	19%	-30%	-59%	13%	Increased R&D risks
ADSTILADRIN	–	–	–	42%	60%	New tranche activation
TREMFYA	–	21%	10%	2%	11%	Consensus upward revision
EVRYSDI	0%	14%	222%	-11%	10%	New deal and upward revision
ALYFTREK	–	–	56%	-37%	8%	Risk on royalty rate in 2024
TRODELVY	82%	26%	3%	-11%	4%	Consensus upward revision
TRONTINEMAB	–	-16%	138%	11%	167%	CT results
AFICAMTEN	–	–	69%	13%	76%	Bullish view from RPRX
OLPASIRAN	–	–	–	36%	193%	Bullish view from RPRX
TEV-749	–	–	–	38%	39%	Filing

Reduced Dependence on the Cystic Fibrosis Foundation Franchise

RPRX's dependence on its largest historical investment, the Cystic Fibrosis Foundation (CFF) franchise, has decreased significantly from nearly 50% of Royalty Asset Value at the time of the IPO to less than 24% now. This reduction reflects both the growth of RPRX's total Royalty Asset Value and the lower royalty rate assumptions applied in our base case scenario a 6% royalty rate for Aliftrek and b 50% cannibalization of Trikafta by 2031.

3.2 Evolution of the Royalty Asset Value Mix

The average maturity of portfolio products declined by approximately three years, from 15 years in 2020 to 12 years in 2025. This reduction is mainly attributable to:

1. a higher weighting of products with shorter maturities (less than five years [Figure 7a](#)), and
2. acquisitions of royalties with predefined end dates and/or cumulative royalty caps and
3. R&D stage products adjusted value for launch probability; as a result, these assets currently have only a limited impact on the overall average maturity of the portfolio. ([Figure 7b](#))

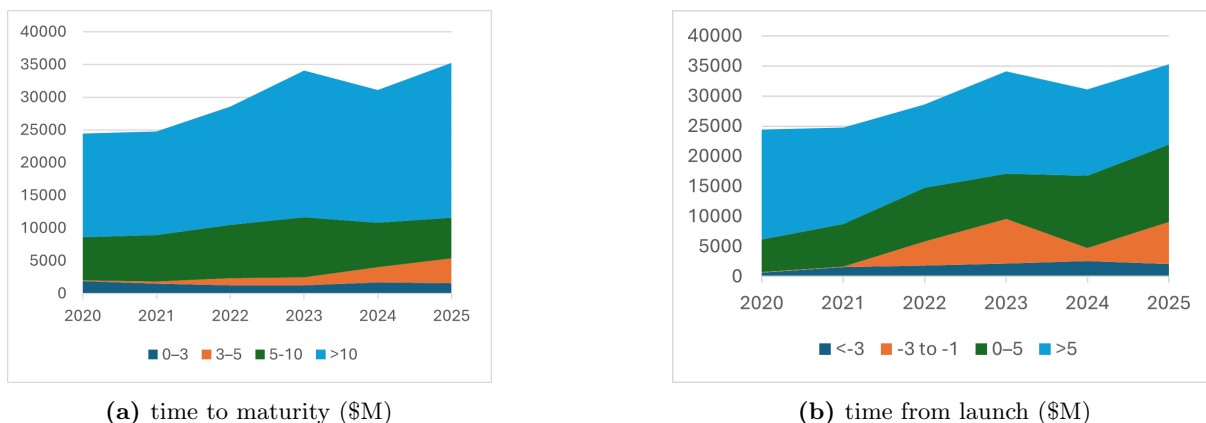


Figure. 7: Mix of Royalty Asset Value from launch and to maturity

3.2.1 Shift Toward R&D-Stage Therapeutics

A more significant development has been the shift toward **royalty transactions for R&D Phase 3 products**, which represented only a marginal share of Royalty Asset Value in 2020 but have accounted for roughly one quarter of the total since 2023. As discussed in the IRR section of this note, the IRR of R&D assets is materially higher than that of marketed products, even after adjusting for risk.

Compared to 2023, the R&D portfolio has expanded from 11 to 18 products, with the largest single exposure reduced to 3.7% from 13%, and risks now staggered over the next five years. This trend also reflects a rejuvenation of the portfolio, with a growing share of products in the early growth phase, ie less than five years on the market, relative to mature assets (Figure 7b).

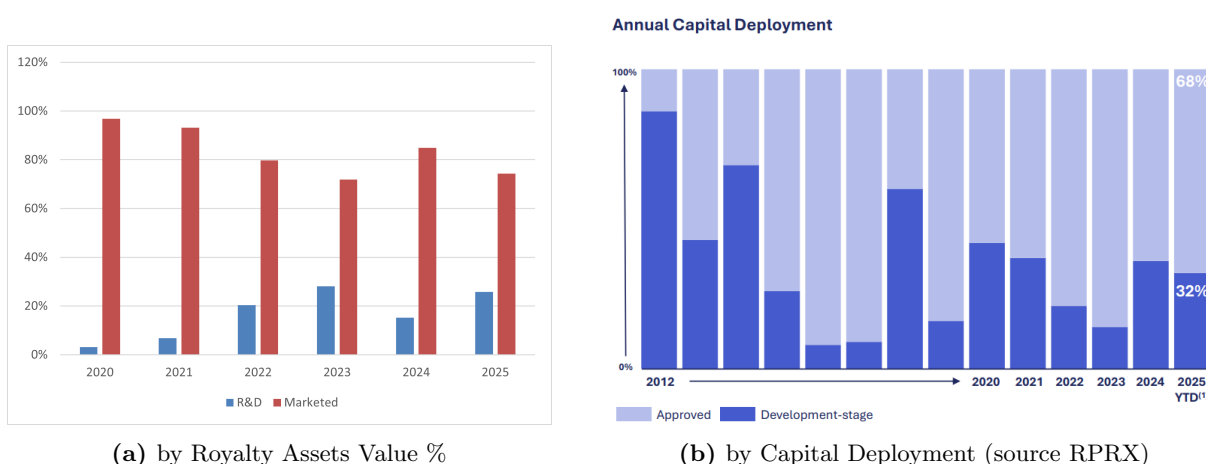


Figure. 8: Mix by product stage

Note: The difference between the two graphs reflects the impact of risk-adjustments applied to R&D-stage product valuations as well as the effect of discounting.

3.3 Sensitivity of Royalty Asset Value

This section analyzes the sensitivity of RPRX’s Royalty Asset Value to key assumptions, including sales forecasts, royalty rates, product life cycles, launch probabilities, and discount rates. The objective is to assess how changes in these parameters may affect the valuation of the portfolio.

