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A Case for Inverting the Traditional Approach to Equity Valuation

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Inferring required returns from current prices. A complementary point of view to traditional discounted cash flows equity valuation.

The popularity of discounted cash flows in valuation is well merited. It is a powerful tool used by valuation and accounting professionals to estimate the value of assets when market prices or comparable transactions are not available or reliable. But why is it so prevalent in investment research for highly liquid stocks?

This paper argues that investors in such stocks would indeed benefit from using the discounted cash flow framework, but with a reversed logic-flow. Instead of estimating the value of a stock by discounting forecasted cash flows, start with the market-assigned value of that share (its price) and find the discount rate consistent with these cash flows.

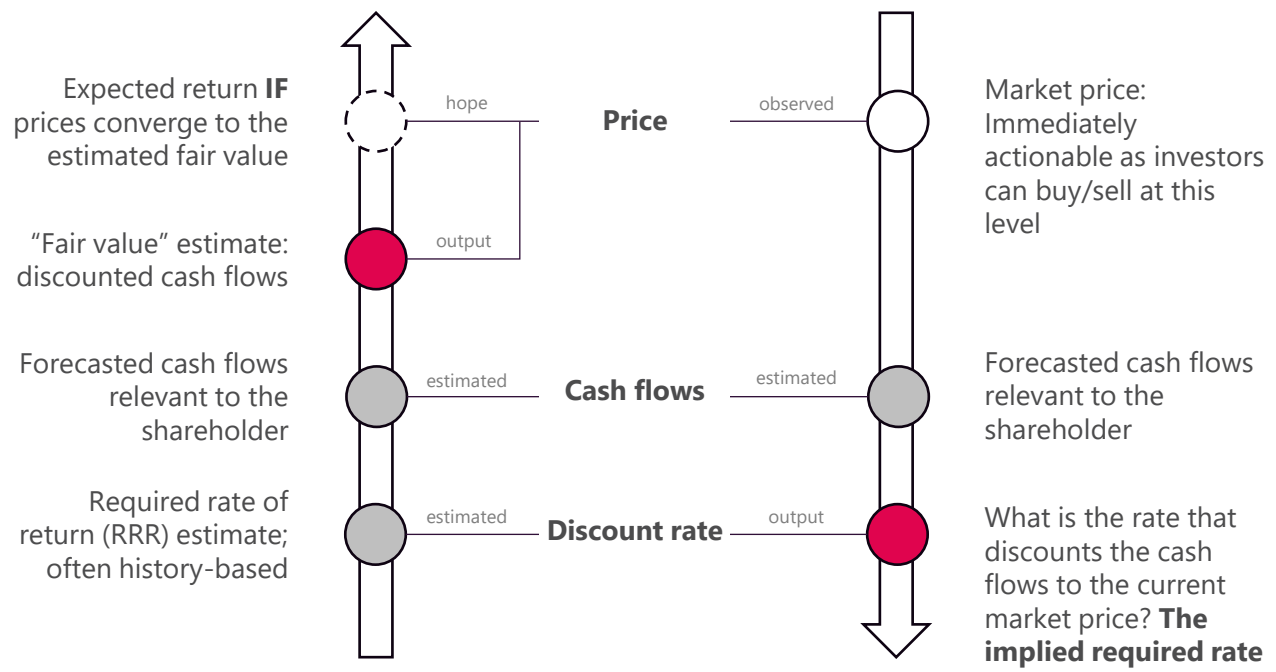
Deriving a return rate that reflects current conditions, reveals new insight compared to the traditional approach. Through this lens, an analyst may be prompted to check whether price moves reflect revised expectations or changes in the risk profile of the investment. This paper looks at the basics of the traditional approach, proposes a new framing and shows how it can be implemented with consensus expectations.

Traditional approach

Relies not only on the analyst being right about the cash flows and the discount rate but also on the market eventually arriving at the same conclusion.

Proposed framing

Answers a similar question (what is the return expected for holding this share?) but from a different perspective and using fewer assumptions.



Back to basics – the traditional approach

Discounted cash flow models work on the assumption that the value of an investment is given by the present value of future cash flows generated by that investment. What does that mean? Let's take a simple example:

An investment is sure to generate $10m, payable in one year. How much would you pay for that? Probably not $10m just to get it back next year. You might gladly pay $9m for a $1m return, but $9.5m could give you just enough compensation. For you, the value of $10m in one year is $9.5m now. You require ~5% (= $0.5m return / $9.5m investment) to take this investment. Another investor might be satisfied to part with $9.7m given the same conditions, a ~3% required return (=$0.3m return / $9.7m investment). They could have fewer alternatives, different constraints, or other reasons.

