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**Article**

## Comment on "Recovery and exit of zombie firms in Portugal" by Carlos Carreira, Paulino Teixeira, and Ernesto Nieto-Carrillo

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## **Comment on “Recovery and exit of zombie firms in Portugal” by Carlos Carreira, Paulino Teixeira, and Ernesto Nieto-Carrillo**

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### **Research question and principal findings**

CARLOS CARREIRA, PAULINO TEIXEIRA and ERNESTO NIETO-CARRILLO tackle the question of whether zombie firms stay zombies forever. With this goal in mind, they analyze the recovery and exit of zombie firms in Portugal using a multinomial logistic model.

Here, zombie firms are defined as mature firms whose debt levels are too high and have no potential to repay their debts over an extended period due to lack of profitability. The study classifies a firm as a zombie whenever the following three criteria hold at the same time: (i) its return-on-assets is lower than the low-risk interest rate for at least three consecutive years; (ii) its leverage is higher than the industry-mean (at the two-digit NACE level) of the low return-on-assets exiting group; and (iii) the firm in question is older than five years. This definition follows the literature that uses profitability and “evergreen lending” criteria in addition to default risk and maturity structure to identify zombies.

On the basis of this definition, on average around 7.6% of the firms in the authors’ sample are classified as zombies, with a peak at 10.6% in 2012, after the Great Recession. Most zombie firms have negative equity and 83% incur losses. Compared to non-zombies, the productivity of zombie firms is around 0.53 log points (i.e., 41%) lower. The authors find that more zombie firms recover rather than exit the market. On a yearly basis, 14.1% of firms recover and only 8.0% exit; the remaining 77.9% remain in the zombie status.

The study finds that inefficient insolvency regimes and evergreen loans play an important role in the prevalence of zombie firms in Portugal. The authors also find that firms with higher productivity, profitability, and liquidity are more likely to recover, while firms with lower productivity and profitability are more likely to exit the market.

## Assessment of the paper's findings

Following CABALLERO et al. (2008), the presence of zombies has two main negative effects on the economy. First, low-productivity firms that would exit if they were to honor their debt obligations stay in the market — this is called the “sclerosis effect”. Second, the presence of zombies deters entry of new and potentially more firms, because of the resources absorbed by the low-productivity firms. This is often referred to as the “scrambling effect”.

The paper makes two main contributions to the existing literature on zombie firms. First, and outlined above, it analyzes why most zombie firms recover rather than exit the market, and the determinants of these transitions. Second, it provides insights into the factors that contribute to the persistence of zombie firms in Portugal and the determinants of their recovery or exit. In turn, this can inform policy decisions aimed at promoting business dynamism and economic growth in the country. Portugal is one of the European countries most affected by the proliferation of zombie firms, making it an interesting case to study. *Inter alia*, the prevalence of zombie firms in Portugal is due to inefficient insolvency regimes and evergreen loans, which create exit barriers and therefore play an important role in the persistence of these firms.

There is much to like about this paper. The dynamic aspect of zombie firms is often forgotten. Hence, this paper fills an important gap in the discussion of whether and how many companies are zombies. What happens to firms over time that are classified as zombies? Are these firms, as their name suggests, the “living dead” and therefore destined to die? The paper takes an innovative focus by looking at recovery.

However, by doing so, the paper asks the deeper question of what a zombie really is. If zombies have the possibility to recover, it becomes questionable whether the label makes still sense. Indeed, going back to the original definition, zombies have debt levels that are too high, but if they increase their profits they could reach a sustainable territory where the expected present value of profits is sufficient to cover debt obligations. Therefore, not all zombies are unviable firms. As the authors emphasize in their conclusion, complex restructuring efforts are needed to address the problems of these firms. Efficient insolvency regimes are certainly a part of the solution, allowing for reallocation of assets.

To gain even more insights, the following three aspects deserve more attention in subsequent research. First, in this study the incidence of recovery and exit is estimated in a multinomial logit regression. These changes in firm status are explained, for example, by the change in assets or the change in total factor

productivity (TFP) in the same year. It is questionable whether a lag of one year is sufficient. If employment, assets or TFP are measured almost simultaneously with zombie status, endogeneity and two-way causation cannot be ruled out. If the business cycle evolves favorably, both profitability and employment could rise at the same time – the latter being an important determinant of zombie status. Thus, it would be interesting to increase the lags to better understand what causes zombies to exit the market or to recover to a healthy status (for instance, whether changes in TFP improve the recovery probability for several years).

Second, it is instructive to compare industry productivity and zombie share. An increase in the share of zombie firms of 1% leads to a 0.78% decrease in the level of industry TFP. Whether this is not simply a mechanical connection should be analyzed further; as it stands now, it is not clear what we learn from this number. If there are more zombies, productivity will be lower. In addition, negative shocks affecting the relative demand in an industry will both likely reduce productivity and increase the prevalence of zombies.

Third, the authors apply a conservative criterion to define zombies. Recall that a firm is a zombie whenever all three following criteria hold together: low return-on-assets, high leverage, and being older than five years. Using a conservative criterion is a two-sided sword. The analyst minimizes the risk that a non-zombie is defined as a zombie. This allows zombie firms to be tracked consistently over time. However, there is a problem because the paper focuses on recovery (and exit). Consider the example of a firm where restructuring leads to lower leverage but the return-on-assets does not improve. Thus, the firm improves in one criterion and will no longer be classified as zombie. The question is whether it is still a zombie because it continues to underperform in returns.

In my view, this leads to the interesting question of what defines a viable company, and this topic is at the heart of the paper. A company could have bad financial numbers because of a short-run negative shock or because the underlying business model is not sustainable. The crucial point is how to differentiate adverse effects in the short run from firms running obsolete business models in the longer run. More research will be needed to have more guidance on which criteria can be used to make that differentiation. This is a central question in economic policy – we need stabilization policy to mitigate the adverse effects of recession, but we should restrain ourselves from keeping unproductive companies alive. The resources that these moribund firms employ lack younger, more productive firms and industries. This paper serves an important function in bringing this important topic back to the table.

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## References

CABALLERO, RICARDO, TAKEO HOSHI and ANIL KASHYAP (2008), Zombie Lending and Depressed Restructuring in Japan, *American Economic Review* 98 (5), pp. 1943–1977.