what drives the success of low(er) budget movies?

an analysis of **revenues** vs. **recognition**

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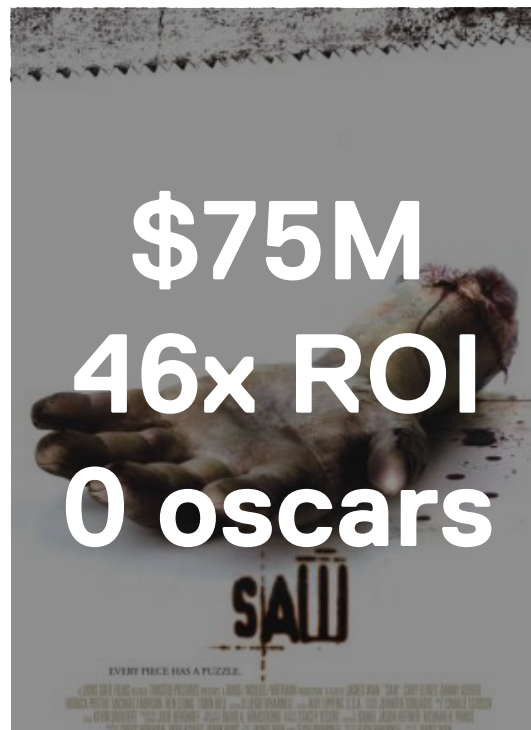| < $2 MILLION	< $30 MILLION	ALL MOVIES
rarely successful	more interesting success patterns?	success driven by resources
not enough data		less variation in outcomes

GROSS REV. (2015$)	ROI (PROFIT / BUDGET)	OSCAR NOMINATIONS
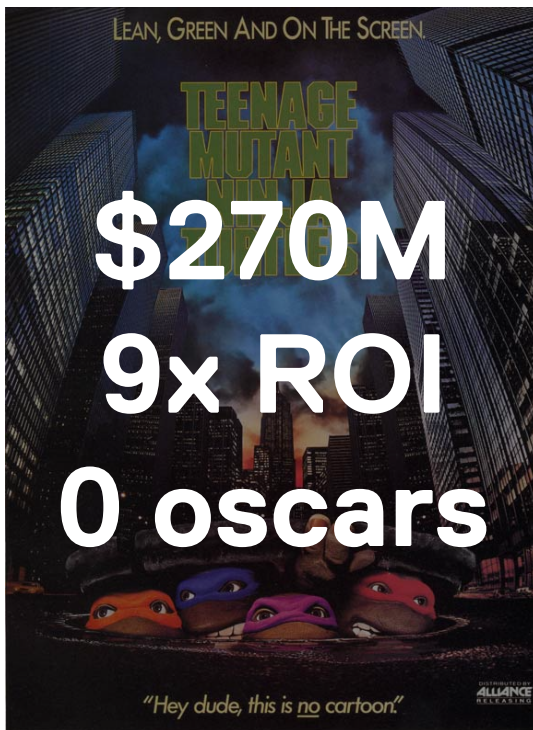
$270M
9x ROI
0 oscars

$75M
46x ROI
0 oscars

$43M
1x ROI
9 oscars

revenues

recognition

PREDICTING THE SUCCESS OF LOW(ER) BUDGET MOVIES

Box Office Mojo

Newsday

16,000+ movies	**2,500+ oscar nominations**
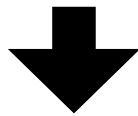
~2,900 movies
with budget data
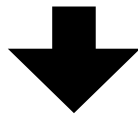
only 18%!

~1,100 movies
since 1980 and <$30M
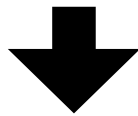
Box Office Mojo

Newsday

16,000+ movies

2,500+ oscar nominations

~2,900 movies
with budget data

only 18%!

train
85%

test
15%

Box Office Mojo

Newsday

16,000+ movies

2,500+ oscar nominations
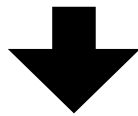
~2,900 movies
with budget data
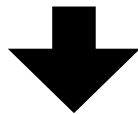
only 18%!

