


# ***Recent Trends in Effective Royalty Rates of Biopharma Alliances***

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# Chart 1: Effective Royalty Rates (EFRs) for Biopharma Alliances Commenced Between 2007 and 2018

For 595 Biopharma Alliances signed between 2007 and 2018, EFRs increased on the basis of (i) Clinical stage at signing, (ii) Corporate vs. University licensor, & (iii) Exclusive vs. Nonexclusive license



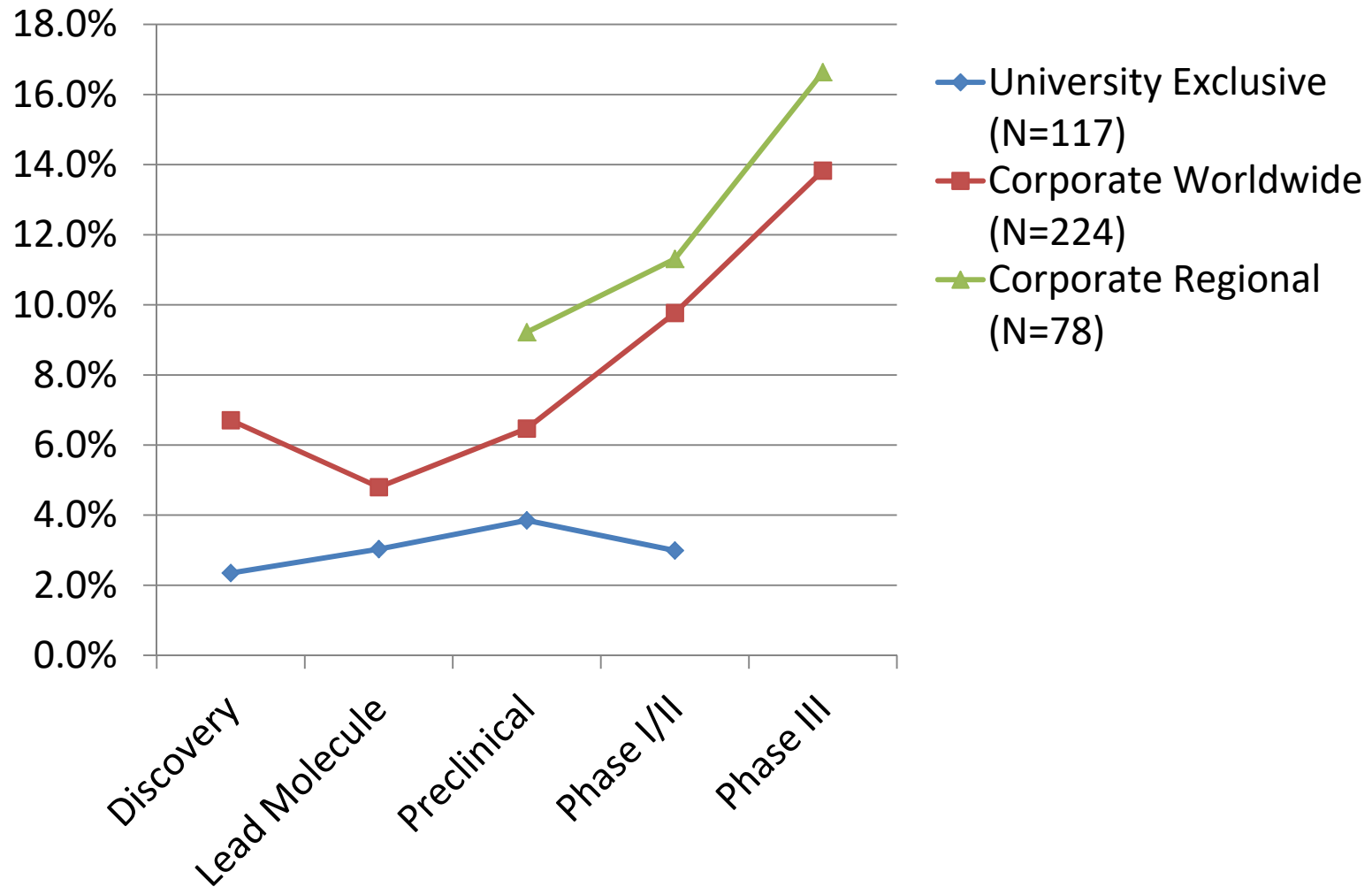
		EFR \$200M	EFR \$500M	EFR \$1B	Max Share
By Stage (Corp & Excl)	• Phase III (N=52)	14.50	15.76	16.67	22.00
	• Phase I/II (N=109)	9.67	10.20	11.01	15.18
	• Preclinical (N=85)	6.51	6.89	7.39	10.20
Corporate	• All (N=438)	9.37	9.83	10.37	14.01
	• Exclusive* (N=400)	9.79	10.29	10.88	14.62
	• Nonexclusive (N=38)	5.02	5.05	5.06	7.71
University	• All (N=157)	3.21	3.22	3.27	3.44
	• Exclusive (N=139)	3.26	3.28	3.33	3.53
	• Nonexclusive (N=16)	3.00	3.00	3.00	3.00

