Research Paper

The impact of managerial ability on bank liquidity creation in European countries

Accepted 25th March, 2020

ABSTRACT

The aim of this study is to investigate whether or not bank managerial ability affects liquidity creation in European banks during the period of 2006-2014. We realize that in normal times, higher ability managers make more liquidity. Where, during times crisis period, higher ability managers increase liquidity creation. Our findings report recent empirical and theoretical studies that examine determinants of liquidity creation by introducing managerial ability as a prominent antecedent of the banks' intermediation. Additionally, managerial ability can be quantized as a key indicator of performance for prudential supervision of banks and can help regulators to target intervention efforts more purposefully during financial crises.

Key words: Liquidity creation, managerial ability, financial crisis, financial institutions.

INTRODUCTION

Bank intermediation is one of the central services provided by banks for the economy, as eased by liquidity creation. This bank's core function has only newly received attention in the empirical literature (Berger and Bouwman, 2009). Berger and Sedunov (2017) mention that "liquidity creation is a measure of banks output that includes all liabilities, assets, equity, and off-balance sheet derivatives and guarantees, each with different theoretically-driven weights".

At present, the banking industry is founded in an unstable, uncertain and competitive environment and a dynamic financial system characterized by its globalization. In this context, being a bank manager is not easy. It means being responsible for the management of the bank, which determines its success or failure. Furthermore, it means being responsible for all aspects of branch bank: knowing the best way to invest bank managerial resource, such as securities, loans, trading assets, derivatives or federal funds.

Hence, bank managers should have a specific managerial ability to comprehend the internal and external elements that influence their business model and transform these components into a successful strategy. But, the impact of managerial ability on firm's outcomes has long been ignored, according to the assumption that managers are mainly homogeneous entities that follow identical goals.

This view has been challenged only newly by a huge body of literature that accepts the affect which managers have on firm performance (see, Bertrand and Schoar, 2003; Bamber et al., 2010; Demerjian et al., 2012). Furthermore, Baik et al. (2011) report that “thereby enhancing the firm's performance, more able CEOs manage a firm's business operations”.

Managerial ability refers to managers' knowledge, skills, competencies and talents, which have to be employed in the best way in order to achieve bank goals, to anticipate risks and to find solutions that have to be managed when needed.

Understanding the link between bank intermediation and managerial ability is important, especially for policymakers and regulators. The main aims of the present study are twofold. First of all, we examine whether managerial ability has a positive impact on bank liquidity creation.

Second, we examine the link between liquidity expansion or contraction and managerial ability caused by adverse economic shocks, similarly to the ones evidence during the recent crisis period. According to the managerial ability framework, Andreou et al. (2015) show that during the recent financial crisis period able managers invest more than less able managers, because they decrease the information asymmetry gap with the markets and they have greater capacity to access...
financing resources. This demonstrates that managerial ability effectiveness is high during such period.

Add to that, Bebchuk et al. (2011) encourage the hypothesis that it may be individually optimal for banks to reduce their intermediation activity in the face of negative shocks to the economy, according to the bank intermediation framework.

Nevertheless, Berger and Bouwman (2014) in an empirical study show that during crises period some banks may augment liquidity creation and that such augmentation improves these banks’ value creation and competitiveness. For that we can suppose that during crises and under certain conditions, managers can have incentives to expend the intermediation activity. Additionally, ably managers who run banks should be in a much better place to either expand or extract liquidity in a crisis.

The reminder of this study is organized as follows: reviews of the various strands of the literature and develops the hypotheses; the construction of the managerial ability measure for banks; the measurement of liquidity creation; empirical analyses; discussion of the various robustness checks; and then conclusion.

HYPOTHESES

Here, we will discuss our hypotheses related to the effect of managers’ ability on liquidity creation. Those hypotheses will be tested in the third chapter. First of all, we sum up the literature related to managerial ability and secondly we discuss also the literature of banks liquidity creation. Finally, this discussion helps us to predict the effect of managerial ability on liquidity creation.

The importance of managerial ability for firm outcomes

The mainstream of research on finance and accounting has followed the neoclassical paradigm, which gives only limited space for manager idiosyncrasies (Berk et al., 2007).

The agency theoretical paradigm, relaxes the severity of the neoclassical view, nevertheless it still sets that individuals are less or more homogeneous and simply they respond rationally to the incentives and regulations that surround them (Bamber et al., 2010).

Moreover, the management literature has long enhanced the significance of managers for the outcomes reached by the enterprise. Just one theoretical approach abbreviated by Hambrick and Mason’s (1984) in “upper echelons theory” which has mention reasons of management factors in driving success. This theory predicts that the complication of actual decision-making situations needs an idiosyncratic importance in the top management team. Hence, Prior studies suggest that CEOs’ capabilities significantly contribute to improved financial outcomes and high information quality (e.g., Baik et al., 2011; Banker et al., 2013; Carter et al., 2010; Chang et al., 2010; Demerjian et al., 2013; Rajgopal et al., 2006).