Even for simple scenarios, different investors may "disagree" on the required rate of return (RRR)

Now, let's assume we are dealing with a slightly more complicated scenario – a series of cash flows:

You expect a company to make profits of $10, $10 and $8 per share in the next three years, and pay half of those profits as dividends ($5, $5 and $4). You also expect to be able to sell that share for $80 at the end of year 3[1]. Given that for a riskless investment you required a 5% return per year, for this riskier proposition you may require 10% (your RRR). How much is a share of this company worth to you? Let's plot the expected cash inflows and find their present value.

Yet, in traditional discounted cash flow models, the RRR is a key input

Cash Flows	Value of CFs now	Received next year	Received in 2nd year	Received in 3rd year
Dividend 1	$4.55 ← =$5/(1+10%)	**$5.00**		
Dividend 2	$4.13 ← =$5/(1+10%)^2	$4.55 ←	**$5.00**	
Dividend 3	$3.01 ← =$4/(1+10%)^3	$3.31 ←	$3.64 ←	**$4.00**
Sale price	$60.11 ← =$66/(1+10%) =$80/(1+10%)^3	$66.12 ← =$73/(1+10%)	$72.73 ← =$80/(1+10%)	**$80.00**

At a 10% RRR, $5 next year is $4.55 today (=$5/(1+10%))

The value today of a cash flow to be received in the next year is that CF divided by 1+ RRR; The aim is to find the present value of all cash flows.

Expected cash flows are discounted by the RRR to derive a fair value

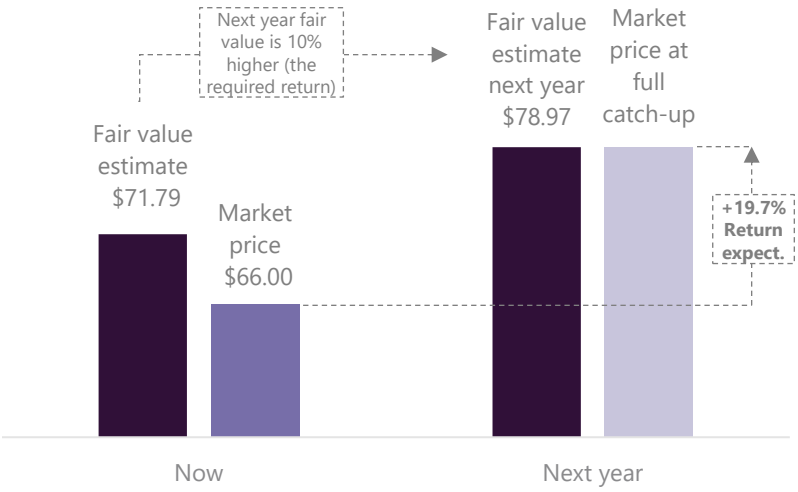
The resulting fair value is independent of the observed share price

Value	**$71.79**	The value you place on a share given your expectations and your required return is the value of all cash flows now (sum)

1 - How you arrive at these estimates is not important in this example. You could have taken the earnings per share estimates from a third party, assume the 50% payout ratio holds and assume the sale price would be 10x the EPS. Or you could have a very detailed model, justifying your expectations.

The present value of all the cash flows you expect from the share is ~$71.79, your estimate of fair value. Therefore, a $65 share would look undervalued and an attractive investment for you (you'd pay $65 for something that is worth $71.79 to you). Alternatively, an $80 share would seem overvalued. In a simplified form, this is the most familiar implementation of the discounted cash flows model.

But how would you determine an expected return on that investment? One common assumption is that the market price would converge towards the stock's fair value within a timeframe, such as one year. The expected return would be the fair value in one year divided by the prevailing market price. Let's assume the current market price is $66:



Assuming the market price fully closes the gap to fair value by increasing from $66 to $78.97, your expected return on that investment is 19.7%. But how actionable would this assessment be? It assumes that market participants not only converge towards similar cash flow projections and discount rates but do so in the one-year timeframe.

Professional investors have good visibility on cash flows expected by the investment research community. They may have access to detailed financial models from individual brokers. Consensus expectations of a wider range of analysts covering the stock are also readily available through data providers. However, visibility on the required rate of return is not great. It is not captured by consensus aggregators and individual broker estimates may not be reflective of actual investor requirements, preferences and constraints.

