

Stock market returns, macroeconomic activity and financial performance: Australia over the long run

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JEL classifications: C32; E44; G12

Keywords: stock return predictability; macro variables; Australia; long run

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Extended abstract

Understanding the relationship between macroeconomic conditions and stock market returns is of importance to both the private sector and the formulation of government policies. These interactions are complex, and evolve with technology and the composition of the economy over time. While there is an understanding of the importance of examining macroeconomic variables against stock market performance there is relatively less historical analysis, particularly outside of studies relating to the United States.

In this study, we use data for Australia covering the period 1926 to 1995 to explore the relationship between macroeconomic and financial variables and stock market performance. We ask to what degree stock market performance might have been influenced by these variables and whether the relationship between these has changed over time. The finance literature provides considerable evidence on links between macroeconomic and financial variables and stock returns. For a range of countries, especially for the US and recently for emerging markets, macroeconomic and financial variables have been shown to explain short-run variations in, and display long-run relationships with, stock returns and return volatility (see Fama, 1981, 1990; French *et al.*, 1983; Chen *et al.*, 1986; Asprem, 1989; Fama and French, 1989; Romer, 1990; Schwert, 1990; Cheung *et al.*, 1997; Gjerde and Saettem, 1999; Bulmash and Trivoli, 1991; Cheung and Lai, 1994; Cheung and Ng, 1998; Engle *et al.*, 2013; Narayan *et al.*, 2014). Each study has found, to varying degrees, correlations between patterns of stock returns and specific macroeconomic factors. However, the empirical evidence is mixed. While some studies find macro variables are better predictors of stock market returns, others argue financial ratio variables as better predictors (see Lettau and Ludvigson, 2001; Narayan *et al.*, 2014).

We will collect data on real stock prices and other financial variables, such as dividend price ratios, earnings price ratios, dividend-earnings ratios from the Australian Equities Database (AED) (Davis and Bowerman, 2016). AED provides a unique dataset covering just under 6000 companies in Australia between 1926 and 1995 on 18 different financial and stock market variables on monthly basis.¹ Annual measures provided by AED will greatly reduce the problem of accessibility of historical data, while a lack of comparable long-term studies on the impact of macroeconomic and financial variables on stock returns in Australia supports the proposed research. Based on the extant literature (Gjerde and Saettem, 1999; Chaudhuri and Smiles, 2004), the following macroeconomic variables will be considered: real GDP, real private consumption, real money supply, trade openness, real international oil price, interest rates and real exchange rates. Australian data on macroeconomic and financial variables at both aggregate and industrial levels will be derived from a variety of sources including: Butlin, M. (1977), Butlin, N. (1962), Butlin, S. et al. (1971), and Vamplew (1987). All measures will be collected on an annual basis. In addition to use of the historical method of analysis, a variety of graphical and statistical methods will be employed to establish both long- and short-term relationships. These include co-integration and vector autoregression (VAR) modelling strategies and associated empirical analyses.

This study contributes to the literature in several ways. First, to our knowledge, outside of studies based on the US market, this is the first study to examine the evolving influence of macroeconomic and financial variables on stock market performance in a long-run context, specifically going back to pre-World War II (WWII) period. When testing a long-run relationship between variables in any macroeconomic environment, the first step is to consider a longer time span; one that involves more than one structural change and multiple shocks and crises over time.

¹ See <https://australiancentre.com.au/projects/australian-equities-database/>

Here we consider a period that spans more than 60 years, during which the Australian economy transitioned from an emerging international economy with strong colonial links into one fully integrated with the world economy by the end of the twentieth century (McLean, 2004). Thus, the findings from this study will evidence patterns in the stock market performance of an economy that has passed through stages of economic integration. Secondly, in the case of Australia, studies on the impact of macroeconomic and financial variables on stock returns, excluding those on the effects of news, are limited. Examples of relevant studies include Kearney and Daly (1998) and Chaudhuri and Smiles (2014). However, these studies are mainly for periods from the 1960s onwards. This may reflect a relative lack of access to pre-WWII data on its equity markets, and the frequency of available data. Thirdly, as mentioned above, the literature provides mixed results when comparing the effects of macroeconomic variables versus financial variables on stock market performance. We address this debate by looking at a longer time span and thus provide evidence of a superior predictability power of stock market returns.

Finally, our analysis has the capacity to answer many related research questions. What are the links between trends and changes in key macroeconomic and financial variables, and Australian stock performance outcomes? What are the key macroeconomic and financial variables? What changes are present in the impact of these variables over time and during periods of crisis? Our findings will provide historical as well as practical insights into the Australian equity market's behaviour over the long term. An objective is to draw parallels with and implications for current market events based on this historical analysis.

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