

Back Of The Envelope Banking

Easy DuPont Formula Paints Clearer Profit Picture

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The 2002 Sarbanes-Oxley Act has encouraged directors to understand better what drives their businesses. And, a nearly century-old equation, the DuPont Formula, may be the best way to help them chart performance issues that matter most.

A Truer Story in 5 Lines

Made famous by the renowned chemical company, the method has a long history in the manufacturing industry for determining capital efficiency. With slight modification and using just five line items [see chart], it can also have compelling and telltale application in banking. Primary advantages are twofold:

- Simple computations
- Understanding the relevance of earnings structure and equity capital leverage, rather than just looking at relative level of earnings performance.

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5 FORMULA FACTORS

1. Net Interest Income
2. Noninterest Income
3. Net Income
4. Average Assets
5. Average Equity

The formula also sidesteps an age-old controversy—whether ROE or ROA is a better performance measure. DuPont actually makes ROA a primary component of ROE, asserting it's the product of *Return on Average Assets* and the leverage of *Equity Capital Base*: $ROE = ROA * CAPITAL LEVERAGE$.

ROA then gets further cut into two components, *Profit Margin* and *Asset Productivity*: $ROE = PROFIT MARGIN * ASSET PRODUCTIVITY * CAPITAL LEVERAGE$. Spelled out, the final equation appears like this:

$$\frac{NET\ INCOME}{AVERAGE\ EQUITY} = \frac{NET\ INCOME}{NET\ REVENUE} * \frac{NET\ REVENUE}{AVERAGE\ ASSETS} * \frac{AVERAGE\ ASSETS}{AVERAGE\ EQUITY}$$

Let's examine how DuPont ties all three—profit margin, asset productivity and capital leverage—together.

Profit Margin

Profit margin, or net income divided by net revenue [net interest income + non interest income] isn't new to the industry. Loan analysts use this methodology on commercial accounts all the time. Yet, when applied to an institution's overall success, directors discover quickly how profitable banking can be—often returning 30 percent or higher margins.

Asset Productivity

Determining asset productivity highlights the uniqueness of the banking balance sheet. Net revenue divided by average assets illustrates the yield that the firm's total assets are generating, net of funding costs, and includes noninterest income. This ratio reflects the effectiveness of loan and deposit pricing strategies, asset and liability mix, noninterest income sources, and diversified income streams.

For example, assume the interest rate spread [interest contractual rate minus funding cost] on a \$100,000 mortgage yields 3.5 percent. Ancillary fees may boost that $\frac{1}{4}$ percent. Another $\frac{1}{2}$ percent comes from title, property and casualty insurances, or wealth management, collectively producing 4.25 percent.

While the formula does the aggregation at balance sheet level, the final asset yield reflects many strategic decisions and business practices. Perhaps the methodology could even apply to individual customer relationships and forge new uses of MCIF information.

Also revealing—DuPont segregates the effects of revenue and expense levels on ROA. Note the difference between asset productivity and profit margin percentage consists of three factors: operating expenses, provisions for loan losses and taxes.

Capital Leverage

Average assets divided by average equity [inverse of Tier 1 Capital Ratio] gives us the last component. More simply, it's how many assets a bank employs with each dollar of equity capital. The greater the *leverage*, the higher the ROE. Community bank directors typically ignore this factor, suffering dramatic effects on ROE and compensation plans with ROE targets. Identifying *leverage* trends means evaluating the relationship mix of asset and equity capital growth rates, dividend policies, investment value changes, sustainable growth rates, and stock buy-backs...all essential to an effective capital strategy.

The following scenario tracks the performance of a *Power Peer Group*, 10 community banks with assets ranging from \$300 million to \$1.2 billion operating in diverse markets. Their DuPont calculation: 15.3% [ROE] = 32.3% [PM] * 4.5% [AP] * 10.6 [CL].

Relatively low capital leverage [10.6] is offset by a strong 1.44 percent ROA [4.5 AP * 32.3 PM]. An in-depth analysis would show that asset productivity [4.5 percent] was impacted by low levels of noninterest income. The greatest commonality among the group—tight control over expenses and provisions for taxes and loan quality—contributed to an impressive 32.3 percent profit margin.

DuPont not only identified the earnings structure, but showed additional capital leveraging will raise the ROE, albeit with a slight decline in ROA. The real value though comes with tracking the historical and projected movements of all three components, with changes in assets and earnings structure. Armed with this insightful data, directors can make confident growth and product decisions.

DuPont and Competitors

You can use DuPont to evaluate competitors' strategies and performances too. Beyond ROE, the formula can help assess whether results come from cost and credit discipline, revenue generation or capital leverage.

New Jersey based Commerce Bank, widely known for its unique approach to retail banking ["America's Most Convenient Bank"] and rapid office expansion, touted a solid 18.5 percent ROE in 2002. A closer glance at structure of earnings and capital leverage revealed: $18.5\% \text{ [ROE]} = 17.5\% \text{ [PM]} * 6.1\% \text{ [AP]} * 17.6 \text{ [CL]}$.

A robust 6.1 asset productivity ratio translated into a profit margin of only 17.5, indicating perhaps an elevated operating cost. A quick read of the public financial results explains more. The highly leveraged position that produced the 18.5 ROE made up for the expense laden 1.05 ROA.

Diversified income streams from insurance, capital markets activities and asset management services created the vigorous asset productivity. Low profit percentage stemmed from the aggressive expansion, high cost structure supporting the retail enterprise and operating in other income businesses. DuPont analysis easily isolated the importance of ancillary business unit revenues to Commerce's future earnings.

DuPont can help any bank set strategy, improve financial performance and make better decisions. Presenting the concept to management will evoke innovative discussions about your financial structure and competitors' positions. And, with such formula simplicity, it can all be done on the back of an envelope.

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