

Re: "Regression" average VS the "Arithmetic" Average

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- *From:* "The Last Danish Pastry" <clivet@xxxxxxxx>
 - *Date:* Mon, 19 Feb 2007 17:30:31 -0000
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[Top posting corrected]

"Brablo" <gestureofrespect@xxxxxxxx> wrote in message
news:1171894627.132992.255930@xx

On Feb 19, 4:55 am, "The Last Danish Pastry" <cli...@xxxxxxxx>
wrote:

"Brablo" <gestureofresp...@xxxxxxxx> wrote in message

news:1171855401.344234.270730@xx

Here is the data (all ~487 or so points of the S&P 500).

You totally misunderstood what I'm saying. I did *NOT* set
up
one
experiment with a constant. Let me re-clarify what I did.

1. In my first experiment, I simply took the arithmetic
average
of
the P/B ratio of all 487 points. P/B is simply the market cap
of
the
stock divided by the book value of the company. So to find
the
average (market capped weighted, essentially), summed up
the
entire
market cap of the S&P 500. I also summed up the entire
book

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value
of
these 487 companies. Now i have 2 very, very large
numbers.
When I
divide the first of these numbers (total Market Cap which
exceeds
\$12T) by the second, I get 2.85.

2. In my second experiment, I decided to regress the market
cap
(MC)
to the BV without including a constant. It was found that the
slope
relating the BV to the MC (the P/B ratio) was 2.50. This
value
is
quite different from the first answer of 2.85.

It would probably be simpler if we reduced the number of companies,
and the sizes of the numbers involved.

Consider just two companies, C1 and C2.

C1: MC= 3, BV=1

C2: MC=21, BV=2

Your first experiment would give, I think, a result of 8
 $= (3+21)/(1+2) = 24/3$

Your second experiment would give, I think, a result of 9
 $= (3 \times 1 + 21 \times 2)/(1 \times 1 + 2 \times 2) = 45/5$

Are my 8 and 9 correct?

Do you understand why the two numbers are different?

Danish Pastry,

Very good point. I understand the formulation of the slope and my
method to calculate the mean. Qualitatively, what does taking the
slope explain? This seems to be a weighted average of some sort.

You have not directly answered my two questions, but I shall try to
answer yours.

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In the first experiment you compute the slope of the line which joins the origin to the centroid of the points.

In the second experiment you compute the best-fit line (in the least-squares sense) which passes through the origin.

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Clive Tooth

http://www.shutterstock.com/cat.mhtml?gallery_id=61771