For instance, Numerous studies (e.g., Baik et al., 2011; Rajgopal et al., 2006; Trueman, 1986) report that “more able CEOs better manage a firm’s business operations, thereby enhancing the firm’s performance”. In their theoretical work, Harris et al. (1982) argue that “firms observe and assess a manager’s ability and the manager’s output over time and that a more experienced and high-ability manager’s productivity is perceived to be high”.

Recently, Demerjian et al. (2012) show that “more able CEOs are expected to deliver a higher marginal outcome from the same level of resources, thereby enhancing the value of the firm”. Accordingly, “the marginal value of $1 of cash may not be valued at $1 by investors for various reasons, including managerial ability if high-quality CEOs generate a higher rate of output from given inputs than lower-quality CEOs” (Demerjian et al., 2012). Demerjian et al. (2012) argue that “more-able managers better foresee business opportunities, make better decisions, and better manage their firms to maximize shareholder’s benefits, relative to less-able managers”.

Other studies on managerial ability document that “more-able managers better smooth earnings to maximize shareholders’ benefits” (Demerjian et al., 2015), “engage in fewer tax-avoidance activities” (Francis et al., 2014) and “fewer earnings- management activities” (Demerjian et al., 2013).

Chang et al. (2010) “link variations in management actions and styles to variations in firm performance, consistent with the view that differences in firm performance may also stem from managers’ traits or experiences”. This view is also supported by Chemmanur and Paeglis (2005).

Bertrand et al. (2003) prove that managers affect their organization’s behavior and firm specific characteristics. Add to that, managerial ability has been examine to have a different effect on a firm’s disclosure policies, reporting quality and accounting behavior incrementally to the effects driven from the environment and firm characteristics (Bamber et al., 2010).

Similarly, Rajgopal et al. (2006) show that CEO compensation is orderly linked to talent, which present that the ability of CEO’s is recognized by the firm”. Moreover, Leverty et al. (2012) propose that managerial ability is economically significant and important in terms of affecting firm performance. Last but not least, Beatty et al. (2011) find that more able bank managers predict loan losses better and thus understand these earlier. Subsequently, recent literature indicates the significance of manager idiosyncrasies for policies and firm performance.

Liquidity creation

Banks liquidity creation is widely considered as one of the main raisons to be for intermediaries. The creation of liquidity is the ability of a bank to convert many small units of deposits to less larger units of loans and more
liquid liabilities to less liquid assets (Berger et al., 2009). The amplitude to which the bank is qualified to do this is reflected in the total amount of liquidity created.

Clearly, bank utilizes short-term liabilities to fund long-term assets to create liquidity. As an example, when demand deposits are utilized to finance industrial and commercial loans. In this case, “depositors keep immediately and easy access to their funds, whereas companies receive liquidity for a determined longer contractually time period (Berger et al., 2016).

This method on end establishes the quantity of liquidity created. In this respect, Berger et al. (2009) indicate that it is mainly large banks which create liquidity, and that liquidity creation is inextricably allied to bank riskiness, it is sensitive to crises and value-relevant. Berger et al. (2013) also reveal that better capitalized bank that was more resilient during and prior to financial crises gained with respect to its market share in terms of firm performance as well liquidity creation, post crisis.

Berger et al. (2009) utilize an operational measure of liquidity creation, the CATFAT, which is utilized in our study. To get this measure, all liabilities and assets are categorized by the duration, cost and effort required to liquidate a given liability or asset in the market (Andreou et al., 2016). The measure is made on the premise that if a liability (an asset) is easy (difficult) to liquidate quickly at low (high) cost; the position contributes to liquidity creation. In accordance with Berger et al. (2009), we specify three classes for the liabilities and assets, and then attribute heuristic weights of 1/2, 0 or -1/2 to each class, according to whether it is deemed to destroy liquidity, be neutral, or create liquidity.

These choices of weights give back the postulate that maximum liquidity of unity have to be destroyed or created if a liquid liability is utilized to create an illiquid asset and the opposite is true (Andreou et al., 2016). Liabilities and semi liquid assets are attributed null weights, so as to err on the side of caution in terms of the classification procedure outlined above (Berger et al., 2009).

Therefore, this process is logically consistent, while being more elaborated than the simple representated of the liquidity creation by banks provided originally by Deep et al. (2004), as it allows for the takes into consideration medium-term assets and liabilities, the destruction of liquidity, and explicitly recognizes the importance of off-balance-sheet items.