test
15%

k-fold cross-validation

revenues
gross revenues

recognition
oscar nominations

release season

mpaa rating

budget   **theaters**

runtime

genre

actor oscar noms

director oscar noms

release season

mpaa rating

budget   **theaters**

runtime   **roi**

genre

actor oscar noms

director oscar noms

revenues

log(gross revenues)

holiday release

rated G, PG, PG-13, R

budget   theaters

runtime

horror

actor + director oscar noms

recognition

log(oscar nominations)

holiday release
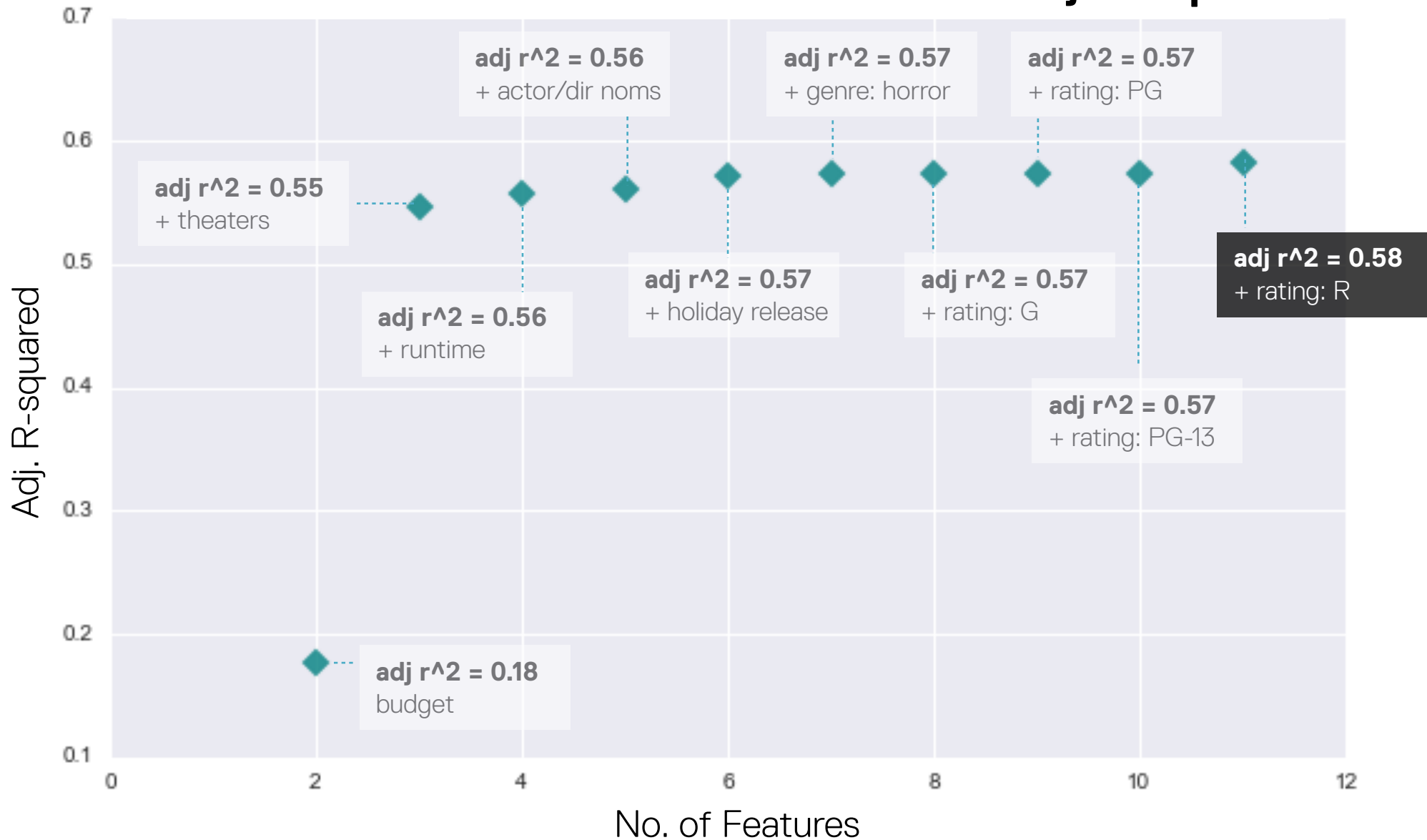
rated R

budget   theaters^3
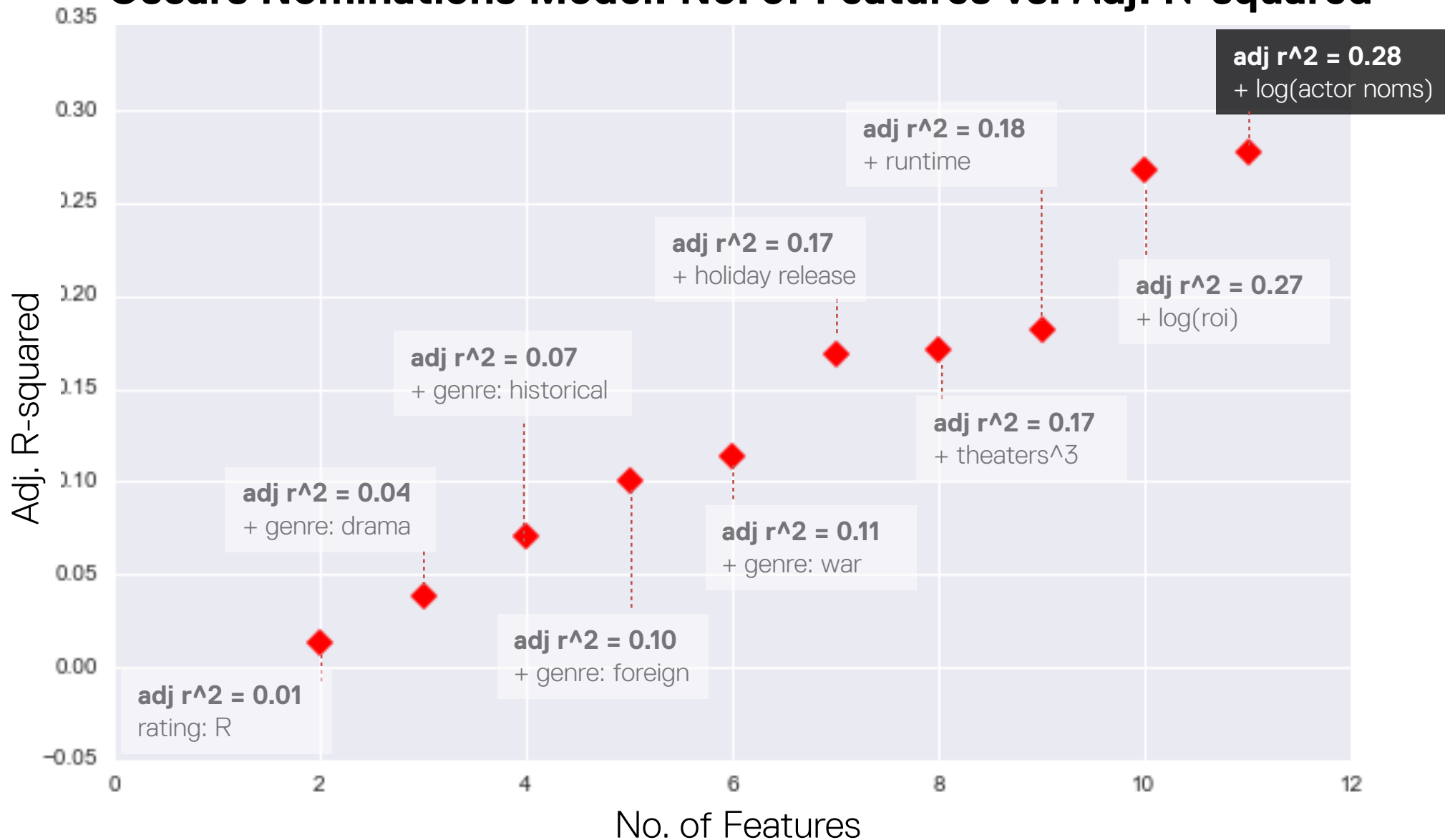
runtime   log(roi)

foreign, war, drama, hist.

log(actor oscar noms)

director oscar noms

Gross Revenues Model: No. of Features vs. Adj. R-squared

adj r^2 = 0.56
+ actor/dir noms

adj r^2 = 0.57
+ genre: horror

adj r^2 = 0.57
+ rating: PG

adj r^2 = 0.55
+ theaters

adj r^2 = 0.57
+ holiday release

adj r^2 = 0.57
+ rating: G

adj r^2 = 0.58
+ rating: R

adj r^2 = 0.56
+ runtime

adj r^2 = 0.57
+ rating: PG-13

adj r^2 = 0.18
budget

Adj. R-squared

No. of Features

Oscars Nominations Model: No. of Features vs. Adj. R-squared

If you're making a movie with a <$30M budget and want to maximize:

revenues

don't make an NC-17 movie

spend more money

release it in as many theaters as possible

recognition

make an R movie

make a drama, foreign, historical, or war film

get actors with oscar nominations

(release it during the holiday season)