\* Corporate exclusive licenses include 6 semi-exclusive deals for data aggregation purposes

# Table 1: 2007-18 Regional Deals Have Higher EFRs But Lower Deal Size than Worldwide Corporate Deals

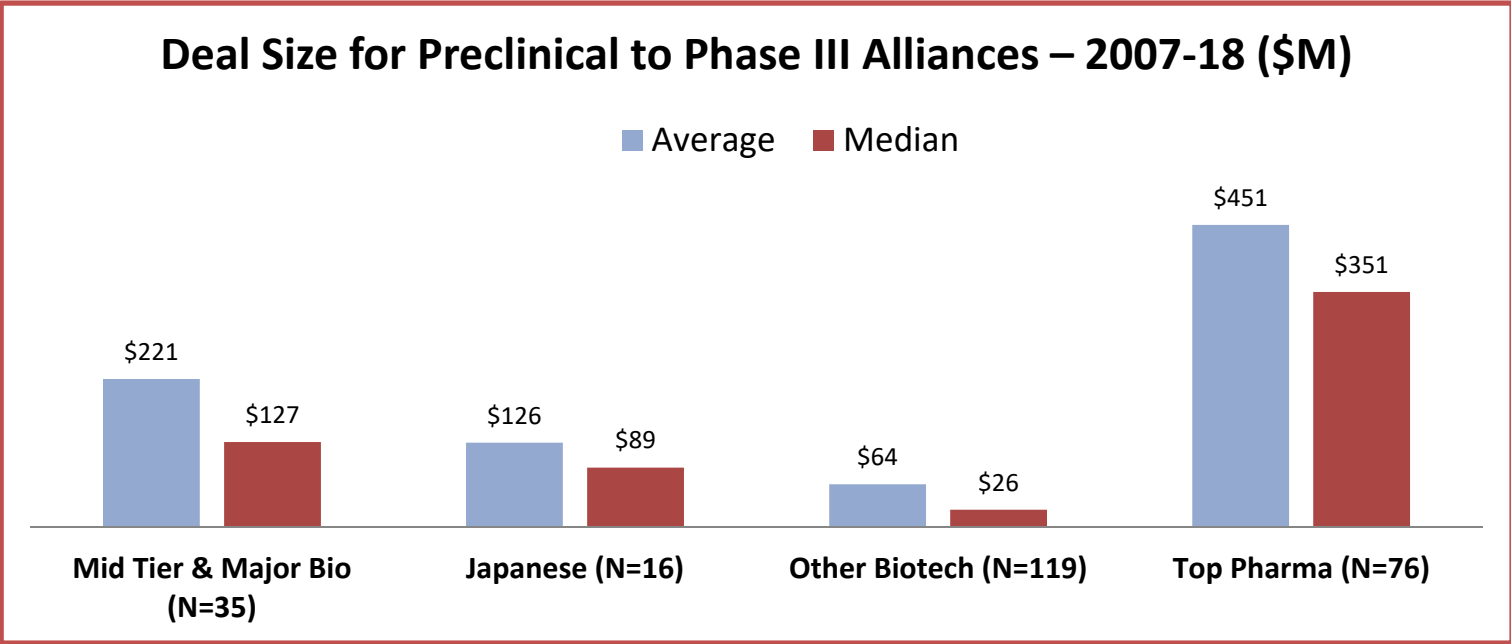
	EFR \$200M	EFR \$500M	EFR \$1B	Max Share	Deal Size \$M
<b>Discovery</b>	6.45 Average	6.71 Average	7.15 Average	13.19 Average	\$267.2M Average
<b>WW (N=31)</b>	7.00 Median	7.00 Median	7.50 Median	10.00 Median	\$204.6M Median
<b>Lead Stage</b>	4.66 Average	4.80 Average	5.03 Average	7.39 Average	\$108.1M Average
<b>WW (N=25)</b>	4.00 Median	4.00 Median	4.00 Median	5.00 Median	\$28.7M Median
<b>Preclinical</b>	6.11 Average	6.47 Average	6.98 Average	10.05 Average	\$151.5M Average
<b>WW (N=72)</b>	6.00 Median	6.30 Median	7.35 Median	10.00 Median	\$83.0M Median
<b>Regional (N=13)</b>	8.73 Average	9.22 Average	9.65 Average	11.04 Average	\$36.4M Average
	8.70 Median	9.40 Median	9.70 Median	10.00 Median	\$19.0M Median
<b>Phase I/II</b>	9.37 Average	9.77 Average	10.59 Average	15.27 Average	\$291.6M Average
<b>WW (N=79)</b>	10.00 Median	10.00 Median	10.50 Median	12.00 Median	\$114.4M Median
<b>Regional (N=30)</b>	10.47 Average	11.31 Average	12.08 Average	14.97 Average	\$149.1M Average
	10.00 Median	10.20 Median	10.95 Median	14.00 Median	\$85.0M Median
<b>Phase III</b>	12.58 Average	13.83 Average	14.60 Average	22.06 Average	\$367.1M Average
<b>WW (N=17)</b>	14.00 Median	15.90 Median	17.45 Median	20.00 Median	\$180.0M Median
<b>Regional (N=35)</b>	15.43 Average	16.64 Average	17.61 Average	21.97 Average	\$194.4M Average
	14.50 Median	15.40 Median	17.00 Median	20.00 Median	\$80.0M Median