Development of hypotheses

The above discussion has shown that ably managers tend to run more successful firms (for example, Bertrand and Schoar, 2003; Bamber et al., 2010; Ge et al., 2011). Similarly, banks governed by ably top management teams could forecast a superior performance (Andreou et al., 2016). As seen previously, liquidity creation is the only key characteristic of bank performance. Thereby, it seems reasonable to forecast that more ably bank managers will create more liquidity. Note that this hypothesis does not demand the assumption that managers explicitly aim liquidity creation. It simply relies on the superior funding and allocation choices made by more ably managers. This statement motivates the first hypothesis:

**H1:** Ability-Liquidity hypothesis: More (less) ably managed banks create more (less) liquidity.

In addition, there is an attractive question to make clear the interplay between liquidity creation and managerial ability during crisis period. Firstly, Berger et al. (2009) indicate that banks well capitalized and enlarge their liquidity creation market share during and after crises were capable to benefit in terms of value creation. This proposes that there is a motivation during crises for managers to raise liquidity creation in place to take advantage of ensuing value gains.

Additionally, ably managers must be better able to utilize these opportunities and it follows that one ought to forecast that during crises more ably bank managers expand liquidity creation (Andreou et al., 2016). While, Bebchuk and Goldstein (2011) theory suggests the opposite.

Besides, in an economy the volume of loans allowed by banks influence the success of loans to industrial enterprises, it may be individually rational for banks to reduce the intermediation activity following a negative shock to the economy (Andreou et al., 2016). So, failure rates amongst industrial firms will be high if banks will decrease their intermediation activity.

Last but not least, we can discuss that it is individually optimal for banks to reduce intermediation activity in this case. Add to that, more ably managers must be predicted to react more efficiently in order to keep safe their banks from risk (Andreou et al., 2016). Therefore, we expect that during financial crisis more able managers decrease the liquidity creation:

**H2:** Ability-Liquidity Contraction hypothesis: More ably managed banks decrease liquidity creation during times of crisis.

**ESTIMATING MANAGERIAL ABILITY FOR BANKS**

For a long period, managerial ability being unexplored has been a very defiant concept to operationalize empirically. Prior studies, driven by different research needs, use various proxies to indicate managerial ability. One stream of prior literature argues that prior firm-level performance and compensation levels can indicate CEOs’ managerial ability.

According to Harris and Holmstrom’s (1982) dynamic model of efficient wage contracts, managers work on the firm’s behalf and generate observable output, through which firms can learn about a manager’s ability over time. This theoretical argument has also been supported by empirical evidence of a positive association between managerial characteristics and firm performance (e.g., Baik et al., 2011).

As an example, using firm performance and compensation levels as proxies for managerial ability,
Chang et al. (2010) show that “the stock market reaction to CEO turnover is negatively associated with the firm’s previous performance and the CEO’s pay, and that better prior firm performance and higher CEO pay lead to a better subsequent labor market for the CEO”.

Reputation is another popular proxy for managerial talent (e.g., Baik et al., 2011; Milbourn, 2003; Rajgopal et al., 2006), where CEO reputation is measured by the number of articles where the CEO’s name are mentioned. For example, Milbourn (2003) empirically tests the prediction that CEO reputation is positively related to stock-based pay sensitivities.

Francis et al. (2008) find a “negative association between highly reputed CEOs and lower discretionary accruals, indicating that CEO reputation has a positive impact on earnings quality”. Baik et al., (2011) find that “the frequency of issuing management earnings forecast increases with CEO ability and that the market reacts more favorably to management forecasts released by high-ability CEOs than to those released by relatively low-ability CEOs, implying that higher-ability CEOs transmit not only more information but also higher-quality information to the market than do low-ability CEOs”.

Last but not least, as a proxy for management ability, Goodman et al., (2013) use the quality of managers’ externally reported earnings forecasts and show that “managers’ ability is positively related to the quality of their corporate investment decisions”.

Furthermore, it is evident that these proxies are not likely to be exact. For that, Demerjian et al. (2012) introduce “a new measure of managerial ability based on managers’ efficiency, relative to their industry peers, in transforming corporate resources to revenues”. Demerjian et al. (2012) use “DEA to create an initial measure of the relative efficiency of the firm within its industry” and they “form an efficient frontier by measuring the amount and mix of resources used to generate revenue by the firm within each industry”. “Firms operating on the frontier are assigned a score of one; the lower the firm’s score, the further it is from the frontier” Demerjian et al. (2012).

The managerial ability measure developed by Demerjian et al. (2012) has been adopted by other studies. For example, Demerjian et al. (2013) shows that “earnings quality positively relates to managerial ability”. Krishnan and Wang (2015) corroborate that “audit fees and the likelihood of issuing a going concern opinion are decreasing in managerial ability”.