3.3.1 Sensitivity of Royalty Asset Value to Interest Rates

As previously stated, RPRX’s business model is particularly sensitive to interest rates.

- On the one hand, the company’s portfolio has an average maturity exceeding ten years, which makes valuations particularly sensitive to discount rate fluctuations. Moreover, as noted earlier, RPRX faces structural short term difficulty in passing higher interest rates through to counterparties in deal negotiations.
- On the other hand, royalty financing tends to face less direct competition from equity financing and, to a lesser extent, from loan markets. This relative advantage becomes more pronounced when broader market conditions tighten.

This sensitivity of current assets to interest rates is illustrated in [Table 7](#), where a 100 basis point change in discount rates translates into an average valuation impact of approximately 6% to the Royalty Assets Value.

Table 7: Sensitivity of Royalty Assets Value to Changes in US 10Y

	+200 bp	+100 bp	-100 bp	-200 bp
Royalty Assets Value	-10.7%	-5.6%	6.2%	13.1%

3.3.2 Sensitivity of Royalty Asset Value to Binary Events

With a growing share of investments allocated to Phase 3 R&D stage products, RPRX has become more exposed to binary events such as clinical trial outcomes and regulatory decisions ([Figure 9](#)). In addition, uncertainty related to the commercial performance of recently launched products (refer to [Figure 10](#)) contributes to valuation volatility and to a lesser extent timing of new product launches and current product maturities.

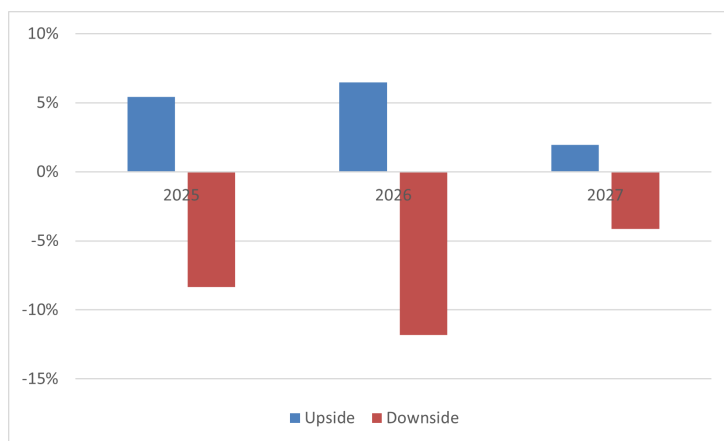


Figure. 9: Sensitivity of Royalty Assets Value to upcoming binary Events (%)

- **For 2025:** Remaining binary events include the PDUFA decision for aficamten, the planned filing of ecopipam, and Phase 3 results for obexelimab and deucricitibant, all expected later this year.
- **The year 2026 represents a pivotal period (Figure 9)**, marked by a higher than average number of Phase 3 clinical readouts on promising assets(*daraxonrasib*, *olpasiran*, *pelacarsen*, *seltorexant*), but more importantly by the expected court ruling on the royalty rate dispute with Vertex regarding **Aliftrek**. To date, Vertex has paid a 4% royalty on Aliftrek versus the 8% initially anticipated. Current base case scenario assumes 50% cannibalization of Trikafta and a 6% royalty rate. RPRX has guided to a court decision by the end of 2026. Also in 2026, PTC holds the option to activate the final royalty tranche on Evrysdi, which we factor at 50% probability in our central scenario.
- Looking ahead to 2027, our analysis incorporates Phase 3 clinical trial success rates ranging from two-thirds to 80%, depending on the product (*frexalimab*, *litifilimab*, *pelabresib*).

3.3.3 Sensitivity of Royalty Asset Value to Sales Forecast

As highlighted in Royalty Pharma’s quarterly and annual disclosures, the effective interest method leads to adjustments in the balance sheet valuation of royalty assets. These changes primarily reflect updated sales forecasts for individual products. These estimate updates also affect the Royalty Assets NPV valuations discussed in this paper.



Figure. 10: Sensitivity of Royalty Assets Value to Sales Revision (%)

In the short term, revisions are driven by factors such as the cannibalization of *Trikafta* by *AlyfTrek* and the potential for new indications on royalty bearing products, for example *Cobenfy*, which can alter product-level estimates.

For 2027 and 2028: The launch trajectories of new products such as *TEV-749* and *aficamten*, if both are approved, could also affect the valuation of these assets.

4 RPRX Valuation

4.1 Discount-to-NAV Approach

Given Royalty Pharma's business model, a discount to **NAV (Net Asset Value)** approach is particularly relevant for valuation purposes.

$$\begin{aligned} \text{NAV} = & \text{Cumulated Value of Royalty Assets} \\ & + \text{Discounted risk adjusted milestones receivable} \\ & - \text{Discounted Net Adjusted Capital Deployment from Prior Investments} \\ & + \text{Other Investments (loans, equity, Avillion/Airsupra)} \\ & - \text{Net Debt \& Liabilities} \end{aligned}$$

Unlike traditional pharmaceutical companies, where valuation relies heavily on expected growth and margin improvement or for biotech companies on R&D pipelines, market access and commercial execution, **RPRX allocate capital mainly into long-duration, cash generating assets**. NAV therefore provides a transparent measure of intrinsic value, reflecting the present value of expected royalty streams across the portfolio.

The discount applied to NAV captures factors such as market risk appetite, interest rate sensitivity but also Portfolio risks and opportunities. This makes the discount to NAV approach well suited to benchmarking RPRX's valuation against comparable investment funds or alternative asset managers.

Further details on the implementation of this framework are provided in the section 5 : Methodology.

4.1.1 Historical Discount to NAV

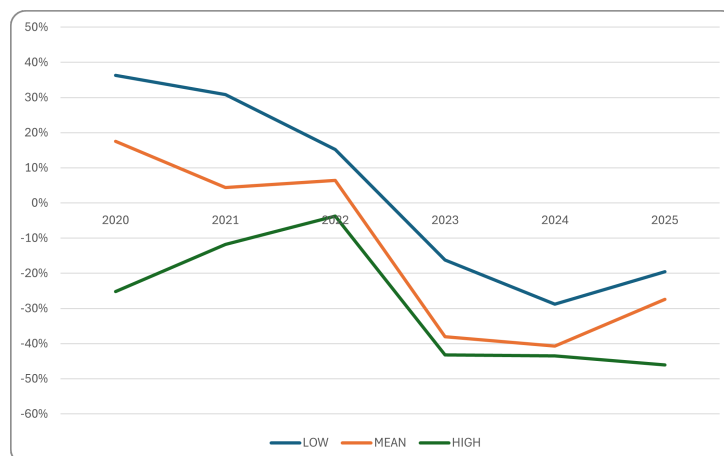


Figure. 11: Historical Discount to NAV (%)

Note: 'Low', 'Mean', and 'High' correspond to NAV versus the low, mean, and high market capitalization during the year. Low in 2020 refers to the IPO price, while Mean in 2025 refers to the current market capitalization.