## Chart 2: 2007-18 Average EFRs by Stage of Development, Type of Licensor & Licensed Territory\*



\* Average Effective Royalty Rate (EFR) calculated for assumed annual sales of \$500M/yr

# Chart 3: Top Pharma Spent More Cash for Compound Deals, But Other Licensees Gave Higher EFRs at Preclinical & Late Stages



	Average	Median		Average	Median		Average	Median		Average	Median
Preclinical	7.5%	6.5%		8.8%	9.3%		7.0%	6.2%		6.0%	7.0%
Phase I/II	10.4%	10.2%		13.7%	14.5%		8.5%	7.6%		12.4%	12.0%
Phase III	16.0%	16.0%		13.8%	14.0%		16.4%	15.6%		15.3%	16.2%

\* Average & Median Effective Royalty Rate (EFR) calculated for assumed annual sales of \$500M/yr



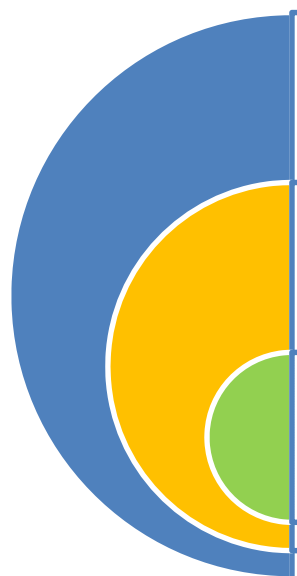
## Chart 4: Effective Royalty Rates (EFRs) for Biopharma Alliances Commenced in 2007

For 152 Biopharma Alliances signed in 2007, EFRs were higher than for the full 2007-18 period across most types of deals & stages of development

