





## A resolution to the NPV–IRR debate?

Michael J. Osborne 

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### Abstract

Two criteria for choosing between capital investment projects are net present value (NPV) and internal rate of return (IRR). Sometimes they provide inconsistent rankings. This inconsistency sparked a debate about which criterion is better. The debate has lasted more than 100 years.

This paper describes a new approach to the debate. The time value of money equation is a polynomial, and a polynomial of order  $n$  does not have a single root. It has  $n$  roots. The result of taking into account the  $n$  solutions for IRR is a new equation for NPV that suggests a resolution to the debate.



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### JEL classification

C00, C60, C63, E22, E40, G00, G1, G24, G30, G31, O16, O22

### Keywords

Capital budgeting; Complex plane; Internal rate of return; Net present value

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