But the expected return is dependent on the share price moving towards fair value

Convergence is dependent on market participants changing their current views and/or circumstances

The challenge: changes in market expectations for cash flows are relatively easy to track…

…but the RRR relevant for the market is not.

Inverting the traditional approach

How could an investor derive an expected return while avoiding the problematic assumption that the market effectively uses the same discount rate?

Inspired by Damodaran's work on equity risk premiums[1], in particular on Implied Equity Premiums, the proposed approach is to derive the rate that discounts expected cash flows to the current market price. Let's continue the previous example's setup.

The share is trading at $66. Your expectations are that the share will generate dividends of $5, $5 and $4 in the next three years, and you assume the market value of the company's equity to be $80 per share at the end of the third year[2]. What is the return rate that makes the present value of the cash flows equal to the current price? Or put differently, $66 would have to grow by what rate per year for you to be indifferent between $66 now and $5, $5 and $84 (=$4 + $80) received over the next few years?

Cash Flows	Value of CFs now	Received next year	Received in 2nd year	Received in 3rd year
Dividend 1	$5/(1+x%)^1	**$5.00**		
Dividend 2	$5/(1+x%)^2		**$5.00**	
Dividend 3	$4/(1+x%)^3			**$4.00**
Sale price	$80/(1+x%)^3			**$80.00**
Value	**$66.00**	= $5/(1+x%)^1+$5/(1+x%)^2+$84/(1+x%)^3		

Solving for x is an iterative trial and error process. An easy way to find x is to use the =IRR function in excel, using the following series of cash flows:

13% = IRR	$-66 (outflow)	$+5 (inflow)	$+5 (inflow)	$+84 (inflow)

Assuming the $5, $5 and $84 inflows (no different from the traditional approach example), the implied required rate of return (I-RRR) you expect at that price is 13%. All else equal, you return expectation increases (decreases) with lower (higher) market prices and / or higher (lower) inflow expectations.

Flipping the logic-flow of the traditional approach:

Solve for the rate of return…

…that "makes sense" considering (1) what you would have to pay for a share and (2) what you expect that share to generate

This is the implied required rate of return (shortened to I-RRR in this paper)

Price ↓, Inflows ↑ => I-RRR ↑

Price ↑, Inflows ↓ => I-RRR ↓

1 – Aswath Damodaran - Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2022 Edition Updated: March 23, 2022

2 – As in the prior example, the estimation is not important for now, but an approach will be shown later.

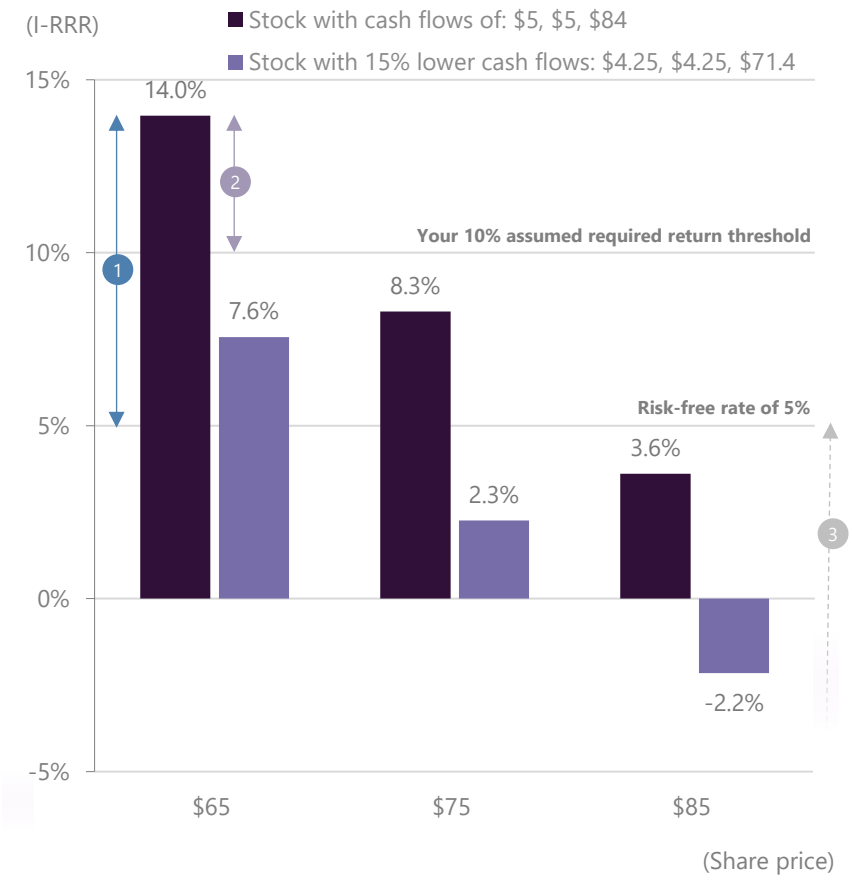
In fact, framing investments in terms of return (yield) should be familiar to fixed income investors. Bonds are often thought about in terms of yield to maturity. These pay coupons at certain intervals and return the principal at maturity.