RPRX's IPO was priced at a **25% discount to NAV**. The company's positioning as the pioneer and market leader in royalty investments, combined with a low interest rate environment and strong demand for alternative assets, underpinned the success of the offering. The share price subsequently surged by nearly 60% during the COVID period.

The sharp correction in 2023 likely reflected several factors:

1. Concerns over rising interest rates and weakness across the broader biotech sector,
2. A slowdown in top-line growth from double digit to high single digit (8%).
3. The increasing share of earlier stage product deals in the portfolio elevates risk by heightening exposure to binary development outcomes, while also highlighting growing competition across RPRX's established areas of activity.
4. The company's ownership structure, with Class B shares and associated potential dilution disclosure.

4.1.2 Current Discount to NAV Valuation

Since early 2025, RPRX has delivered strong share price performance, largely driven by the transformation plan announced at the beginning of the year and the launch of a \$3 billion share buyback program (equivalent to 15% potential accretion, with \$1 billion already executed in 1H25). The transformation plan is designed to enhance corporate transparency and is expected to deliver \$1.6 billion in cost savings (versus an estimated \$1 billion in costs and modest dilution).

Despite this positive momentum, the stock continues to trade at a **20% discount to NAV**. The current discount implies a 9.0–9.5% cost of capital on ongoing deals, which is 200–250bps above RPRX's current WACC. A potential decline in interest rates would also support a re-rating of the company's asset portfolio.

Table 8: 2025 NAV Scenario in \$M

	Low	Mean	High
Fair Value of Royalty Assets	23,259	35,194	56,168
Cash & Marketable Securities	1,014	1,014	1,014
Debt	9,000	9,000	9,000
Liabilities	686	686	686
Net Risk Adjusted Committed Investments*	–	1,628	2,382
Net Asset Value	14,587	24,894	45,115
Current Market Cap	19,593	19,593	19,593
Premium / Discount to NAV	34%	-21%	-57%

* this line correspond to milestone and options payments due adjusted by probability

Scenario Framework vs Mean Scenario

- **Downside scenario:** Corresponds to the first decile of Monte Carlo simulations and assumes sales at the low end of consensus or peak sales expectations, a 20% reduction in launch probabilities, launch delays of 1–2 years depending on development stage, non-exercise of tranche options, and patent expiries at the earliest expected dates.
- **Upside scenario:** Assumes sales at the high end of consensus or peak sales expectations, successful launch of all R&D stage products, exercise of all tranche options, and product maturities extending to the latest possible expiry dates.

4.1.3 Assessing RPRX's NAV Premium or Discount

RPRX currently trades at a discount to NAV that is broadly in line with most private equity firms, which typically trade at around a 20% discount. However, the valuation of private equity firms is subject to different business model and greater uncertainty compared with RPRX, for several reasons:

1. **Transparency** of deal's terms and conditions and potential cash flow generation and deal maturity. **Quarterly reporting** of portfolio performance details individual product performance and provides looking forward estimates from 3d party providers.
2. **Visibility** on return on investments, as it does not depend on uncertain exit multiples and can be monitored consistently over time, The investment portfolio is well **diversified**, with only a moderate weighting in its largest positions.
3. **Growth-led model** with supportive dividend yield, as the majority of cash flows are reinvested for compounding growth. **RPRX's track record** of financial discipline and asset selection to renew its asset base under attractive terms, consistently maintaining an IRR of new investments above WACC.
4. **Lower credit risks** due to conservative leverage at the management co level with \$8.8bn of debt (including ongoing refinancing), representing 25% loan-to-value on asset valuation and 2.7x EBITDA.

Applying the same framework, an analysis of RPRX's direct peers will help establish a more relevant comparison universe to assess a peer comparison. Forthcoming notes will cover Ligand, Xoma, and DRI Healthcare.

We have also tested additional valuation to support the view that RPRX deserve a slight premium to NAV in the following sections.

4.2 Asset-and-Cost Valuation Approach

In addition to the NAV-based framework, we apply a comprehensive valuation approach that incorporates management costs. The objective is to assess the potential for value creation from new investments relative to the cost of executing these investments.

Capital deployment assumptions ([Table 9](#)) are derived from the Company's investment forecast disclosed in the restructuring proxy. From this base, adjustments are made to exclude existing commitments (tranche optionality and milestone obligations), which are already embedded in the current NAV calculation. The result is the estimated annual capacity available for new investments.

Share Buyback program have not been included within the above capital deployment table. If the share buy back is treated by the company as an alternative to Capital deployment in new royalty deals, the impact on the valuation would minor the value of new investments by 800\$M.

Table 9: Plan, Realizations, and Deployment Forecast

Year	Plan	Realized	Committed (Proba Adjusted)	Deployment
2025	2385	1546		839
2026	2686		565	2122
2027	2814		556	2258
2028	2709		75	2634
2029	2678		243	2435
2030	2796		125	2671
2031	2953		117	2837
2032	2903		0	2903
2033	2964		156	2808
2034	3034		104	2930
2035	3000		0	3000

The main assumptions are as follows:

- An average IRR of 11% on new investments for the Mean scenario, matching management cost for Low, and 13% for High,
- Management fees of 6% of Revenue, declining to 5% of revenue
- An annual investment deployment plan consistent with RPRX’s published reference document, adjusted for already committed transactions and probability-weighted in line with the asset value calculations presented earlier ([Table 10](#)).

Table 10: Valuation Summary

	Low	Mean	High
Net Assets Value (\$M)	14 587	24 894	45 115
Discounted Operating Cost (\$M)	4798	4798	4798
Value of Yearly Investments (\$M)	4798	7312	8044
Total Equity Value (\$M)	14 587	27 408	48 365
Per Share (\$)	26	48	86

Based on this methodology, the implied equity valuation for RPRX is \$26 billion, corresponding to a share price of \$48. Under this approach, RPRX should reasonably trade at a 5–10% premium to NAV.

4.3 Valuation of Discounted Free Cash Flows

As the focus of this note is on a NAV based valuation framework, we do not provide a detailed breakdown of the company's P&L and cash flow statements. Moreover, the business model and cost structure of RPRX provides little margin expansion potential as, that operating costs are already well controlled, representing approximately 5–6% of royalty receipts.

