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## Determinants of firm performance and growth during economic recession: The case of Central and Eastern European countries

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## ABSTRACT

The crisis has hit the corporate sectors of the new EU member states from Central and Eastern European countries (CEECs) more than those of most old EU member states. Taking full account of firm heterogeneity, the paper analyses which characteristics make some CEEC firms more resilient to crisis than others. Using the panel VAR system on a large firm-level dataset, we estimate the responses in firms' employment and investment to cyclical demand shocks and financial shocks. Controlling for industry, time and country differences, we split firms according to size, age, export status, foreign versus domestic ownership and pre-crisis growth vs. growth during crisis in order to compare firms' responses between distinct splits. We find that a cyclical drop in demand decreases firms' employment in subsequent periods, but there is substantial heterogeneity among different types of firms. Old and especially small old firms react more swiftly, whereas the downward adjustment in employment is less severe in exporters and in foreign-owned firms. On the other side, investment does not respond to demand shocks per se, but to the free cash flow component of the business cycle. Differences in country-specific settings also show an important impact on firms' resistance to crisis.

### 1. Introduction

Before the outbreak of the last global financial and economic crisis, the new EU member states from Central and Eastern Europe (CEECs) were experiencing rapid GDP and credit growth. Until the first quarter of 2008, they seemed to be quite resilient to the crisis, but from September 2008 on the crisis gained markedly in depth and intensity in CEECs (for more, see [Gardo and Matrin, 2010](#)). The economic downturn has hit the corporate sectors of CEECs more than those of most old EU member states. From 2008, when EU firms were on the top of their activity to 2010, the total value added of CEECs' non-financial corporate sectors decreased by as much as 10.4 percentage points on average compared to only one percentage point in old EU member states. [Fig. 1](#), which presents value added at factor cost of the total business economies of EU countries in 2008–2010, clearly shows that, with the exception of Slovakia, CEECs as a rule fared much worse than most of the old EU member states. The reasons behind this are many: at the outbreak of the crisis, the CEECs' economies were in a distinctive boom period in which they accumulated sizeable domestic and external imbalances; due to the nature and size of their economies CEECs have been more exposed to the reduction of international trade; the reduction of

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## Index 2010/2008

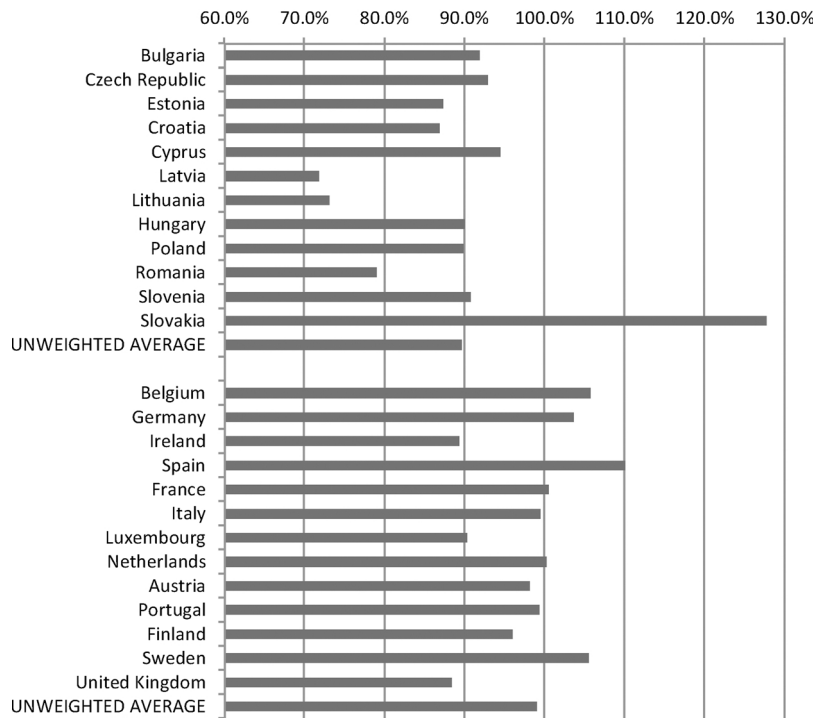


Fig. 1. Value added at factor cost of the total business economies (including repair of computers, personal and household goods, except financial and insurance activities) of EU countries; Index 2010/2008.

Source: Eurostat, <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

domestic demand and investment was more severe in CEECs<sup>1</sup>; CEECs' economic fundamentals were less robust than in the old EU member states; and CEECs' governments had fewer resources to react (Gardo and Matrin, 2010; Correa and Iooty, 2010). The response of CEECs' governments to the crisis was quite similar to that in the old EU member states – they used standard and non-standard monetary policy measures, as well as fiscal policy measures, including pouring large amounts of money into the financial and, to a lesser extent, non-financial corporate sectors.

Firms and corporate sectors in various CEECs clearly manifested rather different levels of resilience to economic recession. Therefore, the question arises of which characteristics make some firms more resilient to crisis than others. The answer(s) to this question may contribute to finding more adequate policy measures for faster economic recovery. In this context, the objective of this paper is to identify those determinants of firms' growth that proved to help them resist the effects of the crisis.

The paper is put in the context of the theory and empirical research of the growth of firms and its application to specificities of economic recession. The literature reveals the following factors that may impact firm's resistance to crisis, and that we test in our model: (i) firm size, (ii) firm age, (iii) firm's export propensity and (iv) foreign versus domestic ownership. Apart from firm-specific determinants, the literature suggests two other sets of factors that impact firms' resistance to crisis. The first are industry differences in behaviour during economic recession, where we distinguish between manufacturing and services, and the second are different country-specific settings, which obviously have an important impact on the depth and length of the cycle.

We apply panel VAR analysis to identify firm- and industry-level determinants of firm employment and investment to cyclical fluctuations in nine CEECs (Bulgaria, Czech Republic, Croatia, Hungary, Macedonia, Poland, Romania, Slovenia and Slovakia). We explore which firm-level characteristics determine different responses of firms pre-crisis and during the economic recession by splitting our panel of firms into two distinct samples on the chosen dimension and evaluate the difference in impulse responses for the two samples. The micro data on firms from the analysed CEECs is derived from the AMADEUS database of firm financial accounts for the period 2000–2012, which is provided by the Bureau Van Dijk. The reason for including a long pre-recession period in the analysis is to establish as robust as possible a benchmark for measuring changes in the recession. We extracted data for all firms with at least one employee and positive total revenues, which resulted in an unbalanced panel of 6.185 million firm-year observations and an

<sup>1</sup> As reported by Correa and Iooty (2010), between 70 and 80 percent of firms from CEECs (Bulgaria, Hungary, Latvia, Lithuania, Romania, Turkey) claim that a drop in demand was the most important effect of the crisis on their business, an increased level of debt and reduced access to credit altogether being cited as the most important by only around 10 percent of the interviewed firms.

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