

# **Arbitrage Pricing Model: An Examination of its Empirical Applicability on the ASX**

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## **ABSTRACT**

There have been a considerable number of studies, which attempt to justify the empirical applicability of the Arbitrage Pricing Theory (APT) as compared to the Capital Asset Pricing Model (CAPM). APT differs from the CAPM in hypothesising that actual and expected security returns are sensitive, not just to one type of non-diversifiable risk (i.e. beta or market risk) but to a variety of different types of risks. Many studies have also endeavoured to identify the macroeconomic factors underlying the APT. This paper extends these studies and aims to synthesise, the set of macroeconomic variables based on the intuition of Chen, Roll and Ross (1986) and the two microeconomic factors of Fama and French (1993) in testing the APT. The macroeconomic variables of CRR (1986) include industrial production, risk premia, term structure series, unexpected changes in inflation, changes in expected inflation and the market return index. Together with the two factors of Fama and French-- firm size and book to market equity, they are examined in the ASX over the period 1990-1999. Following Fama and MacBeth (1973), a two-step OLS was adopted. Regressions involving only the macroeconomic variables indicate that three variables are priced in the ASX and these variables are consistent across different groups of assets. The three variables that are significant are the risk premia, industrial production and unanticipated inflation, corroborating results of CRR (1986). However, when the two factors of Fama and French (1993) are included, up to four factors were found to be present. Unexpected inflation seems to lose its significance in explaining the cross section of average returns in Australia. It was also found that the market return index for all regressions appeared to be insignificant and therefore the APT cannot be rejected in favour of the CAPM. This study attempts to identify the best

combination of the CRR (1986) variables and the factors of Fama and French (1993), which are important in explaining the excess returns on the portfolio of assets constructed from the ASX. APT does not only concern academics but also practitioners, as APT has the potential of allowing fund managers to formulate investment strategies for portfolio management. When APT risk profiles are identified, it may be used for either passive or active portfolio management, i.e., a risk sterilisation strategy or an active APT strategy. Although discussions of these strategies are beyond the scope of this study, it would present an interesting avenue for future research.