If a 3-year bond paying a 4% coupon on a $100 principal trades at a 5% yield, this is equivalent to a price of $97.2 (cash flows of $4, $4 and $104 discounted by 5%).

The difference to our earlier example is that cash flows are **known** for most bonds, whereas for stocks, these are generally **estimated**. This paper argues that expressing both types of investment in terms of return (yield) has advantages, one of which is comparability.

The yield of government bonds is often used as a proxy for a risk-free rate, especially in countries with a strong credit rating. The difference between the I-RRR for a share and the risk-free rate is similar to Damodaran's concept of Implied Equity Premium. Let's look at a few scenarios, considering a 5% risk free rate.

Changes in share prices and expected cash flows can modify the relative investment attractiveness



This approach is similar to thinking of bonds in terms of yield – a much more popular concept in that area of investment

Allows for interpretations not readily available through the traditional framework:

1. I-RRR above the risk-free rate suggests the presence of a risk premium (expected reward for taking on risk)

2. I-RRR above your required rate of returns suggest the investment could be attractive to you

3. While in general it is reasonable to expect a premium for assumed risk, the implied returns are calculated at share level, not at the overall company level. Thus, the market environment can affect the attractiveness of shares available to you today

Framing investment opportunities in terms of an implied return metric, complementing the traditional approach, can potentially make your assessment:

More objective – In practice, estimated cash flows are discounted by an estimated required rate of return, to arrive at an estimate of intrinsic value. The proposed approach, anchors on an observed share price but instead of using the RRR as a key input, it solves for its implied value (I-RRR). Cash flow estimates unchanged vs common practice.

Representative – The required rate of return is problematic as an input for investment research because it should be specific to each investor. Having the return rate as an output, in combination with consensus estimates, better captures the changing preferences of market participants

Better informed – Market prices are quick to react. A change in share price without a change in underlying cash flow estimates, modifies the implied return. An investor or analyst could be prompted to ask whether a revision of estimates is warranted or if price changes reflect mostly updated trading conditions.

Actionable – Bid and ask quotes represent the value of each additional unit of a company's stock. Unless the investor considers a controlling ownership or can buy or sell stakes outside the market, this is the most relevant and actionable price level.

There are, of course, drawbacks that the investor should keep in mind when using or developing this framework for their specific context. Some of these are:

1. Not as useful in assessing the entire company. To make that leap, market capitalization would have to be an accurate representation of total equity value. Large deals (for example M&As done at a premium to market prices) show this is not always the case.

2. If the investor wants to get a sense of the market's projections, consensus is generally available for explicit cash flows, but not for the perpetual growth rate, thus finding a consensus terminal value may be difficult.

3. The change in implied returns may be more relevant (i.e. better capture changing conditions) than their level, which depends on choice of cash flow.