Finally, Gan et al. (2016) show that “the pay-for-performance sensitivity of a CEO’s equity-based compensation is significantly increasing in the CEO’s ability”.

**BANK EFFICIENCY MEASURE**

Following a long stream of banking literature, we use Data Envelopment Analysis to construct a measure of bank efficiency and we use the CCR model which was used by Demerjian et al. (2012) and Charnes et al. (1978). In standard microeconomic theory, an enterprise can be viewed as a decision making unit (DMU) that is concerned with transforming a set of m different inputs into different outputs.

In spite of or perhaps due to the sizeable DEA banking literature, no singular agreed- upon measure of bank managerial efficiency or ability exists (Luo, 2003). Our objective is to measure the efficiency with which a bank manager converts its resources into revenues. Demerjian et al. (2012) use seven input variables: "cost of goods sold; selling general and administrative expenses; property, plant and equipment; research and development cost; goodwill; and other intangibles and the output variable used are net sales". But the managerial ability measure used by Demerjian et al., (2012) based on the DEA procedure for non financial firms for that we did not take the same outputs and inputs.

For our study, we use the intermediation approach, and consider the bank as an intermediary between borrowers and savers. The inputs and outputs choice is based on Barr et al. (1993) approach which they used to measure the managerial quality. We adopt this model because all the variables of their model exist in our database.

Our optimization program is as follows:

\[
\text{Max}_{u,v}\theta = \frac{u_1 \cdot \text{CD} + u_2 \cdot \text{EAAS} + u_3 \cdot \text{TOINING}}{v_3 \cdot \text{FTEE} + v_2 \cdot \text{PEREXP} + v_1 \cdot \text{FASS} + v_4 \cdot \text{ONIEXP} + v_5 \cdot \text{TIEXP}}
\]  
(1)

With:

**Outputs:**
- **CD:** core deposit
- **EAAS:** Earning assets
- **TOINING:** Total interest income

**Inputs:**
- **FTEE:** Full time equivalent employee
- **PEREXP:** personal expenses
- **FASS:** Fixed assets
- **ONIEXP:** Other non-interest expense
- **TIEXP:** total interest expense

So, relying on Data Envelopment Analysis (DEA), we estimate the total efficiency score using **DEAP2.1** which give a collection of points in a multidimensional space, DEA fits a piecewise linear envelope or frontier to give data. The envelope indicates a normative ideal given the existing data. Points located on the envelope are optimally efficient, while points below the envelope are inefficient. DEA evaluates all points with respect to their deviation from the frontier. The values of the points on the frontier are equal to 1, and the values of the other points which operate beneath the frontier are between 0 and 1. Hence the efficiency score range from 0 (the least efficient financial institution in the sample) and 1 (the most efficient financial institution in the sample).
end, we can conclude that banks with efficiency score less than 1 indicates that banks need to reduce costs or to increase their revenue.

Quantifying managerial ability score

As theorized by Demerjian et al. (2012), “firm efficiency scores are affected by both firm-specific factors and management ability”. So similar to Demerjian et al. (2012), the second step purges the effect of key bank-specific characteristics which are outside of management’s control and that may hinder or aid manager ability, by regressing the DEA efficiency scores (Bank Efficiency) on bank size, bank age, Leverage, concentration, Inflation and Gross domestic products (GDP) using the Tobit regression.

As Demerjian et al. (2012) use the regression as proxy for managerial ability; we estimate the following Tobit regression model per Bank:

$$ Bank Efficiency_{i,t} = \alpha + \beta_1 \ln(TA)_{i,t} + \beta_2 \ln(BAg)_{i,t} + \beta_3 \text{Lev}_{i,t} + \beta_4 \text{GDP}_{i,t} + \beta_5 \text{INFLA}_{i,t} + \beta_6 \text{CONS}_{i,t} + \beta_7 \ln(EMP) + \epsilon_{i,t}, \quad (2) $$

With:

- \text{Ln (TA)}: natural logarithm of total assets
- \text{Ln(Bag)}: natural logarithm of bank age
- \text{Lev}: Leverage ratio
- \text{GDP}: Gross domestic products (growth rate)
- \text{INFLA}: Inflation
- \text{CONS}: Banking concentration ratio
- \text{Ln(EMP)}: natural logarithm of employees

The residual from the above regression, MA, serves as my empirical measure of bank managerial ability. Here \text{Bank Efficiency}_{i,t} represents profit efficiency as computed by DEA. We use \text{Ln (TA)}, natural logarithm of total assets, as a proxy for bank size, \text{Ln (Bag)} used as a proxy for more established banks and we predict that banks with higher age are more established bank and have a greater efficiency since it take profit from reputational capital, which allow them to greater investment opportunities (Carnet et al., 2013); \text{Ln (EMP)} is the log of the number of full-time equivalent employees, Lev represent the leverage ratio (liability/equity).

