

# Using Normalized P/E Ratios to Project Future Stock Price Movement: An Experimental Analysis: 2002 – 2006/2011

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## Study Objective:

- Determine if normalized P/E ratios are predictors of stock price movements
- Determine if normalized P/E ratios are indicators of relative valuations.

## Study Design:

- Data Set
  - Dow Jones 30 stocks
  - 5/10 years earnings history
  - Price/Normalized Earnings
  - Price/Current Earnings
- Time Period
  - Normalized earnings calculated from 2002-2006/2011
  - Return Analysis: compare expected P/E in 2012 to actual 2012 P/E

## Nomenclature

$E_t$  = Earnings at time, t

$NE$  = Normalized Earnings

$P_t$  = Stock price at time, t

$P_{t+n}$  = Stock price at time, t + n

## Normalized P/E Model:

$$NE = \frac{\sum_{t=1}^5 E_t}{5} \quad NE = \frac{\sum_{t=1}^{10} E_t}{10}$$

(5 yr. normalized P/E)      (10 yr. normalized P/E)

## Valuation Conditions:

$$\frac{P_t}{NE} > \frac{P_t}{E_t} \quad (\text{Stock undervalued})$$

$$\frac{P_t}{NE} = \frac{P_t}{E_t} \quad (\text{Stock fairly valued})$$

$$\frac{P_t}{NE} < \frac{P_t}{E_t} \quad (\text{Stock overvalued})$$

## Hypothesis:

$$\frac{P_t}{NE} > \frac{P_t}{E_t} \quad \text{then} \quad P_{t+n} > P_t$$

$$\frac{P_t}{NE} = \frac{P_t}{E_t} \quad \text{then} \quad P_{t+n} = P_t$$

$$\frac{P_t}{NE} < \frac{P_t}{E_t} \quad \text{then} \quad P_{t+n} < P_t$$

## Conclusion:

- Using 5 year model, 18 out of 30 (60%) Dow stocks matched our predictions
- Using 10 year model, 17 out of 30 (57%) Dow stocks matched our predictions
- Using both 5 and 10 year models, 16 out of 30 (53%) Dow stocks matched our predictions
- Over short time periods, the model has predictive capabilities
  - Drastic fluctuations in either price or earnings caused model to fault
  - Could possibly be improved by using quarterly earnings

## Predictions/Results

Ticker	5 yr. norm	10 yr. norm
MMM	yes	yes
AA	yes	no
AXP	yes	yes
T	yes	yes
BAC	yes	yes
BA	yes	yes
CAT	no	no
CVX	yes	yes
CSCO	yes	no
DD	yes	yes
MSFT	yes	yes
PFE	no	yes
PG	yes	yes
KO	no	no
TRV	yes	yes
UTX	yes	yes
UNH	no	no
VZ	no	no
WMT	yes	yes
DIS	yes	yes
XOM	no	no
GE	no	no
HPQ	no	no
HD	yes	yes
INTC	no	no
IBM	no	no
JNJ	yes	yes
JPM	yes	yes
MCD	no	no
MRK	no	no