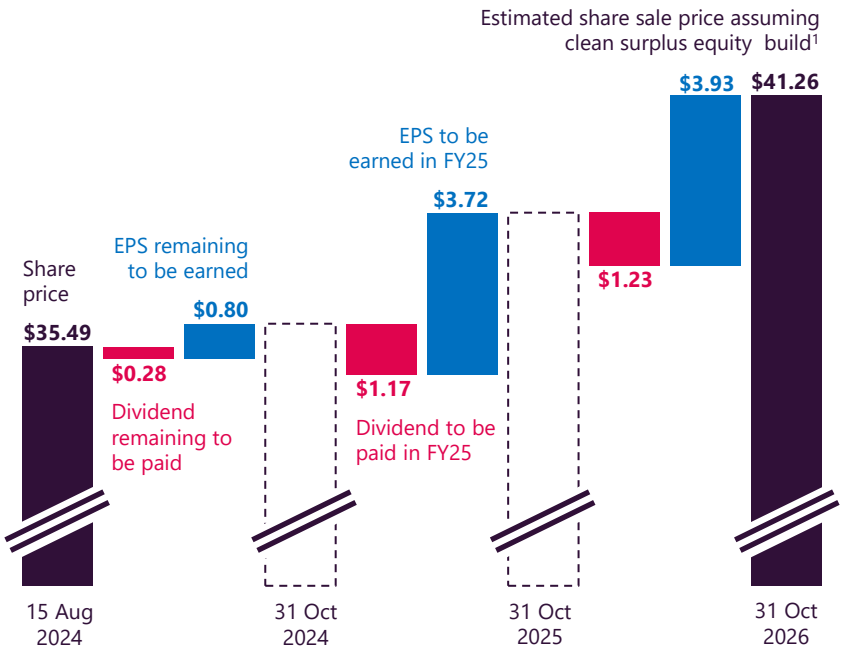
When is this approach most insightful?	**When is special attention warranted?**
When the relevant required rate is difficult to estimate or historical returns not available or relevant	Extrapolating conclusions to the company level
For assessing the changing preferences and constraints of market participants	Choice of terminal value when dealing with consensus estimates
Taking the price signal as prompt to test the validity of your prior estimates	When using the level, rather than the change in I-RRR
When considering marginal acquisitions or divestments	

Uncovering insight and signal from a consensus-based I-RRR

Let's take a single-company example:

1. On Aug 15th 2024, HP Inc shares were priced at $35.49.
2. At that date, per FactSet, the consensus expectations were that HP would pay dividends of $0.28 per share in the rest of the current fiscal year ending Oct 31st 2024, and $1.17 and $1.23 in the following two years.
3. Consensus earnings per share were of $0.80 for the rest of the fiscal year (= 4Q consensus of $0.95 * 84% remaining from the quarter) and $3.72 and $3.93 in the following two years.

Two sets of cash flows are readily available from the above. The $35.49 share price would be an outflow (since we would have to pay that price) and the $0.28, $1.17 and $1.23 dividends would be inflows. But how about the terminal value? The proposed approach takes the price per share (the market value of that unit of the company's equity) and projects it in future periods using a clean surplus assumption (growth in equity is solely driven by earnings generated less dividends paid)[1].



Source: Author's estimates, FactSet Price and Consensus numbers

1 – The paper proposes this approach as it relies solely on readily available consensus figures, while avoiding some of the pitfalls of other methods. Using a price multiple (such as PE) to generate a terminal value risks using a baseline multiple that incorporates at least some of the expectations for periods that would have already passed. Using a perpetual growth rate (such a long-term bond rate or a custom rate), one implicitly makes a statement that may or may not reflect market expectations. Further, would the analyst use the same perpetual growth rate for Apple as for Kodak? Not likely.

For purchasing a share…

…an investor may be expected to receive some dividends (if applicable)…

… and be able to sell the share at some point in time for a sale price

The paper assumes the sale price to be the current price plus retained consensus earnings

Let's look at the expected cash flows and their timing to derive the implied return required for the stock. We will use after-tax cashflows because ultimately this is what an investor should consider. The paper assumes a 10% income tax and a 2% capital gains tax.

	15 Aug 2024	31 Oct 2024	31 Oct 2025	31 Oct 2026	31 Oct 2026
Before tax	**$-35.49**	$+0.28	$+1.17	$+1.23	$+41.26
After-tax	**$-35.49**	$+0.26	$+1.05	$+1.11	$+40.43
I-RRR	**9.1%** =	XIRR ([after-tax cash flows] , [dates])			

These cash flows are sufficient to estimate the implied required rate of return (I-RRR) that the market operates at

How would an investor interpret the 9.1% value?

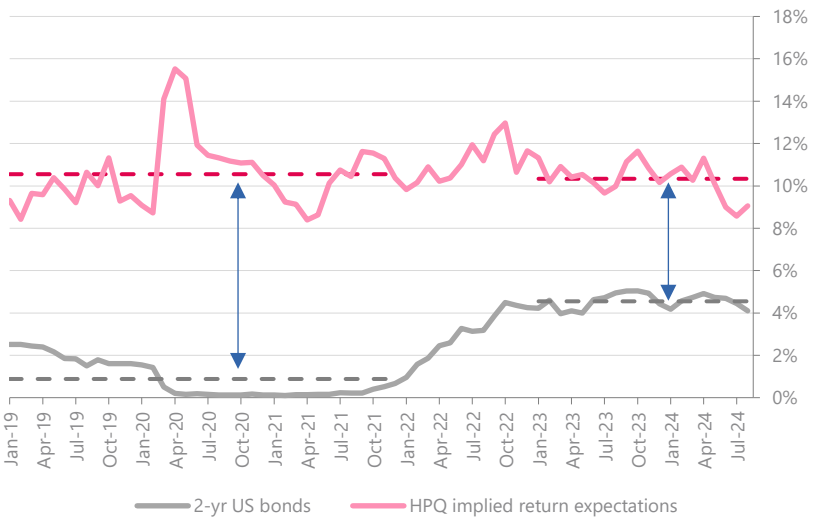
From the investor's perspective, 9.1% is the rate of return that the rest of the market effectively expects to be generated by the $35.49 priced share.