As we know, our sample contains banks from different European country so we integrate \text{CONS, GDP, and INFLA} as a macroeconomics environment proxy. For that we considered \text{CONS} (concentration) as independent variable, which represent the assets of three largest banks as a share of assets of all commercial banks. Also, \text{CONS} can have a long-term impact on banking competition, financial sector efficiency and stability. Previous empirical study which was investigated in bank efficiency found that bank concentration increase the market intensity so it could alter efficiency and competition. Casu and Girardone (2009) found that “economies of scale lead banks to mergers and acquisitions, then a strengthened concentration could lead to improve the efficiency”.

Secondly, the real growth rate of gross domestic product (GDP) is used for each country to account for macroeconomic conditions, in line with Rossi and Sekhposyan (2015) who characterize GDP as the most important macroeconomic factor.

Finally, bank should anticipate the inflation in order to adjust their interest rate because when inflation rise, bank costs will increase faster than their revenue and this can harm the bank efficiency.

MEASUREMENT OF LIQUIDITY CREATION

The literature on banks’ liquidity creation remains scarce because its expansion is a recent development in the wake of Berger and Bouwman’s (2009) pioneering article. Their paper makes a major contribution by suggesting a new method for measuring the liquidity created by banks.

Berger et al. (2009) propose “a classification of all balance-sheet items as either liquid, semi-liquid, or illiquid”. This classification applies to the liabilities, equity, assets, and off-balance-sheet activities. Then, Berger et al. (2009) use four different measures of liquidity creation for each of the items of banks. Where, two measures are based on a maturity classification of the balance-sheet items, while two measures are based on category.

For each type, one measure includes off-balance sheet activities, while the other does not. The authors then assign weights to all of the items and compute the amount of liquidity created by each bank. Berger et al. (2009) use “this method to measure liquidity creation in the US banking industry between 1993 and 2003”. “They find that liquidity creation increased substantially between 1993 and 2003, as the US banking industry created $2.8 trillion in liquidity in 2003”. “They find that the relation between capital and liquidity creation varies with size and depending on whether off-balance-sheet items are added to the liquidity creation measure” (Berger et al., 2009).

With measures that include off-balance-sheet items, the relation is positive for large banks, not significant for medium banks, and negative for small banks. With measures excluding off-balance-sheet items, the relation is not significant for large and medium banks, and negative for small banks. A handful of recent papers follow this study.

Fungáčová et al. (2010) extend “the debate by analyzing how a deposit insurance scheme affects this relation”. To do so, they study Russia. Russia provides a natural experiment to investigate this issue because a deposit insurance scheme was implemented there in 2004. Even if the deposit insurance scheme has effects, its implementation does not change the sign of the relation. They find a “negative relationship between capital and liquidity creation before and after the deposit insurance scheme” (Fungáčová et al., 2010).

Moreover, “they observe that the relation varies with size and ownership. It is significantly negative for small
and medium banks and for private domestic banks, while the relation is not significant for large banks, foreign banks, and state-owned banks" (Fungáčová et al., 2010). Berger et al. (2010) analyze "the impact of monetary policy on the aggregate liquidity creation by banks in the US".

Analyzing the period from 1984 to 2008, Berger et al. (2010) examine whether "the impact differs between normal periods and financial crises, and whether the impact also differs according to bank size". "They show that tightening monetary policy only reduces liquidity creation for small banks". This effect is weaker during financial crises. "They also note that liquidity creation is somewhat higher prior to financial crises that suggests measures of aggregate liquidity creation have explanatory power in predicting crises" (Berger et al., 2010).

Berger et al. (2012) "investigate how regulatory interventions and capital injections influence risk and liquidity creation using a sample of German universal banks".

Rauch et al. (2011) analyze "potential determinants of liquidity creation for a sample of German savings banks". "They compare the influence of macroeconomic factors, including monetary policy and unemployment, with the bank-specific factors such as size or financial performance". "They find some support for the impact of monetary policy; the tightening of monetary policy reduces liquidity creation".

However, bank-specific factors do not seem to have any influence on liquidity creation. Additionally, Pana et al. (2010) examine "the impact of bank mergers on liquidity creation for US banks". "They report that mergers have a positive influence on banks’ liquidity creation".

In this study, we use two measures of liquidity creation the "Cat fat" and the "Cat nonfat" developed by Berger and Bouwman (2009). We only use the classification based on category of items, as our data set provides detailed information that allows us to consider on- and off-balance-sheet items by category, not by maturity. For the purposes of our analysis, we label these measures as broad and narrow liquidity creation respectively.

This broad measure of liquidity creation is our preferred one because it accounts for off-balance-sheet items that can also provide liquidity and is thus more comprehensive. Nevertheless, the narrow measure is relevant for our analysis, as it allows us to check the robustness of our conclusions.

