

Parameter	$\mu^*$ (3 s.f.)	Proportionality
$k_{f,14}$	$7.45 \times 10^{-2}$	(+)
$k_{f,4}$	$4.13 \times 10^{-2}$	(-)
$L_s$	$4.11 \times 10^{-2}$	(-)
$k_{f,5}$	$3.62 \times 10^{-2}$	(+)
$G_d$	$3.11 \times 10^{-2}$	(-)
$K_{d,2}$	$2.66 \times 10^{-2}$	(+)
$k_{f,12}$	$9.28 \times 10^{-3}$	(-)
$k_{f,6}$	$6.80 \times 10^{-3}$	(+)
$R$	$5.10 \times 10^{-3}$	(+)
$k_{f,10}$	$5.07 \times 10^{-3}$	(+)
$k_{f,8}$	$4.89 \times 10^{-3}$	(+)
$k_{f,9}$	$4.44 \times 10^{-3}$	(-)
$k_{r,8}$	$4.44 \times 10^{-3}$	(-)
$R_{pc}$	$3.39 \times 10^{-3}$	(+)
$P$	$3.10 \times 10^{-3}$	(-)
$Ca$	$2.81 \times 10^{-3}$	(-)
$K_{d,11}$	$2.62 \times 10^{-3}$	(+)
$k_{f,11}$	$2.47 \times 10^{-3}$	(-)
$k_{f,13}$	$2.35 \times 10^{-3}$	(+)
$P_c$	$2.35 \times 10^{-3}$	(-)
$R_g$	$1.85 \times 10^{-3}$	(+)
$k_{f,7}$	$1.33 \times 10^{-3}$	(-)
$k_{r,10}$	$1.20 \times 10^{-3}$	(-)

Table S5: Model sensitivity analysis results: Tau-to-Tail Ratio. The full list of significant parameters is given. Parameters are ranked by  $\mu^*$ . Additionally, a column depicting whether the parameter is proportional (+) or inversely proportional (-) to the objective function is supplied. The measure of proportionality is taken from the sign of  $\mu$ , hence reveals the effect of the parameter on the objective function direction on average across all tests.