Compare that to the yield of 2-year US government debt at 4.1% (2-year bonds chosen to approximate the time-frame of cash flows assumed for the share). From the analyst's perspective, buyers now demand at least 5 percentage points over a risk-free investment to invest an additional share. Sellers are willing to part with shares that yield 5pts or less over a risk-free alternative.

The metric can be used to calculate the equity risk premium

The I-RRR dynamic through time adds further insight. In this case, it reveals a flat trendline, but over the past two years, investors are demanding/accepting less reward to accept risk over bonds vs 2019-2021. An investor can consider if the share is now less risky or if this is the result of fewer better alternatives (competition for yield).

Investors demanding/accepting a lower risk premium

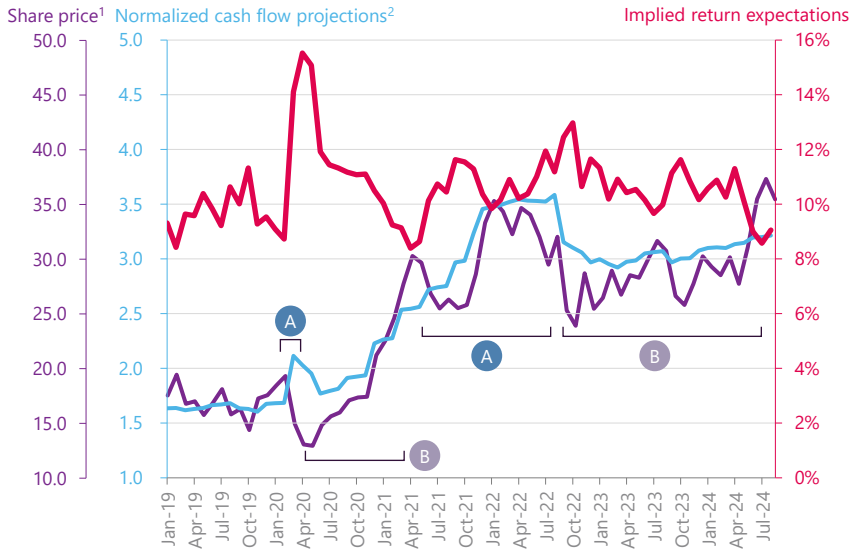


I-RRR is trackable through time, revealing periods where investors accept higher/lower returns compared to riskless opportunities

Source: Author's estimates, FactSet data as of the 15th of every month

Visualizing the relation between implied return expectations, cash flow projections and share price adds further insight. For HP Inc, it reveals that over the analyzed horizon, cash flow projections and share price generally moved in sync. There were some periods of divergence where either cash flow projections outpaced prices (A), driving implied return expectations higher, or prices outpaced projections (B), lowering the implied return metric. But these followed in succession and, albeit with varying lengths of time, were proportional enough to keep implied return expectations in a range.

Changes in implied return expectations reflect divergences between prices and consensus estimates



Source: Author's estimates, FactSet data as of the 15th of every month
Notes: (1) HPQ share price history adjusted for splits, spinoffs and cash dividends per FactSet; (2) To consolidate cash flow projections into a single number, the paper determines the level of perpetual cashflows that discounted by the I-RRR, equate the share price ([normalized cash flow projections] = [share price] * [implied return expectation])

But with the implied return metric now below its average level, an investor may be prompted to ask what would need to happen for mean-reversion to continue. Are there catalysts that could drive consensus estimates higher and / or conditions that could pressure share prices lower, independent of business expectations?

Another question the investor may have is even whether mean-reversion should be expected going forward.

This question is important for decision-making. In a scenario where implied return expectations are range-bound, high (low) values could be attractive investment (divestment) opportunities[3]. But this need not be the case.

3 - Under the condition that future expectations of business performance (consensus) remains relatively stable.