The general functional form to calculate liquidity creation, which is the preferred measure "Cat fat" of Berger and Bouwman’s (2009) as well, is:

\[ \text{Liquidity Creation (LC)} = \left[ \frac{1}{2} \times \text{illiquid assets (cat)} + 0 \times \text{semi-liquid assets (cat)} - \frac{1}{2} \times \text{liquid assets (cat)} + \frac{1}{2} \times \text{liquid liabilities} + 0 \times \text{semi-liquid liabilities} - \frac{1}{2} \times \text{illiquid liabilities} - \frac{1}{2} \times \text{equity capital} + \frac{1}{2} \times \text{illiquid guarantees} + 0 \times \text{semi-liquid guarantees} - \frac{1}{2} \times \text{liquid guarantees} - \frac{1}{2} \times \text{liquid derivatives} \right] , \]

In line with Berger and Bouwman (2009) methodology:

-Step 1: We classify all bank activities as liquid, semiliquid, or illiquid.
-Step 2: We assign weights to the activities classified in step 1.
-Step 3: We combine bank activities as classified in step 1 and as weighted in step 2.

**LIQUIDITY CREATION AND MANAGERIAL ABILITY MODEL**

First of all, we analyze the influence of managerial ability on liquidity creation. Additionally, we investigate bank liquidity creation in more detail in order to test the Ability-Liquidity hypothesis (H1).

We utilize the following model:

\[
\frac{\text{CATFAT}}{\text{GTA}} = \gamma_0 + \gamma_1 \text{MA}_{i,t-1} + \gamma_2 \text{BKSIZEm}_{i,t} + \gamma_3 \text{EA}_{i,t} + \gamma_4 \text{ROAE}_{i,t} + \gamma_5 \text{CONS}_{i,t} + \gamma_6 \text{VA}_{i,t} + \gamma_7 \text{GDP}_{i,t} + \gamma_8 \text{INFLA}_{i,t} + \epsilon_{i,t} ,
\]

Where:
- \( \text{CATFAT} \) : is the value of CATFAT, the liquidity creation measure as defined by Berger and Bouwman (2009) and obtained from equation (3)
- \( \text{MA}_{i,t-1} \) : Managerial ability score obtained from equation (2) and lagged by one period so as to avoid possible endogeneity.
- \( \text{GTA} \) : represent gross total assets
- \( \text{BKSIZem} \) : the log of gross total assets to control for bank size.
- \( \text{EA} \) : equity over asset ratio to account for bank capitalization.
- \( \text{ROAE} \) : return on average Equity
- \( \text{VA} \) : voice and accountability
- \( \text{CONS} \), \( \text{GDP} \) and \( \text{INFLA} \) are explained above and are used as control variables (Table 1).

Furthermore, we investigate the Ability-Liquidity Expansion (H2a) or contraction hypotheses (H2b) where we test whether bank managerial ability influences the liquidity creation during the financial crisis. So, we add dummy variable for Equation (4) and an interaction variable of managerial ability with the crisis period.

We use the following model:

\[
\frac{\text{CATFAT}}{\text{GTA}} = \gamma_0 + \gamma_1 \text{MA}_{i,t-1} + \gamma_2 \text{BKSIZEm}_{i,t} + \gamma_3 \text{EA}_{i,t} + \gamma_4 \text{ROAE}_{i,t} + \gamma_5 \text{CONS}_{i,t} + \gamma_6 \text{VA}_{i,t} + \gamma_7 \text{GDP}_{i,t} + \gamma_8 \text{INFLA}_{i,t} + \gamma_9 \text{CRISIS}_{i,t} + \gamma_{10} \text{MA} \times \text{CRISIS}_{i,t} + \epsilon_{i,t} ,
\]

Where:
- \( \text{CRISIS} \) : dummy variable, it takes one for crisis period (2008-2011) and zero otherwise.
- \( \text{MA} \times \text{CRISIS} \) : interaction of managerial ability with the crisis period.
### Table 1: Variables construction of our model.