As already seen the revenue assumptions are broadly consistent with company estimates, and the capital deployment assumptions are aligned with those outlined in the proxy filing related to portfolio rationalization. Key assumptions:

1. 10 year forecast horizon,
2. Terminal value with perpetual growth of 1%,
3. Discount rate of 7%.

The resulting DCF valuation yields an **equity value of \$26 billion**. This outcome is broadly consistent with the asset-and-cost approach, which is expected given the simplicity of the model: essentially top line minus 5% operating costs and investment flows.

As such, the DCF valuation does not provide incremental insights relative to the NAV approach but rather serves to confirm its validity.

5 Methodology and Framework

5.1 Valuation of Assets

The valuation of royalty assets and the computation of internal rates of return (IRR) require the establishment of long-term projections. The analytical horizon extends from 2014 to 2050.

To undertake the task a framework has been developed with the following steps.

5.1.1 Sales Assumptions

For products already on the market, Monte Carlo simulations were performed with timing of maturity of products and the trajectory of sales hypothesis depending of type of product, therapeutic area and geographical exposure. These simulations relied on a combination of historical sales data, consensus forecasts (*Visible Alpha*), and forecasting algorithms (notably *Prophet*, *Denton and Holt*) to generate robust forward looking sales scenarios. Post loss of exclusivity sales curve were also dependent of type of product (biologic vs small molecule) and geographical exposure (US, EU, ROW).

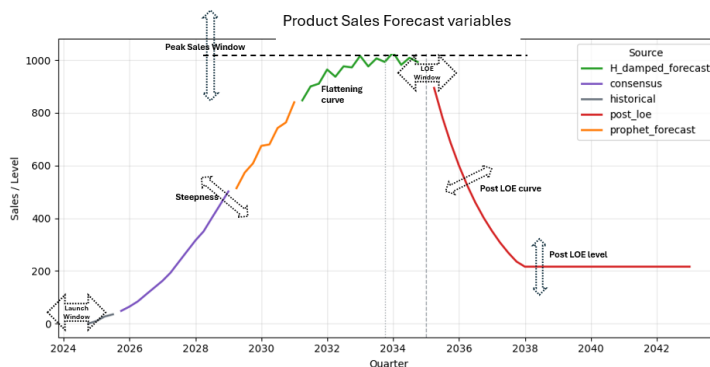


Figure. 12: Quarterly Sales Forecasting exemple

For products in the launch phase, Monte Carlo simulations incorporated variables such as launch date, peak sales range, and proprietary sales curve models. These models are designed to reflect the expected life cycle of the product, including but not limited to launch dynamics, therapeutic franchise... and the decline following loss of exclusivity.

5.1.2 Royalty Forecasts Computation

Royalty rates are based on contractual terms disclosed by the company with dates, rates, tiers and tranches.

A deterministic scenario expansion framework was apply to calculate Royalties on sales trajectory by systematically combined with multiple parameter variants. The model expands across launch probability bands, tranche activation states, and loss of exclusivity (LOE) timing windows, generating a complete grid of possible outcomes.

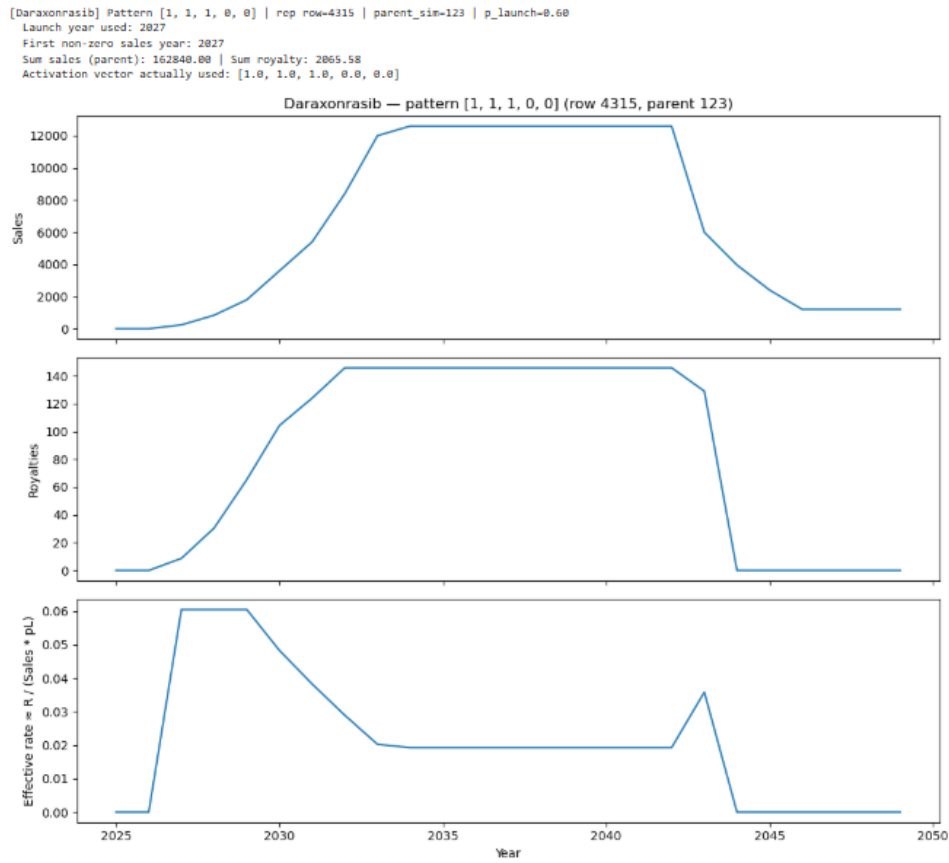


Figure. 13: Exemple of a Royalty Forecast

Base Probabilities of launch was modeled as dynamic variable, updated on quarterly basis as a function of product maturity and previously released clinical trials outcomes. A cumulative activation framework was applied, whereby if a preceding tranche is activated (value = 1), subsequent tranches may take cumulative values of 0, 0.5, or 1, reflecting partial or full progression conditions. Tranche activations linked to sales levels were derived from the sales scenarios for new products and from the sales trajectories of established products.

Adjustments were also made for royalty shares not accruing to RPRX.

