## NS MODEL FORMULA & PARAMETERS

$$y(\tau) = \beta_1 + \beta_2 \left[ \frac{1 - \exp(-\tau/\lambda)}{\tau/\lambda} \right] + \beta_3 \left[ \frac{1 - \exp(-\tau/\lambda)}{\tau/\lambda} - \exp(-\tau/\lambda) \right].$$

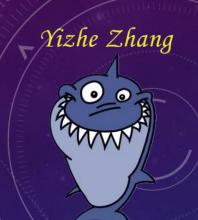
## FORMULA

r(t) = beta0+beta1\*part1+beta2\*(part1-part2)

part1 = (1-part2)/part3

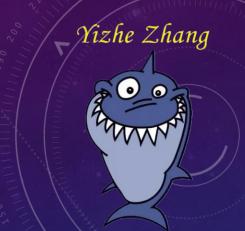
part2 = math.e\*\*(-part3)

part3 = T/tau



## TERM

- beta0 defines the long term level of zero rates (T->∞,
   r(t) = beta0)
- beta1\*part1 introduces an exponential time decay that becomes slower the bigger tau is
- beta2\*(part1-part2) produces either a hump ( $\beta$ 2>0) or a trough ( $\beta$ 2<0) that occurs at a time governed by tau
- beta0+beta1\*part1 equal almost short dated zero
   rates (T->0, r(t)=beta0+beta1\*part1)



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r(t) = beta0+beta1*part1+beta2*(part1-part2)

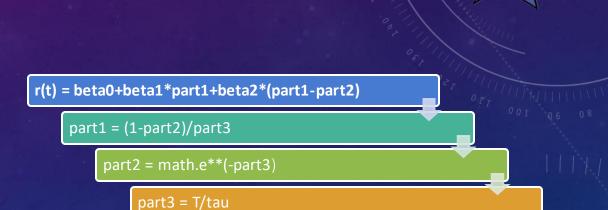
part1 = (1-part2)/part3

part2 = math.e**(-part3)

part3 = T/tau
```

## PARAMETERS

- beta0: Adjust Level
- beta1: Adjust Scope
- beta2: Adjust Curvature
- tau: Adjust hump/trough position



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