



Figure 46: Correct PB formula vs. commonly used "wrong" formula

	<u>Correct</u>	<u>Incorrect</u>
Growth based fair PB:	$PB = \frac{\text{Incremental real ROE} - \text{real growth}}{\text{Real COE} - \text{real growth}} * \frac{\text{Accumulated ROE}}{\text{Real incremental ROE}}$	$PB = \frac{\text{ROE} - g}{\text{COE} - g}$
Steady-state based fair PB:	$PB = \frac{\text{Accumulated ROE}}{\text{Real COE}}$	$PB = \frac{\text{ROE}}{\text{COE}}$
Growth based fair PE:	$PE = \frac{\text{DPS}}{\text{COE} - \text{growth}} / \text{EPS}$	
Steady-state based fair PE:	$PE = \frac{1}{\text{real COE}}$	$PE = \frac{1}{\text{COE}}$

Source: Deutsche Bank

The commonly used "wrong" PB formula (on the top right above) has two critical flaws in its derivation from the proper Gordon Growth dividend discount model:

- It assumes accumulated ROE = incremental ROE
- It does not account for long-term EPS growth driven by inflation

Rarely does ROE equal incremental ROE or even converge with COE at steady-state. In theory, it makes sense for accumulated ROE to converge with the incremental ROE or COE over the long-run owing to competitive forces. However, in practice this rarely happens on accounting based measures of accumulated ROE. To the contrary, the spread between the two often expands over time because the accumulated ROE rises as earnings rise faster than book equity due to inflation. This is because inflation adds to earnings growth but not book value growth (assets are carried at cost). This often overpowers any decline in ROE over COE earned by the company or industry maturing.

If one accepts that Banks have little long-term economic profit growth potential, even if their current ROE exceeds their COE, then the best short-cut method to approximate a fair steady-state PB for banks is the ratio of an estimated sustainable accumulated ROE divided by a real cost of equity estimate. This is consistent with a fair steady-state PE being 1 divided by the real cost of equity.