| Variables | Description                                                                                                                                                                                                                                                                                                                                                       | Source |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLcat     | Liquidity creation is measured following Berger and Bouwman’s (2009) approach. “Assets and liabilities are classified as to the cost, ease and time with which they can be liquidated and assigned weights of 0, −1/2 and 1/2 so that maximum liquidity is created (destroyed) when illiquid assets are financed by liquid liabilities and vice versa” (Berger and Bouwman’s, 2009). |       |
| MA        | Managerial Ability is calculated according to the method of Demerjian et al. (2012). Specifically, we compute profit efficiency for each bank using Data Envelopment Analysis (DEA) and regress the resulting efficiency score on a set of bank-specific variables. The residual from this regression is that component of efficiency that cannot be explained by bank-specific factors and hence should be attributed to management. |       |
| ROAE      | We use return on average Equity as a measure of bank performance. ROAE is calculated by dividing net income by average equity.                                                                                                                                                                                                                                        | Bankscope |
| Bksize    | The size of the bank, defined by the logarithm of total assets.                                                                                                                                                                                                                                                                                                     | Bankscope |
| EA        | Equity to total assets ratio is used as a measure of capitalization. The higher the ratio the higher the bank is able to raise capital (equity or debt) at low costs increasing as a result profits.                                                                                                                                                                                  | Bankscope |
| VA        | The indicator measures the extent to which a country’s citizens are able to participate in selecting their government, as well as freedom of expression, free media, and freedom of association. Higher values mean greater political rights.                                                                                                           | Kaufmann, Daniel; Aart Kraay and Massimo Mastruzzi (2010) |

### Table 2: Estimation result.

|       | Coef | Std.Err | P>|t| |
|-------|------|---------|-----|
| MA(t-1) | 0.1794 | 0.0950 | 0.017** |
| Bksize | 0.3820 | 0.0157 | 0.000 *** |
| EA    | 3.4076 | 0.5445 | 0.000 *** |
| ROAE  | -0.8687 | 0.1240 | 0.453 |
| CONS  | 0.0000 | 0.0034 | 0.987 |
| VA    | -0.6545 | 0.2942 | 0.018 ** |
| GDP   | 0.0024 | 0.0142 | 0.956 |
| Infla | 0.0241 | 0.0286 | 0.516 |
| _cons | -3.3306 | 0.4035 | 0.000 *** |

Notes: This table reports regression results of Berger and Bouwman’s (2009) CATFAT measure of liquidity creation scaled by total assets on lagged managerial ability (MA_{t-1}) and bank characteristics control variables with bank and time fixed effects. The definitions of all the variables are detailed in Table 4. Significance levels are at 0.1 (*), 0.05 (**) and 0.01 (***) respectively. T-statistics are reported in parentheses.

Crisis period range from 2008 to 2011. We made this choice since we are working in European context where the financial crisis effects were after 2007-2008; this choice is in line with Curcio et al. (2016).

It should be noted that we had used Stata 12 in order to resolve the above estimation.

**RESULTS**

**Testing hypothesis**

Based on the Hausman test, we have to use the fixed effect, and the regression estimation results are shown in the Table 2. The model is highly significant at 1% level with p=0.000.

The main result relates to the significance of MA_{t-1}. Importantly, we found that managerial ability is significantly positively associated with liquidity creation. It suggests that more able manager create more liquidity creation. An increase of 1% in the managerial ability generates an increase of 17.94% in CLcat. This is as initially theorized and lends credence to the ability-Liquidity hypothesis. This result is in line with findings reported by Andreou et al. (2016). Bksize is significant and positively related to liquidity creation that’s mean
that banks with larger size create more liquidity. An increase of 1% in Bksize generates an increase of 38.2% in CLcat. Similarly, EA is significantly positively associated with liquidity creation, reflecting the key role of capital for liquidity creation. This result is in line with findings reported by Andreou et al. (2016) but mainly for large banks.

In addition, we find that VA is significantly positively associated with liquidity creation. An increase of 1% in VA generates a decrease of 65.4% in CLcat.

**Testing hypothesis 2**

We include the dummy variable Crisis and the interaction variable in order to investigate the impact of managerial ability on liquidity creation during this period.

We obtain the estimation shown in Table 3. As a result, we conclude that our model ameliorate when we add the two variables Crisis and Macrisis. But we find that an increase of 1% in the managerial ability generates a decrease of 52.16% in CLcat.

Furthermore, the results indicate that the main variable of interest, the interaction of managerial ability with the crisis indicator variable, Macrisis, shows that ably managers reduce the liquidity creation of their banks during the crisis period more significantly, which is coherent with the Ability-Liquidity creation hypothesis. So, this result detain in the overall pooled sample and its statistical significance.

**ROBUSTNESS CHECKS**

First, we examined the sensitivity of the results to the selection of liquidity creation measure (Table 4). Thus we replicated the main analysis utilizing both Berger and Bouwman’s (2009) “Cat nonfat” measure as the liquidity transformation gap of Deep and Schaefer (2004).

We use the following model:

$$
\text{CLcat}_{it}^{\text{GTA}} = \alpha_0 + \alpha_1 \text{MA}_{it-1} + \alpha_2 \text{BKSIZE}_{it} + \alpha_3 \text{EA}_{it} + \alpha_4 \text{ROAE}_{it} + \alpha_5 \text{CON}_{it} + \alpha_6 \text{VA}_{it} + \alpha_7 \text{GDP}_{it} + \alpha_8 \text{INFL}_{it} + \varepsilon_{it},
$$

(6)

Where:

CLcat: is the Cat nonfat, liquidity creation measure without including the off-balance sheet.