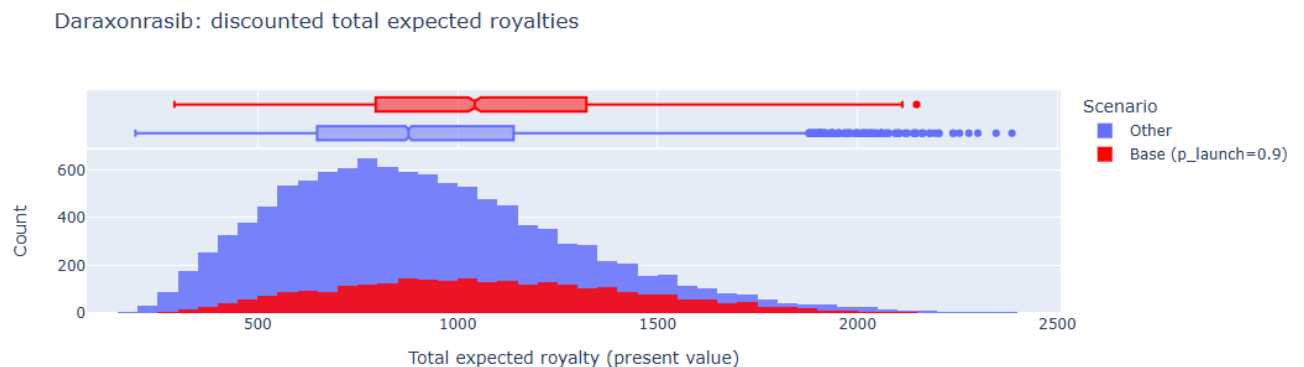


Figure. 14: Exemple of a Product's Royalty NPV distribution

Note: In red : Royalty NPV distribution for a probability of launch of 90%

5.1.3 Modeling and Computation of Contingent Payments

Previously signed agreements include forward-looking payments tied to the achievement of defined milestones. This structure mitigates RPRX's deal exposure by aligning payments with realized performance. The amounts and timing of these contingent payments were computed from above described modeled scenarios incorporating simulated sales and royalty projections.

- Milestones linked to **regulatory approval** were modeled in the product cash flows and deducted based on the base case within the extended scenario simulation.
- **Milestones contingent on sales thresholds** were treated as probability weighted deductions from capital deployment, with probabilities calibrated to the Monte Carlo distribution of projected revenues. In cases of limited disclosure, assumptions were derived from comparable transactions and IRR benchmarks.
- **Other milestone** such as Clinical Trial Milestones payments were incorporated using development stage likelihood of success estimates.
- **Tranche options** payments were incorporated using scenario probabilities.

5.1.4 Computation of NPV, IRR, and Analytics

Royalty Asset Value were calculated by discounting forecasted royalty flows using a historical WACC.

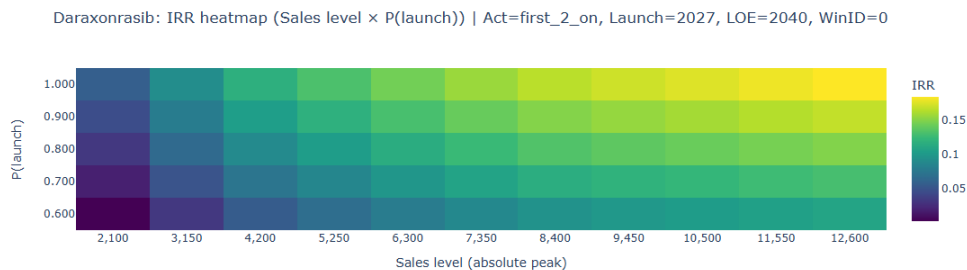


Figure. 15: Heatmap of a Product's IRR

Note: The heatmaps relates to daraxonrasib NPV and IRR relative to launch and sales for 2 tranches activated out of 5 potential tranches

Internal Rate of Return (IRR) were computed on a deal-by-deal basis as well as for each products using historical data and forward-looking projections of the royalty streams and the related investments (upfront, milestones and options).

Analytics are derived from several key performance indicators designed to assess revenue by product maturity, portfolio renewal dynamics, Investments performance and risk exposures to individual products scenarios (launch probability and timing, peak sales, options triggering...)

5.2 Analytical Framework

A Python-based framework was developed to operationalize the modeling process. This framework enables systematic tracking of RPRX's portfolio over time, with new deals and quarterly results. It is design to be also replicated to the analysis of other royalty based companies.

5.2.1 Data collection and structuration

Royalty Assets datasets were generated by compiling Financial and non Financial data and structured into a master datasets to generate historical templates (csv's) to upload into python algorithms.

- **Products 'Financial data** were parsed from company [quarterly financial statements](#) to extract historical sales and royalty receipts. Consensus Data were collected from Visible Alpha.
- **Products' non financial data** were collected from ClinicalTrials.gov and company press releases using proprietary algorithms and LLM agents. The extracted datasets were subsequently used to generate historical life cycle profiles and likelihood of success and timing approval datasets for the analyzed products ([Table 11](#)).
- **Deal agreement data** were manually curated using company material ([Agreement presentations](#)). Tranches, Tiers, start and maturity date are structured in a master template. The timing of upcoming milestones or tranche triggers was aligned with the corresponding products' non-financial data ([Table 11](#)).

VALUE DATE	PRODUCT	PHASE	TRIAL RESULTS	LAUNCH TIMING	LAUNCH PROBA	ACTIVATE PROBA	ACTIVATE TIMING
30/06/2025	Daraxonrasib	3		31/12/2027	66%	T1:100%, T2:80% T3:50%, T4:0% T5:0%	T1:25-05, T2:26-06 T3:27-12, T4:sd T5:31-12
30/06/2026	Daraxonrasib	3	+	31/12/2027	80%	T1:100%, T2:100% T3:50%, T4:0% T5:0%	T1:25-05, T2:26-06 T3:27-12, T4:sd T5:31-12
31/12/2026	Daraxonrasib	Filing (PDUFA)		31/10/2027	90%	T1:100%, T2:100% T3:100%, T4:0% T5:0%	T1:25-05, T2:26-06 T3:27-10, T4:sd T5:31-12
30/10/2027	Daraxonrasib	Approval		31/10/2027	100%	T1:100%, T2:100% T3:100%, T4:sd% T5:50%	T1:25-05, T2:26-06 T3:27-10, T4:sd T5:31-12

Table 11: Exemple probabilities and timing of base scenario for Daraxonrasib (sd = sales dependant)

Companies historical Financial data were parsed from [quarterly financial statements](#) and used to model WACC, Capital Deployment.

5.2.2 Modeling

Asset valuation and related analytics were modeled using input datasets from standardized templates executed through Python-based workflows, as detailed in Section 5.1 (*Valuation of Assets*).

Capital deployment per year retained the guidance deliver by RPRX from which we deduced the contingent payments mentioned in section 5.1.3. Royalty. Based on resulting available capital for investments, Royalties receipts forecast and corresponding valuation were calculated per millesime with a IRR ranging from 9% to 12%.

The company's **P&L, Cash Flow, and Balance Sheet** models were produced by integrating historical data with forecasted values.

6 Conclusion

Summary of Findings

This paper has valued Royalty Pharma (RPRX) using a **Net Asset Value (NAV)** approach and assessed its investment performance through key metrics such as portfolio diversification and discipline in royalty deals.

Total revenue from royalty receipts should continue to grow at a robust pace, **beating the company's \$4.7bn 2030 guidance** and sustaining long-term growth of around 10% CAGR. Both historical and expected revenue growth stem almost exclusively from assets added to the portfolio since the IPO.

Historical analysis shows RPRX **sustaining double-digit IRRs**, with recent investments (11%) consistent with past performance. Additional metrics such as payback period and MOIC reinforce this investment performance consistency. Importantly, RPRX's deal structuring for R&D stage products, with payment optionality, contributes to **RPRX investment discipline**. The company is currently supported by favorable market conditions and alternative financing options to equity and debt, enabling it to sustain a robust financial position and secure attractive deal returns.

Valuing individual product royalties over their full life cycle shows RPRX's **asset portfolio at an all-time high of \$35bn**, an 8% CAGR since the IPO despite higher interest rates. Looking ahead, management targets annual investment activity of up to \$3bn by 2034, with value creation from recently signed and future deals expected to drive further growth in NAV. This capital deployment forecast appears conservative, as it would represent only 50% of expected cash flow generation in 2034, compared with a historical reinvestment rate of 100%.

Valuation & Implications for Investors

From an investment perspective, RPRX should be viewed as an **investment vehicle** and valued on that basis, rather than benchmarked against pharma/biotech peers. The findings point to **fair value at a 5–10% premium to NAV**, compared with the current 20% discount.

Catalysts for re-rating include a recognition of Royalty Pharma as a distinct investment vehicle supporting higher multiples, b product's related milestones notably upcoming launch of several products, c additional royalty tranches triggering, and d decline in interest rates boosting NAV and future investment returns.

Risks & Considerations

We acknowledge risks such as a the ongoing litigation over the royalty rate of Alyftreck, b Regulator decisions and c to a lesser extend several Phase 3 clinical trials results. The anticipated revenue growth slowdown in 2026–2027 related to maturity of several assets, could weigh temporarily on sentiment. Modeling and valuation have been implemented using a suite of Python

models that provide a systematic framework for analyzing royalty-based investment companies as described in the methodology section.

A Annexes

A.1 Royalty Receipts Forecasts (1)

PRODUCT	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CFF	841	857	775	692	613	527	443	364	283	197	117	101	101	101	101	101	101
ALYFTREK	0	26	101	186	259	341	413	455	491	516	542	569	597	616	616	616	616
TREMFYA	182	218	269	311	351	389	404	404	404	0	0	0	0	0	0	0	0
EVRYSDI	202	233	272	295	316	342	386	424	449	459	459	459	459	0	0	0	0
TRELEGY	285	323	56	344	318	302	285	17	6	2	1	0	0	0	0	0	0
FREXALIMAB	0	0	0	0	33	99	135	145	152	158	165	168	172	175	178	182	182
VORANIGO	1	13	28	56	84	113	131	150	165	180	188	188	188	188	188	0	0
AFICAMTEN	0	0	7	27	55	86	116	142	157	172	181	190	199	209	218	218	218
IMDELLTRA	0	10	52	67	85	103	114	125	133	139	146	154	161	162	162	162	162
TRODELVY	43	48	57	70	82	93	98	103	104	104	104	69	41	21	13	8	6
NIKTIMVO	0	7	14	28	42	65	93	98	98	98	98	98	84	0	0	0	0
ADSTILADRIN	31	56	80	84	88	92	92	92	92	20	0	0	0	0	0	0	0
ERLEADA	50	59	69	76	79	82	89	89	89	0	0	0	0	0	0	0	0
DARAXONRASIB	0	0	0	5	21	45	89	125	157	166	176	185	194	199	199	199	199
TYSABRI	260	232	193	160	140	110	75	43	22	12	7	5	3	2	1	0	0
COBENFY	0	0	10	26	46	65	72	69	71	72	74	55	0	0	0	0	0
SPINRAZA	41	48	45	46	70	76	72	69	65	62	41	21	0	0	0	0	0
IMBRUVICA	188	170	144	124	111	92	72	33	12	0	0	0	0	0	0	0	0
NURTEC	25	33	38	42	46	50	54	58	60	60	60	60	32	0	0	0	0
CRYSVITA	26	33	39	43	45	48	52	53	53	53	53	18	0	0	0	0	0
TRONTINEMAB	0	0	0	0	7	22	44	62	73	77	81	84	84	84	84	84	84
ORLADEYO	38	44	44	45	43	42	42	42	42	42	42	42	42	42	42	33	16
LITIFILIMAB	0	0	0	0	7	20	40	56	66	69	73	76	76	76	76	76	76
CABOMETYX	80	88	78	28	34	34	34	34	0	0	0	0	0	0	0	0	0
SELTOREXANT	0	0	0	2	8	17	33	50	78	111	117	117	117	117	117	117	117
TEV-749	0	0	0	6	14	23	31	38	43	47	49	51	54	57	59	59	59

A.2 Royalty Receipts Forecasts (2)

PRODUCT	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
OXLUMO	12	14	17	20	22	24	27	29	30	31	31	31	0	0	0	0	0
EMGALITY	18	19	20	21	22	23	25	27	21	11	0	0	0	0	0	0	0
OLPASIRAN	0	0	0	0	0	6	22	48	95	143	222	317	333	333	333	333	333
ZAVPRET	0	3	6	9	14	20	21	21	21	21	21	10	6	0	0	0	0
RYTELO	0	26	39	44	47	51	18	0	0	0	0	0	0	0	0	0	0
OBEXELIMAB	0	0	1	3	5	11	16	25	36	38	38	38	38	38	38	18	0
ECOPIPAM	0	0	0	1	3	6	12	18	33	53	56	56	56	56	56	56	56
PELABRESIB	0	0	0	1	2	5	10	16	21	24	28	31	35	36	36	36	36
DEUCRICTIBANT	0	0	0	1	2	5	10	14	22	32	32	32	32	32	32	32	32
PELACARSEN	0	0	0	0	0	2	6	13	27	40	62	89	94	94	94	94	94
OMECAMTIV	0	0	0	0	0	0	1	4	8	16	24	37	53	55	55	55	55
TULMIMETOSTAT	0	0	0	0	0	0	0	1	2	3	3	4	5	5	6	6	6
AMPRELOXATINE	0	0	0	0	0	0	0	1	1	2	3	4	4	4	4	4	4
FARXIGA	36	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PREVMIS	33	33	33	33	33	33	0	0	0	0	0	0	0	0	0	0	0
PROMACTA	148	133	75	36	23	0	0	0	0	0	0	0	0	0	0	0	0
XTANDI	165	184	175	121	68	0	0	0	0	0	0	0	0	0	0	0	0
CK-586	0	0	0	0	0	0	0	0	0	1	2	2	4	5	5	5	5
SKYTROFA	39	46	48	50	53	27	0	0	0	0	0	0	0	0	0	0	0
YORVIPATH	0	5	14	19	23	24	0	0	0	0	0	0	0	0	0	0	0
OTHERS	160	120	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0
INVESTMENTS	0	13	65	186	400	703	1080	1511	1975	2458	2957	3466	3982	4495	4998	5481	5909
TOTAL	2905	3133	3266	3408	3812	4317	4759	5066	5658	5689	6250	6826	7245	7203	7711	7976	8366