		EFR \$200M	EFR \$500M	EFR \$1B	Max Share
By Stage (Corp & Excl)	•Phase III (N=14)	14.33	15.99	17.28	23.14
	•Phase I/II (N=29)	9.97	10.71	11.42	17.62
	•Preclinical (N=19)	8.12	8.76	9.48	11.29
Corporate	•All (N=109)	9.82	10.53	11.13	14.36
	•Worldwide (N=64)	8.38	8.82	9.31	12.48
	•Regional (N=34)	14.12	15.51	16.52	20.84
University	•All Exclusive (N=35)	3.32	3.38	3.43	3.51
	•Excl Preclinical (N=8)	4.25	4.39	4.51	4.63
	•Excl Lead Stage (N=14)	3.17	3.18	3.19	3.25

## Chart 5: Effective Royalty Rates (EFRs) for Biopharma Alliances Commenced Between 2008 and 2009

For 143 Biopharma Alliances signed between 2008 and 2009, EFRs Increased 1.5% Relative to 2007 Worldwide & Phase I/II Deals, but Decreased 1-2% for Regional and Preclinical Stage Deals



		EFR \$200M	EFR \$500M	EFR \$1B	Max Share
By Stage (Corp & Excl)	•Phase III (N=15)	15.03	16.28	17.05	23.47
	•Phase I/II (N=29)	11.50	12.09	13.61	20.16
	•Preclinical (N=15)	6.88	7.20	7.47	12.27
Corporate	•All (N=104)	10.49	10.99	11.7	17.09
	•Worldwide (N=54)	9.87	10.29	11.18	19.27
	•Regional (N=41)	12.91	13.59	14.23	16.74
University	•All Exclusive (N=35)	3.33	3.34	3.40	3.95
	•Excl Preclinical (N=7)	5.18	5.03	5.12	7.50
	•Excl Lead Stage (N=12)	2.50	2.54	2.59	2.69

## Chart 6: Effective Royalty Rates (EFRs) for Biopharma Alliances Commenced Between 2010 and 2012


For 164 Biopharma Alliances signed between 2010 and 2012, EFRs Decreased Relative to 2008-09 Deals, with the Greatest Declines in Phase I/II and Preclinical Stage Deals

		EFR \$200M	EFR \$500M	EFR \$1B	Max Share
By Stage (Corp & Excl)	•Phase III (N=12)	14.59	15.90	16.91	24.67
	•Phase I/II (N=25)	7.68	7.96	8.46	10.19
	•Preclinical (N=25)	5.06	5.27	5.69	7.91
Corporate	•All (N=113)	8.14	8.52	9.02	11.45
	•Worldwide (N=71)	6.37	6.66	7.08	9.03
	•Regional (N=33)	12.56	13.16	13.98	18.09
University	•All Exclusive (N=46)	3.32	3.32	3.37	3.42
	•Excl Preclinical (N=15)	3.43	3.42	3.45	3.37
	•Excl Lead Stage (N=12)	3.25	3.28	3.28	3.29



# Chart 7: Effective Royalty Rates (EFRs) for Biopharma Alliances Commenced Between 2013 and 2018

For 136 Biopharma Alliances signed between 2013 and 2018, EFRs Increased 1% Relative to 2010-12 Worldwide & Regional Deals; EFRs for Preclinical & Phase I/II Deals Increased 1.5%, While Phase III Fell 1.5%



		EFR \$200M	EFR \$500M	EFR \$1B	Max Share
By Stage (Corp & Excl)	• Phase III (N=11)	13.90	14.63	15.13	15.64
	• Phase I/II (N=26)	9.20	9.73	10.19	11.90
	• Preclinical (N=26)	6.51	6.92	7.44	10.44
Corporate	• All (N=112)	9.14	9.44	9.80	13.43
	• Worldwide (N=73)	7.32	7.74	8.22	12.02
	• Regional (N=30)	14.56	14.63	14.80	16.55
University	• All Exclusive (N=23)	2.95	2.96	2.99	3.12
	• Excl Preclinical (N=10)	3.21	3.24	3.27	3.41
	• Excl Lead Stage (N=6)	3.17	3.17	3.17	3.33