**Notes:** This table reports regression results of Berger and Bouwman’s (2009) CATFAT as the measure of liquidity creation scaled by total assets on lagged managerial ability (\( \text{MA}_{it-1} \)) and bank characteristics control variables with bank and time fixed effects. The definitions of all the variables are detailed in Table 1. Significance levels are at 0.1 (*), 0.05 (**) and 0.01 (**), respectively. T-statistics are reported in parentheses.
As a result, we found that managerial ability is significantly positively associated with liquidity creation as our main model. This suggests that more able manager create more liquidity creation. An increase of 1% in the managerial ability generates an increase of 17.34% in \( \text{CLcatn} \). Our main model \( \text{Bksize, EA and VA} \) are significantly associated with liquidity creation (Table 5).

During financial crisis we use the following model:

\[
\frac{\text{CLcatn}}{\text{GTA}} = \theta_0 + \theta_1 \text{MA}_{i,t-1} + \theta_2 \text{BKSIZEx}_{i,t} + \theta_3 \text{EA}_{i,t} + \theta_4 \text{ROAE}_{i,t} + \theta_5 \text{CONS}_{i,t} + \theta_6 \text{VA}_{i,t} + \theta_7 \text{GDP}_{i,t} + \theta_8 \text{INFL}_{i,t} + \theta_9 \text{CRISIS}_{i,t} + S_{i,t} + \theta_{10} \text{MA} \times \text{CRISIS} \times S_{i,t} + \varepsilon_{i,t},
\]

In accordance with result shown in Table (3), we found that managerial ability is positively and statistically significant at the 10% confidence level. Also, the interaction variable of managerial ability still significant at the 1% confidence level.

As a result, an increase of 1% in the managerial ability generates a decrease of 61.57% in \( \text{CLcatn} \).

**GENERAL CONCLUSION**

Through our study, we tried to learn more about the issue of the effect of managerial ability on bank liquidity creation, specifically commercial banks in European country, while liquidity creation is primary and crucial function of banking organizations.

First, the research aimed at understanding the link between managerial ability and commercial bank liquidity creation. Findings from the literature review indicate that managerial ability affects positively the bank liquidity creation.

For this, we have explained first the managerial ability concept, where it refers to managers’ knowledge, skills, competencies and talents, which they have to employ them in the best way in order to achieve bank goals, to anticipate risks and to find the solution to manage them if it happens. Moreover, "managerial ability is esteemed out

In consequence, findings indicate that more able managers create more liquidity.

| Coef  | Std.Err | P>|t| |
|-------|---------|-----|
| MA(t-1) | 0.1644 | 0.0970 | 0.090 * |
| Bksize | 0.3570 | 0.0164 | 0.000 *** |
| EA    | 3.2162 | 0.5699 | 0.000 *** |
| ROAE  | -0.1556 | 0.1299 | 0.231 |
| CONS  | -0.0000 | 0.0036 | 0.997 |
| VA    | -0.4518 | 0.3057 | 0.046 ** |
| GDP   | 0.0003 | 0.0156 | 0.845 |
| Infla | 0.0073 | 0.0313 | 0.815 |
| Crisis| 0.0439 | 0.0628 | 0.484 |
| Macrisis | -0.6157 | 0.1845 | 0.001 *** |
| _cons | -3.2535 | 0.4264 | 0.000 *** |

Notes: This table reports regression results of Berger and Bouwman’s (2009) CAT NONFAT as the previous regression in Table 2 but we added Crisis, Macrisis as dummy variables to test the crisis affect. Significance levels are at 0.1 (*), 0.05 (**) and 0.01 (***), respectively.
influence of crisis on liquidity creation is an empirical question, where numerous literatures propose that banks must decrease their liquidity creation, whereas some empirical results contest this assertion.

Our test results indicate that more able bank managers decrease liquidity creation during the financial crisis. Our finding is in line with Ivashina and Scharfstein (2010) who report that "loans extended by banks to large borrowers were significantly reduced during the recent financial crisis". So, Banks led by more able managers must decrease their liquidity creation, whereas some findings is in line with Ivashina and Scharfstein (2010)

The focus on only commercial banks is the limitation of the study. Therefore, studies focusing on other type of financial institution should be conducted to improve the present study, while noting that the effect of commercial banks could not be the same as other type of financial institution banks. Moreover, we study only three countries from Europe which are France, Italy and Spain and as such, future studies should consider more countries.

It is necessary to study if the governance mechanism affects the relationship between liquidity creation and managerial ability. Also, it is very interesting to determine the effect of risk taking in this relation.

REFERENCES


