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Macroeconomic and Bank-Specific Determinants of Household's Non-Performing Loans in Tunisia: a Dynamic Panel Data

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Abstract

Using the dynamic panel data methods estimated over 2003–2012 on around 16 Tunisian banks, the current paper attempts to examine the determinants of households' non-performing loans (NPLs). The main objective is to investigate the potential effect of both macroeconomic and bank-specific variables on the quality of loans.
Our results indicate the extent to which households' NPLs in the Tunisian banking system can be explained particularly not only by macroeconomic variables (GDP, inflation, interest rates) but also by bad management quality.

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Keywords: Non-performing loans; Household; Macroeconomic determinants; Bank specific determinants; Dynamic panel data

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1. Introduction

Investigating the factors underlying the ex post credit risk is of a significant importance for regulatory authorities who are seeking financial stability and effective banks' management. In fact, the ex post credit risk is expected to be proxied by Non-Performing Loans (NPLs). According to Reinhart and Rogoff (2010), Nkusu (2011) and Louzis et al (2012), NPLs can be used to signal the beginning of a banking crisis.

Taking into consideration the aggregate level of NPLs, most studies having dealt with the determinants of NPLs assumed that macroeconomic factors or else bank-specific ones are maintained to be as explanatory determinants. However, in their attempt to explain aggregate NPLs of Spanish Commercial and Savings Banks during 1985–1997, Salas and Saurina (2002), Mabvure et al (2012) and Louzis et al (2012) have combined both macroeconomic and microeconomic variables. Their results indicate that bank-specific determinants are considered as early warning indicators for future nonperforming loans.

It is worth noting that most empirical studies have investigated the influence of the macroeconomic variables on NPLs. For instance, working on household NPLs of a set of European countries, Rinaldi and Sanchis-Arellano (2006) have come up with empirical evidence that disposable income, monetary conditions and unemployment are of great influence on NPLs.

The literature has signaled the fact that some specific characteristics of banks are linked to loans' problems. In the same sphere, Berger and DeYoung (1997) draw heavily on the relationships between the specific characteristics of banks, the efficiency indicators and bad loans. According to them, possible mechanisms are worth formulating. More specifically, they maintained that 'bad luck', 'bad management', 'skimping', 'moral hazard', and 'capital adequacy' are all contributing factors leading to problem loans. Working on a sample of US commercial banks over the period 1985-1994, Berger and DeYoung (1997), Williams (2004) found out that decrease in measured cost efficiency generally led to increased future bad debts.

In the same vein, conducting a study on the Nordic banking system over the period 1993–2005, Berge and Boye (2007), concluded that problem loans are significantly linked to both the real interest rates and unemployment.

Other studies focusing on the macroeconomic determinants of NPLs include Cifter et al. (2009), Boss et al. (2009), Nkusu (2011) and Segoviano et al. (2006). For instance, when dealing with the main Austrian corporate sectors, Boss et al. (2009) have investigated the link between credit risks and the business cycle.

To investigate the link between efficiency and bad loans in the Czech banking industry during 1994-2005, Podpiera and Weill (2008) stated that there is a negative relationship between cost efficiency and NPLs. When it comes to the Chinese banking system, some authors, such as Li et al., (2007), have shown that incentive contracts have a positive impact on the management of NPLs.

In the case of Tunisia, when comparing technical efficiency and bad loans in public and private banks in Tunisia during 1998-2006, Chaffai and Samia (2013) assumed that public banks are not sensitive to risk, while private banks are subject to risk.

In the Greek banking system during 2003-2011, Louzis et al (2012) have also provided evidence in favor of a positive relationship between inefficiency and all NPLs categories.

The current paper attempts to discuss NPLs from three angles. First, unlike the majority of previous studies which focus on aggregate NPLs, the present study attempts to deal with the factors determining household's NPLs, namely the macroeconomic and bank-specific variables affecting NPLs. Second, we consider the Tunisian banking system as a benchmark for the study of the non performing loans. Finally, the present study focuses on two types of variables: the macroeconomic and the bank-specific variables. The former is referred to as systematic factors and the latter is considered as idiosyncratic. Therefore, our aim is to account for the macroeconomic environment and the main banking factors affecting NPLs.

At the methodological level, we have attempted to make a baseline model à la Louzis et al (2012) indicating only general macroeconomic variables. Then, it examines the extent to which the addition of bank-specific variables contributes to the explanatory power of the model. The focus on the bank-specific determinants goes hand in hand with the hypotheses already displayed in the literature. Assuming that the fundamental determinants of NPLs are made up of the macroeconomic environment and the business cycle, this approach allows the isolation of the bank-specific features as they have an effect on NPLs.

In fact, the literature states that no standardized approach allows analyzing the determinants that affect NPLs. The present paper adopts a panel data set comprising sixteen Tunisian banks over the first quarter of 2003 till the fourth quarter of 2012.