A.3 Royalty Assets Value per Year, Weight and Change (1)

	ROYALTY ASSET VALUE						WEIGHT						GROWTH				
	2020	2021	2022	2023	2024	2025	2020	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
CFF	12138	11048	9206	8323	5732	4348	50,7%	45,0%	35,9%	26,5%	18,5%	12,4%	-9%	-17%	-10%	-31%	-24%
ALYFTREK			972	4053	3829	4155			3,8%	12,9%	12,4%	11,8%			317%	-6%	8%
EVRYSDI	869	869	994	3202	2852	3127	3,6%	3,5%	3,9%	10,2%	9,2%	8,9%	0%	14%	222%	-11%	10%
TREMFYA		1430	1731	1906	1944	2159		5,8%	6,7%	6,1%	6,3%	6,1%		21%	10%	2%	11%
TRELEGY			2052	1995	1798	1679			8,4%	6,6%	6,0%	4,9%			-3%	-10%	-7%
FREXALIMAB*					1291	1314					4,2%	3,7%					2%
OLPASIRAN*				319	434	1271				1,0%	1,4%	3,7%				36%	193%
AFICAMTEN*			367	622	705	1241			1,4%	2,0%	2,3%	3,5%			69%	13%	76%
DARAXONRASIB*						1213						3,5%					
IMDELLTRA						1199						3,5%					
VORANIGO					964	1120					3,2%	3,2%					16%
TYSABRI	2162	1659	1487	1200	1053	868	9,0%	6,8%	5,8%	3,8%	3,4%	2,5%	-23%	-10%	-19%	-12%	-18%
TRODELVY	323	587	740	765	681	710	1,3%	2,4%	2,9%	2,4%	2,2%	2,0%	82%	26%	3%	-11%	4%
SELTOREXANT*	0	415	438	563	623	693		1,7%	1,7%	1,8%	2,0%	2,0%		5%	29%	11%	11%
IMBRUVICA	1635	1291	1122	890	755	658	6,8%	5,3%	4,4%	2,8%	2,4%	1,9%	-21%	-13%	-21%	-15%	-13%
ADSTILADRIN				240	342	548				0,8%	1,1%	1,6%				42%	60%
TRONTINEMAB*	0	92	77	184	203	543				0,6%	0,7%	1,6%		-16%	138%	11%	167%
NIKTIMVO				492	532						1,6%	1,5%					8%
XTANDI	1212	1136	831	742	658	511	5,1%	4,6%	3,2%	2,4%	2,1%	1,5%	-6%	-27%	-11%	-11%	-22%
LITIFILIMAB*						505						1,5%					
ERLEADA	539	560	535	500	516	501	2,3%	2,3%	2,1%	1,6%	1,7%	1,4%	4%	-4%	-7%	3%	-3%
SPINRAZA				535	459	459				1,7%	1,5%	1,3%				-14%	0%
PELACARSEN*				308	410	457				1,0%	1,4%	1,3%				33%	11%
ORLADEYO	338	418	446	427	438	433	1,4%	1,7%	1,7%	1,4%	1,4%	1,2%	24%	7%	-4%	3%	-1%
NURTEC	361	384	402	400	411	415	1,5%	1,6%	1,6%	1,3%	1,3%	1,2%	6%	5%	0%	3%	1%
COBENFY				328	372	378				1,0%	1,2%	1,1%				13%	1%
CRYSVITA	373	399	290	280	340	360	1,6%	1,6%	1,1%	0,9%	1,1%	1,0%	7%	-27%	-3%	21%	6%
TEV-749*				184	253	353				0,6%	0,8%	1,0%				38%	39%

* for Products not yet approved

A.4 Royalty Assets Value per Year, Weight and Change (2)

	ROYALTY ASSET VALUE						WEIGHT						GROWTH				
	2020	2021	2022	2023	2024	2025	2020	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
CABOMETYX		362	424	362	331	289		1,6%	1,7%	1,2%	1,1%	0,8%		17%	-15%	-9%	-13%
ECOPIPAM*					184	278					0,6%	0,8%					51%
PROMACTA	994	795	606	517	380	255	4,2%	3,2%	2,4%	1,6%	1,2%	0,7%	-20%	-24%	-15%	-27%	-33%
OMECAMTIV*	434	586	695	489	199	225	1,8%	2,4%	2,7%	1,6%	0,6%	0,6%	35%	19%	-30%	-59%	13%
SKYTROFA				237	240	200				0,8%	0,8%	0,6%				1%	-17%
OXLUMO		107	318	185	194	194			1,2%	0,6%	0,6%	0,6%		196%	-42%	5%	0%
PELABRESIB*		174	173	165	182	193		0,8%	0,7%	0,5%	0,6%	0,6%		-1%	-4%	10%	6%
RYTELO					182	193					0,6%	0,5%					6%
OBEXELIMAB*						191						0,6%					
DEUCRICTIBANT*					153	170					0,5%	0,5%					11%
EMGALITY	181	178	160	147	170	149	0,8%	0,7%	0,6%	0,5%	0,5%	0,4%	-1%	-10%	-8%	16%	-12%
PREVYMIS	215	255	210	190	169	146	0,9%	1,0%	0,8%	0,6%	0,5%	0,4%	19%	-18%	-10%	-11%	-14%
ZAVPRET	94	106	97	97	106	117	0,4%	0,4%	0,4%	0,3%	0,3%	0,3%	13%	-8%	0%	9%	10%
YORVIPATH						71						0,2%					
FARXIGA	142	132	113	94	71	39	0,6%	0,5%	0,4%	0,3%	0,2%	0,1%	-7%	-14%	-17%	-24%	-45%
TULMIMETOSTAT*		10	9	8	9	25						0,1%		-17%	-5%	11%	174%
CK-586*					4	25						0,1%					471%
AMPRELOXATINE*			17	16	18	20			0,1%	0,1%	0,1%	0,1%			-6%	11%	12%
BCX9930*	50	50	42				0,2%	0,2%	0,2%				-1%	-17%	-100%		
OTHERS	1896	1484	1113	893	779	666	7,9%	6,1%	4,3%	2,8%	2,5%	1,9%	-22%	-25%	-20%	-13%	-15%
TOTAL	23 956	24 528	25 667	31 366	30 926	35 194	100%	100%	100%	100%	100%	100%	2%	5%	22%	-1%	14%

