



PM'S PERSPECTIVES VALUE + ALPHA GROUP

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How to calculate the cost of equity and utilise it in company management

The Japanese Corporate Governance Code was amended in June 2018. Among the major changes, it was made clear that companies should reduce cross-shareholdings, improve the effectiveness of the board of directors and expand the provision of non-financial information. On the other hand, with regard to equity cost-aware management, it was unclear what companies should aim to do, or how they should do it. Accordingly, during recent discussions with management, I have often found myself fielding questions such as “So what is our company’s cost of equity?” and “We have the feeling that under the CAPM (Capital Asset Pricing Model) model our cost of equity is a bit low. How do you think we should calculate it?”, and so on. Their intuition as managers is entirely correct, and I believe few investors place enough emphasis on CAPM. So, how indeed should we calculate the cost of equity?

My conclusion is that the cost of equity should be computed by asking buy-side investors in stocks what PER (Price Earnings Ratio) they are applying. The advantage of using PER is that it is the most widely used valuation metric among investors in stocks, so the approach to calculating it is relatively uniform and most of those asked will be able to provide a reasonable PER in response. Conversely, if investors were asked directly for their cost of equity, differences in approach and underlying assumptions would likely result in answers that were not necessarily helpful. For that reason, I advocate the use of the PER as a kind lingua franca for stock investors.

Figure 1: Relationship between PER, EPS (Earnings per Share) and Cost of Equity

EPS₁: 1-year forward EPS ; g: long-term rate of growth in EPS ; r: cost of equity When $r > g \geq 0$

$$\text{PER} = \text{share price} / \text{EPS}_1 \dots (1)$$

$$\text{Share price} = \text{EPS}_1 / (1+r) + \text{EPS}_1(1+g) / (1+r)^2 + \text{EPS}_1(1+g)^2 / (1+r)^3 + \dots + \text{EPS}_1(1+g)^{n-1} / (1+r)^n + \dots = \text{EPS}_1 / (r-g) \dots (2)$$

$$\text{From (1) and (2), PER} = 1 / (r-g) \dots (3)$$

If we assume that the share price is the sum of discounted future profits, then Figure 1 shows two meanings for PER. According to equation (1), PER represents how many years of profits it expects it to equal to. Alternatively, according to equation (3), PER is the reciprocal of the cost of equity from which the rate of growth in EPS has been subtracted. In other words, the PER shows both the share price and the cost of equity.

Figure 2: Basic principle of Applied PER



How do investors approach the PER thus calculated? Figure 2 shows the approach to the applied PER, but the base is the growth potential and stability of real EPS. As shown in Figure 3, the higher the growth potential and stability of EPS, the higher the applied PER. In addition to this, we take into consideration points added and subtracted for financial factors (net debt-to-equity ratio, FCF, goodwill, etc.) and for non-financial factors, such as management, ESG risks and opportunities and brand. Because each of these elements vary depending on the time series and the company, historical averages and industry averages are not sufficient, it is important to be aware of the actual, recent PER in order to avoid falling into the trap of empty theorising.

Figure 3: Conceptual diagram of applied PERs for Japanese companies (vertical axis shows rate of growth in EPS, horizontal axis shows rate of change in EPS during downturns)

Rate of Growth†/Stability*	Losses posted twice	Losses posted once	More or less in the black	20% of peak	40% of peak	60% of peak	80% of peak
0% p.a.	7.5	8.0	8.5	9.0	9.5	10.0	10.5
3% p.a. (avge for TOPX)	9.0	10.0	12.0	15.0	16.5	18.0	18.9
5% p.a.	11.5	12.8	15.3	19.2	21.1	23.0	24.2
10% p.a.	12.5	13.9	16.7	20.8	22.9	25.0	26.3
20% p.a.	15.0	16.7	20.0	25.0	27.5	30.0	31.5

* Rate of growth in EPS: average of the most recent three years of EPS ÷ the three-year average EPS pre 2008.

† EPS stability is calculated by dividing the peak EPS recorded before the 2008 global financial crisis by the trough EPS recorded during and after the crisis. Stability also takes into account the number of times losses were recorded during the preceding ten years.

Once the applied PER is known, the cost of equity r can be computed using Figure 4. There are various opinions on the long-term rate of growth in EPS g , but my view is that for companies above a certain size, adopting a rate of growth of 1%, in line with that of Japan’s GDP, avoids most criticism. It may be worth asking investors about their views on this as well.

Figure 4: List of values for cost of equity r (computed using applied PER and long-term rate of growth in EPS g, based on $PER=1/(r-g)$)

	PER=7	8	9	10	11	12	13	14	15	16	17	18	19	20	25	30
g = 0	14.3%	12.5%	11.1%	10.0%	9.1%	8.3%	7.7%	7.1%	6.7%	6.3%	5.9%	5.6%	5.3%	5.0%	4.0%	3.3%
g = 1	15.3%	13.5%	12.1%	11.0%	10.1%	9.3%	8.7%	8.1%	7.7%	7.3%	6.9%	6.6%	6.3%	6.0%	5.0%	4.3%
g = 2	16.3%	14.5%	13.1%	12.0%	11.1%	10.3%	9.7%	9.1%	8.7%	8.3%	7.9%	7.6%	7.3%	7.0%	6.0%	5.3%
g = 3	17.3%	15.5%	14.1%	13.0%	12.1%	11.3%	10.7%	10.1%	9.7%	9.3%	8.9%	8.6%	8.3%	8.0%	7.0%	6.3%

With Japan also moving away from the main banking system and towards direct finance, the era of management only based on P&L (profit and loss) targets, when all that was needed was to pay interest to the bank, has come to an end. Seen from the perspective of the stock market, the creation of corporate value, which is to say the generation of ROE that exceeds the cost of equity, is the modern equivalent of interest and is becoming an important management duty. Changing the criteria for withdrawing from a business from losses to below cost of equity would be a good first step in that direction. By that I mean that many companies already use three continuous years of losses as a criterion for withdrawal from the business, so changing this hurdle would result in equity cost-aware management. In addition, almost every company has a business that has no future, but that employs a relatively large number of employees, and for which the decision to withdraw can be delayed if the business generates even the smallest profit. For the management of such companies, the amendment to the Japanese Corporate Governance Code represents an opportunity to reallocate assets from declining businesses to growth businesses. On that basis, in cases where ROE is lower than the cost of equity, the kind of initiatives required might include (1) raising low operating margins in the core business, (2) reducing surplus equity by purchasing treasury stock etc., (3) moving to stock-based business and cutting fixed costs to improve the stability of EPS, and (4) increasing the points added for financial and non-financial factors to lower the cost of equity.

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