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Aggregate Return on Investment and Investment Decisions: A Cash-Flow Perspective

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interest foregone on the capital that is given up by the investor. This perspective enables one to decompose the project net present value (NPV) into an excess-rate share and an excess-capital share. The traditional IRR is just a particular case of both AIRR and AROI, but the latter approach has the advantage that the IRR's nature (rate of return versus rate of cost) does not depend on the market rate and is unambiguously determined by the capital invested.

Notes

Hazen (2003, 2009) and Magni (2010a) used the expression investment stream. In this article we prefer to use the expression capital stream, to avoid any misunderstanding.

The terminal value c^*_T of the capital stream c^* is univocally determined by cash flow stream and market rate, which means, in general, that $c^*_T \neq 0$.

This definition is essential in correctly interpreting the financial nature of the IRR. Until [Hazen \(2003\)](#), the notion of investment and borrowing was connected to the sign of the outstanding capital c_t (see Teichrow et al. 1965a, 1965b); but this perspective brings about unfavorable cases where the sign of c_t changes over time, which implies that

neither the project's financial definition nor the project's definition steps away from any such mixture of investment and borrowing. Note that, before, an AIRR does not change with the market rate.

If $0 < C^*$, the project's rate component is positive. The symbol c^* is used for PV-equivalent capital streams (see [Magni 2010a](#)). In the latter, two or more capital streams are PV-equivalent if they share an equal PV($c_t | r$).



The analyst does not even need fix the capital streams if the NCFC or the market-investment AROI is employed.

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