



Warren & Selbert

Simple as ABC.

## **IRR and XIRR**

Yields for equity investors in partnership flip transactions are typically measured using an Internal Rate of Return (IRR) method. An IRR is computed by finding the nominal interest rate that discounts all future expected cash flows back to an initial investment amount. IRRs are commonly relied upon in project finance; they are a convenient method for comparing the relative benefits of similar possible investment opportunities. In addition, the comparison of an IRR to a borrowing rate provides a useful measure to help management determine the merits of a transaction over the debt rate for a similarly rated product.

The Excel XIRR function has become a standard IRR calculation used in the renewable energy industry. XIRR is popular in spreadsheet analysis because, unlike the Excel IRR function, it allows for uneven periods of time between compounding dates. This is especially useful in partnership flip structures, because the timing of the initial investment within the month can have a meaningful effect on the IRR. For instance, a large equity investment on the 1<sup>st</sup> of the month produces a much lower IRR than the same sized equity investment on the last day of the same month. By allowing for variable periods of compounding, the XIRR function allows for the exact number of days in the first period and therefore can help assess the effect of a delay in the partnership formation date within the same month.

Aside from uneven periods, XIRR reports an effective discount rate rather than a nominal rate. This means that an XIRR is unaffected by the timing of the compounding dates used to measure the return. For example, if a project has quarterly cash flows, a normal IRR changes if the flows are compounded monthly versus quarterly, but an XIRR does not.

Critics of IRR as an evaluation method point out that IRRs are less reliable on investments that have a mix of inflows and outflows, especially if the investment balance goes negative because the project temporarily returns excess cash to the investor in the middle of his investment horizon. Referred to as a “disinvestment phase”, an IRR assumes that an investor would take the extra money earned from the project and invest it in an identical project with a matching IRR for the short duration until the cash had to be reinvested back into the original project. Not only is that assumption unrealistic, but because loans do not typically vary the signs of their debt services, it makes the direct comparison of a project IRR to a borrowing rate much less applicable.

XIRR also has a few of its own unique flaws. Because it uses the internal actual date logic in Excel, it is impossible to use the XIRR function with even monthly periods consistent with 30/360 loan interest calculations. Also, a well-known bug with the XIRR function as of this writing is that it cannot handle a set of cash flows that starts with zero as its initial value.

*In ABC, the PSHIP/SUMMARY report displays the calculation of each partner’s pre-tax, pre-tax with credit, and after-tax IRR over the tax-flip term and the full term of the partnership agreement. PSHIP/CASH provides a running IRR for each month, and PSHIP/IRR provides a proof of the IRR calculation for any date specified. All IRRs can be calculated as XIRRs.*

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