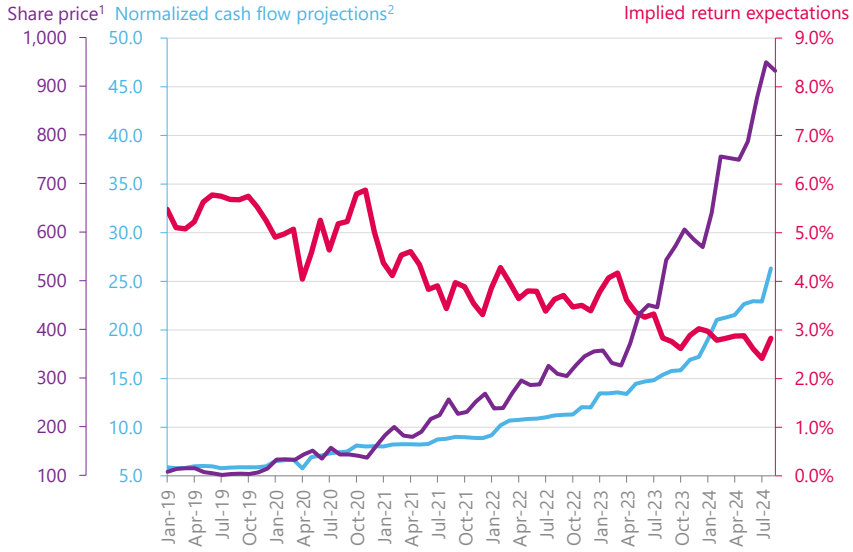
Investors can dive deeper, tracking the drivers for the I-RRR dynamic (prices and consensus forecasts)

In this example, the I-RRR trended sideways around a ~11% mean, as price increases were generally aligned with increases in retained earnings and dividend expectations

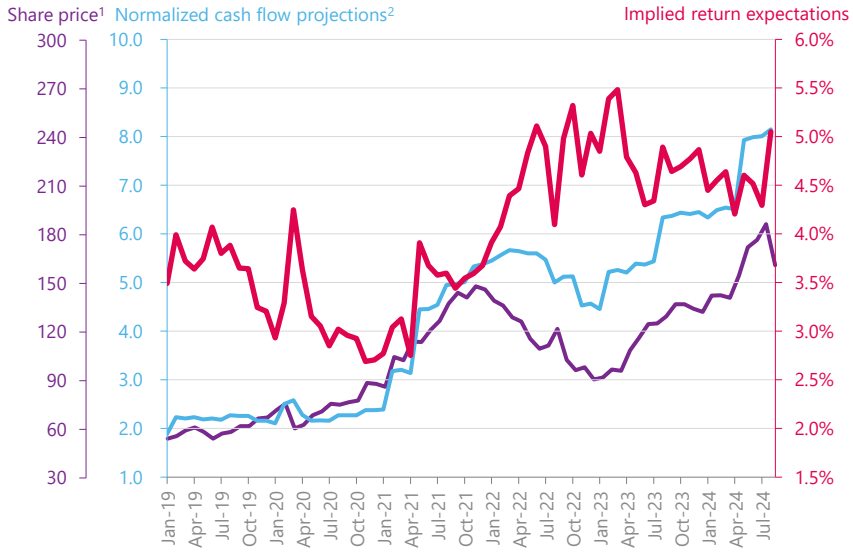
Investors' view on I-RRR can aid decision-making and prompt interesting questions; Thinking through what-ifs could prepare investors for different scenarios

In fact, there are plenty examples where implied return expectations trended either lower or higher, for prolonged periods of time. Two such examples below:

Eli Lilly – Adjusted share price consistently outpaced growth in consensus estimates



Alphabet – Consensus estimates growth outpaced the adjusted share price performance from 2021 onwards



Sources: Author's estimates, FactSet data as of the 15th of every month
Notes: (1) LLY and GOOGL share price history adjusted for splits, spinoffs and cash dividends per FactSet; (2) To consolidate cash flow projections into a single number, the paper determines the level of perpetual cashflows that discounted by the I-RRR, equate the share price ([normalized cash flow projections] = [share price] * [implied return expectation])

In these cases, where trends persist, decision-making becomes more difficult. An analyst may think when, absent of changes in consensus estimates, implied expected returns are low (or high) enough to provide too little (or too much) compensation compared to other opportunities, including risk-free alternatives.

