

**AGGREGATE BUSINESS FAILURES AND MACROECONOMIC  
CONDITIONS: A VAR LOOK AT THE U.S. BETWEEN  
1980 AND 2004**

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In this paper, we study the U.S. aggregate business failures during 1980- 2004 in relation to four macroeconomic variables: aggregate corporate profits, the producer price index, the interest rate, and stock market performance. We argue that aggregate business failures should not be treated as a passive variable, as usually done in previous studies, and we allow its possible causal effect on other macroeconomic variables through a Structural Vector Autoregression model that builds on Directed Acyclic Graphs. Granger type causality and innovation accounting results both show that while subject to the influence of interest rates, aggregate business failures are quite exogenous in comparison to the other three variables. The implications of these findings are discussed as well.

*JEL classification codes:* C32, E51, G33

*Key words:* business failures, macroeconomic conditions, directed acyclic graphs, vector autoregression

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## I. Introduction

The issue of business failures (or bankruptcies, interchangeably) has drawn extensive attention over the past half century, which is not surprising given the huge costs usually associated with business failures. The vast majority of the literature on this issue deal with business failures at the micro level, especially the prediction of individual business failures based on firm-specific information. At the macro level, there is a line of research that addresses the overall business failures in an economy and its relationship with other macroeconomic conditions, but it is far less extensive than those at the micro level, both theoretically and empirically.

The macro line of research on business failures was started by Altman (1971, 1983). In his studies, Altman first identified a set of macro variables that are likely to cause the failure of individual firms, including economic growth, credit or money market conditions, stock market activity, and business population characteristics. He then tested the possible causal effects on aggregate business failures in a distributed-lag regression model based on U.S. data. Since then, others have updated the research along this line, including Rose, Andrews, and Giroux (1982), Hudson (1986), Wadhvani (1986), Melicher and Hearth (1988), Platt and Platt (1994), and more recently, Liu (2004, 2009). Roughly speaking, these empirical studies have reached a consensus on the effects of certain variables on business failures, notably, corporate profits and interest rates. However, they have conflicting opinions on other variables, especially the price level and stock market performance. The potential reasons for differing results range from different samples (different periods in different countries, hence potentially different economic structures and institutional backgrounds) to the conceptual frameworks, and methodology adopted.

In this study, we re-examine the relationship between business failures and macroeconomic conditions for the case of the United States. As a first motivation of this study, we examine the post-1980 period to provide a more recent and relevant coverage. Unlike other economic events or variables, bankruptcy, either personal or business, is also a legal phenomenon, governed directly by corresponding legal procedures. Aggregate business failures are inevitably subject to the influence of changes in legal systems (see Liu 2004 for the empirical evidence in the case of the U.K.). Since the early 20th century, the U.S. bankruptcy legal system was defined first by the Bankruptcy Act of 1938. Then the Bankruptcy Reform Act of 1978 came into effect and changed the legal environment of bankruptcy

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