revenues

0.58
adjusted R^2
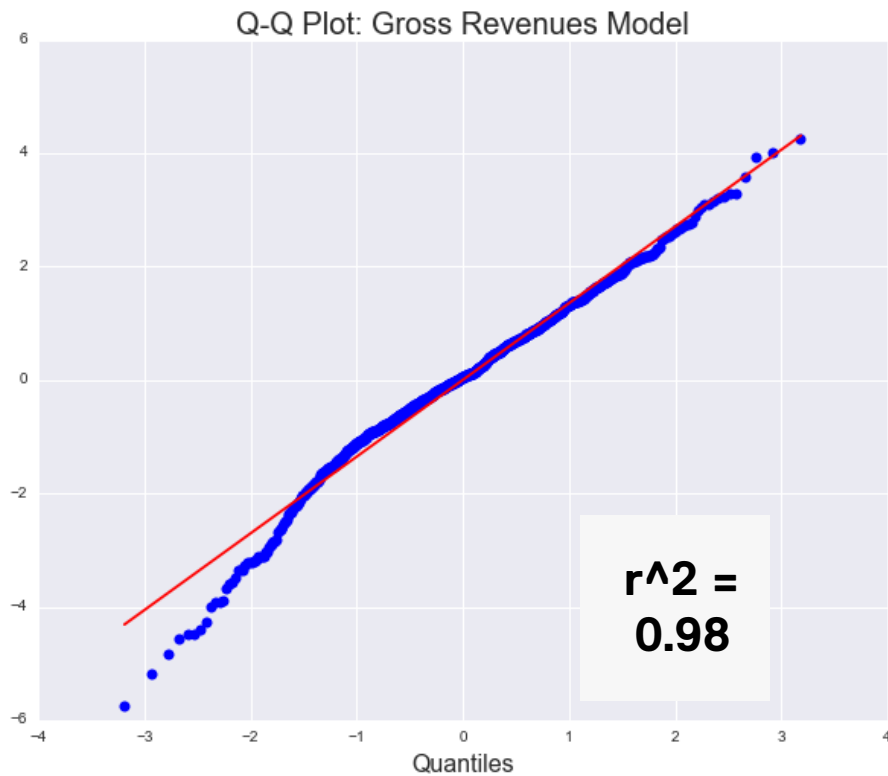
recognition

0.28
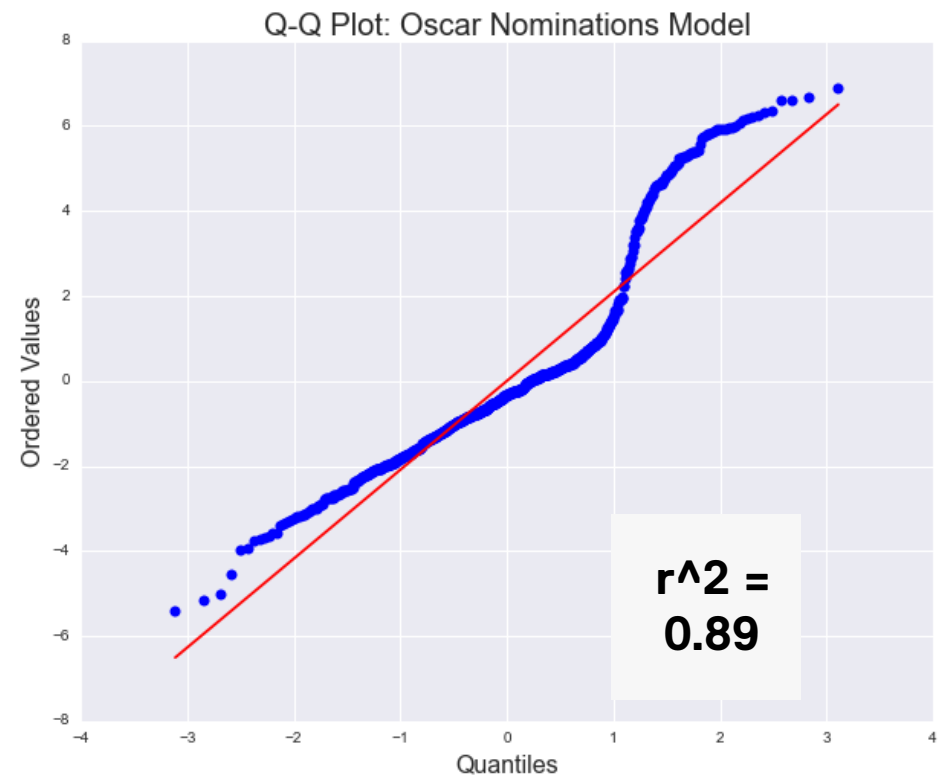adjusted R^2

revenues

recognition

more features

more features

revenues

recognition

more features

more features

Q-Q Plot: Gross Revenues Model

r^2 = 0.98

Q-Q Plot: Oscar Nominations Model

Ordered Values

Quantiles

r^2 = 0.89

revenues

recognition

more features

more features

different model

other features:
interactions
marketing budgets
content via plot summary and script analysis

other models:
logistic or poisson regression
clustering?

more comparison:
to movies of all budgets
to success by viewer/critic ratings

thanks!

questions?