I-RRR can trend lower for extended periods of time if prices persistently outpace expectations

Or shares can trade at higher I-RRRs if expectations outgrow (or even decline less then) prices

Trending I-RRRs are more difficult for decision-making but may reveal interesting characteristics of the investment

Alternatively, an investor could be prompted to drill deeper into how consensus estimates are derived. This paper uses the mean consensus figures, perhaps masking a non-normal distribution of individual estimates. Averaging between different scenarios used by analysts may not be as useful as considering a range or assigning probabilities to different outcomes.

I-RRR as a short-term signal

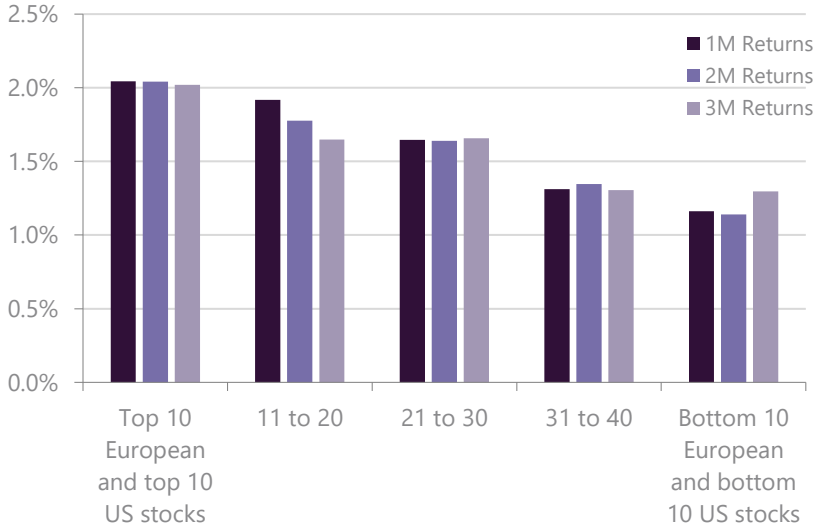
I-RRR at a point in time should not be confused with expected realized return rates. Modifications in either expectations or market participants' behavior will affect the I-RRR. As new information becomes available, projections of business performance are adjusted. Supply and demand for that investment will adapt to existing alternatives or to other factors that may not necessarily be company-related (ex. buying/selling assets to comply with an investment mandate).

Implied return ≠ expected realized returns

Despite these challenge, there is some indication that changes in I-RRR could be useful as a short-term indicator supply/demand in next periods. On average, prices of shares with more improvement in I-RRR outperformed shares with less improvement or more deterioration in I-RRR in the next 1 to 3 months. The analysis looked at the 50 shares with highest weights in each of S&P 500 and Stoxx Europe 600. The US and European stocks were ranked separately based on the delta between the month's I-RRR and the average I-RRR over the last 3 months. Observations were taken from March 2019 to May 2024, at the 15th of every month.

However, the metric does seem to be useful in shorter time windows.

Highest ranked shares by I-RRR improvement outperformed lowest ranked shares by 0.8pts



Shares that most improved I-RRRs performed better in the next 1-3 months compared to lower ranked shares

Sources: Author's estimates, FactSet data as of the 15th of every month

Where is the I-RRR concept most useful and how to implement

Two broad use cases emerge where an implied return metric adds value:

1. **A different point of view from which to generate insight –** Deriving a market-informed value for one of the key inputs in a classical DCF model reveals otherwise hidden perspectives. Observing changes in the required return (considered as a risk-free rate plus a flat risk premium in the traditional approach) prompts the analyst to check whether the risk profile of the investment is modified. One can test if there are catalysts that could change the current consensus or identify instances where prices move independent of underlying business perspectives.

2. **Informing investment action –** There is indication that stocks with a more positive dynamic of implied required return performed better in the short-term compared to lower-ranked stocks. This could inform an investor's strategy related to building or exiting market positions.

Adding an implied return lens to your analysis can generate differentiated insight

And facilitate decision-making

How can Evalueserve help?

Evalueserve offers a broad range of value-added services for its investment and research clients.

In addition to our recognized work in industry research and financial modeling, in essence helping clients make sound projections for target companies, we showcase this framework to further enhance clients' processes.

Whether you are a sell-side outfit looking to provide a differentiated point of view to your clients, or a buy-side firm in search of signals for your investment decisions, we stand ready to help you adapt the I-RRR concept to your needs (ex. choosing industry-relevant metrics, incorporating proprietary data).

Evalueserve already provides high-value services, helping clients refine projections

We can help you leverage the I-RRR framework into your investment process