* for Products not yet approved

A.5 Deal Portfolio Overview

DEAL	PRODUCTS	DEAL TYPE	STAGE AT DEAL	SIGNED YEAR	SIZE (M\$)	IRR (%)	PAYBACK YEARS	MOIC
CFF	Trikafta, Alyftrek	Vanilla	Marketed	2014, 2020	3950	12.4	11	5.2
Perrigo	Tysabri	Vanilla	Marketed	2017	2850	5.5	9	1.4
PTC	Evrysdi	Vanilla	Marketed	2020, 2023, 2024	2134	12	11	2.7
Theravance	Amprexoxatine, Trelegy	Vanilla	Mix	2022	1653	13.3	6	1.8
Morphosys	Gantenerumab, Otilimab, Pelabresib, Tremfya Trontinemab, Tulumimetostat	Synthetic	Mix	2021	1575*	15	7	3.1
Revolution	Daraxonrasib	Synthetic	P3	2025	1250	13.6	12	3.7
UCLA_1	Xtandi	Vanilla	Marketed	2016	1140	5.2	10	1.4
Ionis	Pelacarsen Spinraza	Vanilla	Mix	2023	1124	9.3	13	2.3
Agios	Voranigo	Vanilla	NDA	2024	905	9.1	9	2.1
BeOne	Indelltra	Vanilla	Marketed	2025	850	10.7	9.4	2.6
Ligand	Promacta	Vanilla	Marketed	2019	827	7.2	6	1.3
Biohaven	Nurtec, Zavprent	Synthetic	Marketed	2018, 2021	350*	9.0	12	2.4
GlaxoSmithKline	Cabometyx	Vanilla	Marketed	2021	784	9.0	6	1.5
ImmuNext	Frexalimab	Vanilla	P3	2024	525	13.7	11	4.5
Ferring	Adstiladrin	Synthetic	Approved	2023	500	7.0	8	1.4
PureTech	Cobenfy	Synthetic	P3	2023	500	7.6	10	1.5
Quest	Imbruvica	Vanilla	P3	2013	485	28.3	5	5.4
Merck	MK-8189	Synthetic	P2	2022	425	Status unknown		
Arrowhead	Olpasiran	Vanilla	P2	2022	410	16.6	12	6.4
Syndax	Niktinvo	Synthetic	Approved	2024	350	11.9	8	2.4
Blueprint	Gavreto	Vanilla	Marketed	2022	340	Missing data		
Eisai	Tazverik	Vanilla	NDA	2019	330	Missing data		
Cytokinetics	Aficamten, Omecamtiv, CK-586	Synthetic	P3	2017, 2022, 2024	540*	13.3	16	4.6
Ultragenyx	Crysvita	Vanilla	Marketed	2019	320	6.1	12	1.8
Zenas	Obexelimab	Vanilla	P3	2025	300	10.8	8	3.5
Zealand	Soliqua	Vanilla	Marketed	2018	290	Missing data		
Arteaus	Emgality	Vanilla	Marketed	2019	260	0.14	15	1.0
Biogen	Litifilimab	Synthetic	P3	2025	250	11.8	11	3.7
Dicerna	Oxlumo	Vanilla	Marketed	2021	240	3.8	12	1.4
AiCuris	Prevymis	Vanilla	Marketed	2020	220	9.9	7	1.5
Immunomedics	Trodelyx	Vanilla	Marketed	2018	175	18.7	8	6.5
Minerva	Seltorexant	Vanilla	P3	2021	155	16.4	15	9.0
BioCryst_2	Orladeyo	Vanilla	Marketed	2021	154	11.7	9	2.8
Ascendis_1	Skytrofa	Synthetic	Approved	2023	150	11.3	5	1.5
Ascendis_2	Yorvipath	Synthetic	Approved	2024	150	Missing data		
Pharvaris	Deucrichtibant	Vanilla	P3	2024	138	23.0	9	5.0
Teva	TEV-749	Synthetic	P3	2023	125**	21.0	8	5.5
Geron	Rytelo	Synthetic	Approved	2024	125	21.1	4	1.8
BioCryst	Orladeyo	Vanilla	Marketed	2020	125	11.7	9	2.8
UCLA_2	Erleada	Vanilla	Marketed	2017	105	21.6	8	7.0
Psyadon	Ecopipam	Vanilla	P3	2024	94	19.0	10	6.2
MGH	Entyvio	Vanilla	Marketed	2020	94	Missing data		

*doesn't account loan and equity in investment, **IRR accounts loans payback flow in addition to Royalties

A.6 Major R&D Products' IRR scenarios

ASSET	Year	Peak Sales Min	Peak Sales Max	Launch Year Min	Launch Year Max	LOE Min	LOE Max	Launch Prob. (%)	IRR (%) P10	IRR (%) Mean	IRR (%) P90	IRR (%) Max
Frexalimab	2024	2500	7500	2028	2029	2041	2045	66	11.0	13.7	16.4	23.6
Olpasiran	2022	2000	6000	2027	2029	2040	2041	66	12.9	16.6	20.3	28.3
Daraxonrasib	2025	2000	12000	2027	2028	2040	2043	80	10.5	13.7	16.8	23.0
Seltorexant	2021	750	6000	2028	2029	2040	2045	66	11.3	16.4	21.1	29.5
Litifilimab	2025	1000	3000	2028	2029	2040	2045	66	9.1	11.8	14.7	24.9
Ecopipam	2024	500	1000	2026	2028	2040	2042	90	15.0	19.0	23.0	29.0
Deucricitibant	2024	500	1500	2027	2029	2040	2042	80	19.0	23.0	27.0	32.0
Obexelimab	2025	500	1500	2026	2028	2039	2039	80	5.5	10.8	16.0	23.0

IRR for P10, Mean, P90, includes impact of failure of the compound. IRR Max correspond to launch at earlier year, max LOE, and Max Peak Sales estimates.

Addendum

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