Are P/Book Ratios Predictable?

by

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What is a P/Book Ratio?

• P/Book measures the market price of a stock relative to its accounting value (aka. Book-value or equity-value):

\[
P/Book = \frac{Price}{Book} \\
= \frac{Market\ Cap}{Equity} \\
= \frac{Share\ Price}{Equity\ Per\ Share}
\]

• Useful for quick assessment whether a stock is cheap or expensive.
Common Assumptions

- People sometimes assume the P/Book is constant forever or it will equal its historical average P/Book in the future.
- Let’s check if these notions are correct ...
Wal-Mart (Financial Statistics)

<table>
<thead>
<tr>
<th>Wal-Mart (1994-2014)</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>9.1%</td>
<td>0.8%</td>
</tr>
<tr>
<td>ROE</td>
<td>22.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>3.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Equity / Assets</td>
<td>39.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Earnings Retained</td>
<td>47.5%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Dividend / Net Income</td>
<td>22.0%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Net Share Buyback / Net Income</td>
<td>30.5%</td>
<td>24.7%</td>
</tr>
</tbody>
</table>

Wal-Mart has been a very stable company except for retained earnings.
Wal-Mart (Share Price and P/Book)

Wal-Mart

Share Price / USD

1995 2000 2005 2010

4 6 8 10 12

Wal-Mart (1994-2014)

P/Book

1995 2000 2005 2010

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Wal-Mart (P/Book Statistics)

P/Book
Mean: 4.7
Stdev: 2.0
Min: 2.4
Max: 12.2

Wal-Mart (P/Book Density)

F(x)

Wal-Mart (P/Book CDF)
Conclusion

- P/Book is not constant and rarely equals its historical average.
- Even stable companies have volatile P/Book ratios.
- Future P/Book ratios are not easy to predict.
Further Reading

Plots are taken from the paper:

- **Portfolio Optimization and Monte Carlo Simulation**
  Authored by Magnus Erik Hvass Pedersen.

Available on the internet: