Determinants of liquidity in Micro Finance Institution, Evidence From large Micro Finance Institution in Ethiopia

A research proposal submitted to Department of Accounting and Finance for the partial fulfillment of the requirement of Bachelor of Art Degree in Accounting and Finance

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February 2019

Wolkite, Ethiopia

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Declaration

This is to certify that the this prepare by Mubarek jemil, entitle: "*Determinants of Liquidity in MFI, Evidence from five MFI* and was submitted in partial fulfillment of the requirements for the Bachelor degree (BA) degree in Accounting and Finance complies with the regulations of the university and meets the accept standards with respect to originality and quality.

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Abstract

Liquidity creation is the main concerns of MFI since it is crucial for its existence; hence the main objective of this study was to identify the determinants of large MFI in Ethiopia. The data covered the period from 2005-2014 for the sample of five MFI in Ethiopia and used secondary data. four variables were analyzed by employing the balanced panel fixed effect regression model and the result of the study revealed that capital adequacy, and nonperforming loan have positive and statistically significant impacts on liquidity of Ethiopian MFI. Whereas MFI size and profitability positive/negative respectively and statistically insignificant/ has no any impact on liquidity of Ethiopia MFI for the tested period.

ACKNOWLEDGEMENT

First of all, I would like to thank almighty ALLAH for all his assistance to accomplish this research. secondly I would like to express my heart felt gratitude to my advisor Delelegn E (MP ACC) for his invaluable guidance and support, research insight and expertise. To my many student colleagues for the motivation and providing a stimulating and fun environment in which to learn and share ideas. My siblings for the motivation to always aim further and providing a loving environment to me and all my friends. Lastly, and most importantly, I wish to thank my Mum and Dad. To them I dedicate this project. God bless you all.

List of Abbreviation and acronyms

GDP: Growth domestic product

LOLR: Lender of last resort

LIQ: Liquidity

MFI: Micro finance institutions

MFA: Micro finance association

NPL: Non performing loans

ROE: Return on equity

ROA: Return on asset

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CHAPTER ONE
INTRODUCTION

1.1 Back ground of the study

Microfinance is the provision of financial service to the poor people with very small business or business projects (Marzys, 2006). Only a small fraction of the world population has access to financial instruments because commercial banks consider the poor people as un-bankable due to their lack of collateral and information asymmetries. Most microfinance institutions do not require formal collateral, and instead base loan decisions on character, group solidarity, and past repayment history (Ruerd and Schers, 2007). Collateral, when pledged, may not be legally registered or may have little liquidation value. Thus, when loan portfolio quality suffers substantially, MFIs face far greater loan losses relative to the amounts outstanding than intermediaries that operate other types of portfolios secured with collateral. In the other way, the extent to which the loan would secure is based on the MFIs' screen, monitor and facilitate repayment activities. The more the MFIs properly analyze and approve loan has a significant impact on the loan repayment rate, which in turn brings back money to facilitate loan disbursement to other clients (Crabb and Keller, 2004).

Liquidity is a vital condition for any business. The failure to meet payment obligations on time can trigger bankruptcy and gives creditors the right to take possession of the organization's assets (Rahman 2010). Liquidity is even more crucial for financial institutions because they are particularly vulnerable to unexpected and immediate payment demands. This is the nature of the loan making and deposit taking business. To stay in business, the institution must be able to pay out legitimate withdrawals and credit requests instantly (Busrite 2011). Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack of or excess liquidity to meet its short-term obligations. Dilemma in liquidity management is to achieve desired trade-off between liquidity and profitability. Liquidity requirement of a firm depends on the peculiar nature of the firm and there is no specific rule on determining the optimal level of liquidity that a firm can maintain in order to ensure positive impact on its profitability (Raheman and Nasr 2007).

The aim of liquidity management should be to regulate and control these costs that cannot be eliminated together (Cantor and Frank1996). liquidity measures how much cash a company has

and how easily it is able to pay its debt. Assets in any firm are categorized into various classes. Liquid assets such as cash, cash equivalents and marketable securities constitute liquid assets (Eljelly,2004). Liquid assets constitute a significant portion of a firm's total assets. Consequently, failure to ensure good management of corporate liquidity may make a firm be unable to meet its short and medium term obligations as they become due hence financial distress (Investment Technology Group, 2010). The optimal amount of liquidity is determined by a tradeoff between the low return earned on liquid assets and the benefit of minimizing the need for costly external financing (Bhunia, 2010). The optimal investment in liquidity increases with increase in the cost of external financing, the variance of the future cash flows and the return on future investment opportunities (Hutchison et al, 2007). Therefore, more studies are still required to understand determinants of liquidity management Therefore, to address the current gap in the literature, this study was focus on determinant of liquidity in MFI Evidence from five MFI.

1.2 Statement of the problem

Nowadays, microfinance institutions are playing vital roles in economic development of developing countries. Khandker (2003) points out that the goals of microfinance institutions as development organizations are to service the financial needs of un-serve or underserve markets as a means of meeting development objectives such as to create employment, reduce poverty, empower women or poor people, and encourage the development of new business. More specifically, three objectives of microfinance institutions are frequently cited: to create employment and income opportunities through the creation and expansion of microenterprises; to increase the productivity and income of vulnerable groups, especially women and the poor; and to reduce rural families' dependence on drought-prone crops through diversification of their income generating activities (World Bank, 2007). In short, micro finance institutions are expect to reduce poverty, which is consider as the most important development objective.

Most microfinance institutions in Ethiopia try to keep up sufficient funds to meet the unexpected demands from depositors but maintaining the cash is extremely expensive. This is achieved through maintaining a large cash reserve that may not only lose a number of opportunities in the market but also have to bear the high costs associated with cash. Proper liquidity management will enable a financial institution meet their financial obligations and take advantage of profitable investments that are likely to yield higher returns in future. The optimal amount of

liquidity is determined by the credit management practices implemented by a financial institution in order to mitigate exposure to credit risk (Myers and Majluf, 2004).

A number of studies have been done on the liquidity with various aspects of organizations operations. Graham and Bordeleau (2010) suggest that a nonlinear relationship exists, whereby profitability is improved for MFI that hold some liquid assets, however, there is a point beyond which holding further liquid assets diminishes a MFI profitability, all else equal. At the same time, estimation results provided some evidence that the relationship between liquid assets and profitability depends on the MFI business model and the risk of funding market difficulties. Tianwei and paul (2006) in their study found that liquidity possibility association on an extremely fundamental level incited money related execution of developing firm. Adopting a more traditional (i.e., deposit and loan-based) business model allows a MFI to optimize profits with a lower level of liquid assets. Likewise, when the likelihood of funding market difficulties is low (proxied by economic growth), MFI need to hold less liquid assets to optimize profits.

Liquidity risk has become one of the main concerns of financial institutions following the financial crisis of 2007. For instance, as U.S. subprime mortgage crisis reached its peak in the years 2008/09 unprecedented levels of liquidity support were required from most MFIs in order to sustain the finance. Capital is one of the MFI specific determinants of liquidity and could be defined as common stock plus surplus plus undivided profits plus reserves for contingencies and other capital reserves; besides a MFI loan loss reserves also serves as a buffer for absorbing losses, a broader definition of MFI capital includes this account (Patheja 1994). As to Estrada (2011) as size grows it will help them to overwhelm the risk which is similar to economies of scale but also it should be noted that as a firm grow it may lead to failures. There will an argument concerning to the size of MFI too big to fail argument which indicated that large MFI would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets (Iannotta et al. 2007). Profitability is the ability of a MFI to generate revenue in excess of cost in relation to the MFI capital base. A sound and profitable MFIs is better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou et al. 2005). Since lending is the principal business activity the loan portfolio is typically the largest asset and the predominate source of revenue (Comptroller‟s Hand book 1998).

In Ethiopia Tseganesh (2012) made study on determinants of MFI liquidity and their impact of financial performance on MFIs in Ethiopia. At the end she concluded as, the impact of MFI liquidity on financial performance was non-linear/positive and negative. Also other study made by Worku (2006) in Ethiopia regarding liquidity and its impact on performance of MFIs. And he argued that liquidity has an impact on the performance of MFIs in Ethiopia and there was an inverse relation between deposit/net loan and ROE. And the coefficient of liquid asset to total asset was positive and directly related with ROE. Also Semu (2010) conducted study with the intension to assess the impact of reducing or restricting loan disbursement on the performance of MFIs in Ethiopia. The study suggested that when MFI face lending constraints, they have to use their funds like by purchasing treasury bills and bonds. Moreover, MFI must develop non-interest generating services.

In her study entitled determinants of MFI liquidity and their impact on financial performance Tseganesh (2012) tried to investigate determinants of MFI liquidity directly. However, the measurement used by the researcher for liquidity risk was only liquidity ratios. According to Poorman and Blake (2005) measuring liquidity risk based on the traditional liquidity ratios only was not enough. In addition, liquidity ratios lie the fact that they do not always capture all, or any of liquidity risk, this is the disadvantage of these ratio (Vodová 2013). Besides this the Basel committee on MFI (2000) proposed the financing gap for MFI to measure the liquidity risk. There for the main purpose of this study was to investigate the determinants of MFIs liquidity in five MFI. To identify this, the researcher was address the following research questions.

Based on the above stated problem the study was focuses on the following research questions.

- How capital affect liquidity of MFIs
- What is the size grow being affect liquidity?
- What is the effect of profitability on liquidity in MFI?
- What is the effect nonperforming loans on liquidity in MFI?

1.3 Objective of the study

1.3.1General objective

The main objective of this study is to assess determinants of liquidity in micro finance institution evidence from five micro finance institution.

1.3.2Specific objective

The specific objective of the study was to:

- ✓ To examine how capital affect liquidity in MFI.
- ✓ To examine how the size grow was affect liquidity in MFI.
- ✓ To examine how profitability, affect liquidity in MFI.
- ✓ To examine how nonperforming loans, affect liquidity in MFI.

1.4 Significance of the study

The main reason for this study was that, researchers have not yet paid enough attention to the MFIs specifically to the factors that determining the liquidity of MFIs in Ethiopia. Therefore, this study was expecting to provide empirical evidence on determinants of five MFIs‟ liquidity and greatly contribute to the existing knowledge in the area of this title in the context of Ethiopia. This in turn contributes to the well-being of the financial sector of the economy. Hence, the major beneficiaries from this study are customers, MFIs, the academic staff and the country as a whole.

1.5 Hypotheses

H1. Capital adequacy has positive and significant impact on MFI liquidity.

H2. Nonperforming loans has negative and significant impact on MFI liquidity.

H3. MFI size has positive and significant impact on MFI liquidity.

H4. Profitability has negative and significant impact on MFI liquidity.

1.6 Scope of the study

The scope of the study was limit to see the impact of capital adequacy, nonperforming loan, micro finance size, profitability, on micro finance liquidity from the period 2005 to 2014 five micro finance data in the sample.

1.7 Organization of the study

The report was organize under five chapters. The first chapter provides the general overview of the study. The general information included in this chapter; background of the study, statement of the problem, objective of the study, scope of the study, significance of the study and hypothesis of the study as was as organization of the study. The second chapter reviewed the related literatures on the determinants of MFIs liquidity. The third chapter focuses on the

methodology of the study and the fourth chapter was provided results and discussion. The final chapter included summary, conclusion, recommendations and room for further research and at the end references and appendixes were attaches.

CHAPTER TWO
LITERATURE REVIEW

2.1Liquidity and its implication

Liquidity can be defined as the ability of a financial institution to meet all legitimate demands for funds (Yeager and Seitz 1989). Also the MFAs (2008) defines liquidity as the ability of MFIs to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses, besides the MFAs define liquidity as a MFIs ability to accommodate decreases in its liabilities and its ability to fund increases in its assets.

Hence, MFIs needs to hold liquid assets to meet the cash requirements of its customers if the institution does not have the resources to satisfy its customers' demand, then it either has to borrow on the MFIs or banks. It follows therefore that a MFIs unable to meet its customers' demands leaves itself exposed to a run and more importantly, a systemic lack of confidence in the MFIs (Moore 2009).

As of Alger et al. (2010) the asset is liquid if it can be sold quickly without significant losses but what determine the liquidity of an asset is still a disputed issue among theorists. As of the conventional wisdom found in the MFI management literature, an asset is liquid if it is widely known to have low risk (such as government debt) and if it has a short maturity this implies that asset's price is less sensitive to interest rate movement, making large capital losses unlikely (Garber and Weisbrod 1992 and Hempel et al. 1994.

Bordo et al. (2001), suggest two explanations on the cause of liquidity runs on deposit money MFIs. Their explanation indicated that runs on MFIs are a function of mob psychology or panic, such that if there is an expectation of financial crisis and people take panic actions in anticipation of the crisis, the financial crisis becomes inevitable. Bordo et al. (2001) also asserts that crises are an intrinsic part of the business cycle and result from shocks to economic fundamentals.

When the economy goes into a recession or depression, asset returns are expected to fall. Borrowers will have difficulty in repaying loans and depositors, anticipating an increase in defaults or nonperforming loans, will try to protect their wealth by withdrawing MFIs deposits.

MFIs are caught between the illiquidity of their assets (loans) and the liquidity of their liabilities (deposits) and may become insolvent.

There is a large volume of theoretical literature dealing with MFIs liquidity creation (Bryant 1980; Diamond and Dybvig 1983; Holmstrom and Tirole 2010 and Kashyap et al. 2002). Most recent studies focused on measuring the amount of liquidity created in the MFI sector (Deep and Schaefer 2004; Berger and Bouwman 2008); yet few studies shed light on the determinants of MFIs liquidity creation. Hence, this chapter focuses on the review of relevant theoretical and empirical literatures on MFI liquidity and its determinants. This review of the literature establishes the framework for the study and clearly identifying the gap in the literature that help to formulate the research hypotheses for the study.

2.2 Liquidity Risk Theory

Halling & Hayden (2006) explains that a should bank define and identify the liquidity risk to which it is exposed for all legal entities, branches and subsidiaries in the jurisdictions in which it is active. A MFI liquidity needs and the sources of liquidity available to meet those needs depend significantly on the MFIs and product mix, balance sheet structure and cash flow profiles of its on- and off-balance sheet obligations. As a result, a MFI should evaluate each major on and off balance sheet position, including the effect of embedded options and other contingent exposures that may affect the MFI sources and uses of funds, and determine how it can affect liquidity risk. MFIs should consider the interactions between exposures to funding liquidity risk and market liquidity risk (Jeanne & Svensson, 2007).

MFIs that obtains liquidity from capital markets should recognize that these sources may be more volatile than traditional retail deposits. For example, under conditions of stress, investors in money market instruments may demand higher compensation for risk, require roll over at considerably shorter maturities, or refuse to extend financing at all. Moreover, reliance on the full functioning and liquidity of financial markets may not be realistic as asset and funding markets may dry up in times of stress (Perera et al., 2006).

Market illiquidity may make it difficult for a MFI to raise funds by selling assets and thus increase the need for funding liquidity. MFI should ensure that assets are prudently valued according to relevant financial reporting and supervisory standards. MFIs should fully factor into its risk management the consideration that valuations may deteriorate under market stress, and

take this into account in assessing the feasibility and impact of asset sales during stress on its liquidity position (Jenkinson, 2008).

For example, MFIs sale of assets under duress to raise liquidity could put pressure on earnings and capital and further reduce counterparties' confidence in the MFI, further constraining its access to funding markets. In addition, a large asset sale by one MFI may prompt further price declines for that type of asset due to the market's difficulty in absorbing the sale. Finally, the interaction of funding liquidity risk and market liquidity risk may lead to illiquidity spirals, with MFI stockpiling liquidity and not on-lending in term MFI markets because of pessimistic assumptions about future market conditions and their own ability to raise additional funds quickly in the event of an adverse shock (Guglielmo, 2008).

MFIs should recognize and consider the strong interactions between liquidity risk and the other types of risk to which it is exposed. Various types of financial and operating risks, including interest rate, credit, operational, legal and reputational risks, may influence a MFI liquidity profile. Liquidity risk often can arise from perceived or actual weaknesses, failures or problems in the management of other risk types. MFIs should identify events that could have an impact on market and public perceptions about its soundness, particularly in wholesale markets (Akhtar, 2007).

2.3 Measurements of liquidity risk

As it is known financial institutions can utilize a number of sources to meet its liquidity needs, such as accepting new deposits, maturing assets, borrowed funds and/or using the discount window. Given that access, measurement and management of liquidity is an important activity in most MFI. Before seeing the methods of measuring liquidity risk, butter to introduce the sources of liquidity risk and possible ways to overcome with it.

There are three main sources of liquidity risks; the first one is on the liability side of the balance sheet, here there is a large uncertainty on the volume of withdrawals of deposits or the renewal of rolled over interbank loans, especially when the MFI is under suspicion of insolvency or when there is an aggregate liquidity shortage, the second is on the asset side of the balance sheet, here there is an uncertainty on the volume of new requests for loans that a MFI will receive in the future, and the third one is off-balance sheet activities, like

credit lines and other commitments, positions taken by MFI on derivative markets (Rochet 2008).

As stated in different literatures, since liquidity risk is a very serious phenomenon of MFI there is some methods to overcome it. Hence, there are three mechanisms that MFI can use to insure against liquidity crises: firstly, MFI hold buffer of liquid assets on the asset side of the balance sheet; a large buffer of assets such as cash, balances with MFI debt securities issued by governments and similar securities or reverse repo trades reduce the probability that liquidity demands threaten the viability of the MFI. Second strategy is concerned with the liability side of the balance sheet. The last strategy concerns the liability side of the balance sheet, as well. MFI typically acts as a Lender of Last Resort/LOLR to provide emergency liquidity assistance to particular illiquid institutions and to provide aggregate liquidity in case of a system wide shortage (Aspach et al. 2005).

As of the Comptrollers Handbook (2012) the process of liquidity risk measurement of MFI should be commensurate with its size, complexity, and liquidity risk profile. Similar to a MFI policy limits and targets; the measurement of liquidity should be comprehensive and prospective. To be comprehensive, the measurement of liquidity must incorporate all of the cash flows and liquidity implications from all material assets, liabilities, off-balance sheet positions and other activities, including the potential options embedded in the institution's assets and liabilities.

Hence, measurements‟ of liquidity position of MFI helps to identify their real liquidity risk exposures and to implement the appropriate liquidity risk management strategies that help MFI to perform properly and profitably. Liquidity risk measurement helps to present

liquidity position in terms of numbers and figures. As indicated in different literatures, there were various ways of measuring liquidity risk;

There are two basic traditional methods for measuring liquidity risk; these are liquidity gap/ flow approach and liquidity ratios/ stock approach. The liquidity gap/ flow approach is expressed as the difference between assets and liabilities at both present and future dates. At any date, a positive gap between assets and liabilities is equivalent to a deficit that has to be filled. This approach focuses on comparing the variability in MFI inflows and out flows to determine the amount of reserves that are needed during a period. Here flow approach treats liquid reserves as a reservoir: MFI assesses its liquidity risk by comparing the variability in inflows and outflows to determine the amount of reserves that are needed during a period.

The second approach for measuring liquidity risk is liquidity ratio/ stock approach; which focused on the asset and liability sides of the balance sheet employing ratios to identify liquidity trends. These ratios reflect the fact that MFI should be sure that appropriate, low-cost funding is available in a short time; this might involve holding a portfolio of assets than can be easily sold (cash reserves, minimum required reserves or government securities), holding significant volumes of stable liabilities (especially deposits from retail depositors) or maintaining credit lines with other financial institutions (Moore and Bassis 2009).

However, both approach of liquidity risk measurement has their limitations. Hence, the basic limitation of liquidity gap/ flow approach is that; it is more data intensive and there is no standard technique to forecast inflows and outflows. While the liquidity ratio/ stock approach is that; even if it is possible to calculate them only on the basis of publicly

available data from MFI´ balance sheets and it is easy to interpret their values, the disadvantage of this ratio is the fact that they do not always capture all, or any of liquidity risk (Vodová 2013).

Liquidity measures can be also one dimensional or multi-dimensional. One dimensional liquidity measures take only one variable into account whereas multi-dimensional liquidity measures capture different variables in one measure. Furthermore, the measures can be subdivided into; time related, volume related and model based; also there is other ways of measuring liquidity risk, i.e. net liquidity statement, in this method the MFI can assess its liquidity position by listing the sources and uses of the liquidity. Liquidity index, this measures the potential losses the institution could suffer from a sudden or fire sale disposal of assets compared with the amount it would receive under normal market conditions when the disposal can be done in an unhurried way (Vonwyss 2004).

The financing gap is the difference between the MFI average loans and average deposits divided by total assets‟ of the MFI. The larger the financing gap, the more the MFI needs to borrow in the money markets and the greater the liquidity problems in the future due to increased deposit withdrawals and/or increased exercise of loan commitment. Researchers (for instance, Rafique & Malik 2013; Vodová 2011) used financing gap for measuring of liquidity in their study. Therefore, for the purpose of this study the financing gap was used in measuring liquidity of Ethiopian five MFIs.

2.4 Determinants of MFIs liquidity theory

2.4.1 *MFI specific factors*

Capital adequacy and MFI liquidity

Capital is one of the MFIs specific determinants of liquidity and could be defined as common stock plus surplus plus undivided profits plus reserves for contingencies and other

capital reserves; besides a MFIs loan loss reserves also serves as a buffer for absorbing losses, a broader definition of MFIs capital includes this account (Patheja 1994). Banks capital plays a very important role in maintaining safety and solidarity of MFI and the security of MFIs systems in general as it represents the buffer gate that prevents any unexpected loss that MFI might face, which might reach depositors funds given that MFI operate in a highly uncertain environment that might lead to their exposure to various risks and losses that might result from risks facing MFIs (Moh‟d and Fakhris 2013).

Opposing to the standard view of liquidity creation in which MFI create liquidity by transforming liquid liabilities into illiquid assets, the recent theories indicate that MFIs can create more or less liquidity by simply changing their funding mix on the liability side (Diamond and Rajan 2000; Gorton and Winton 2000). Thakor (1996) shows that capital may also affect MFIs‟ asset portfolio composition, thereby affecting liquidity creation through a change in the asset mix.

In the recent theoretical literature, there are two opposing views concerning the relationship between MFI capital and liquidity creation; the financial fragility-crowding out and the risk absorption. As discussed by Berger and Bouwman (2009), under the first view, MFI capital tends to impede liquidity creation through two distinct effects: the financial fragility structure and the crowding-out of deposits. The financial fragility structure is characterized by lower capital, tends to favor liquidity creation (Diamond and Rajan 2000). And they model a relationship MFIs that raises funds from investors to provide financing to an entrepreneur. The entrepreneur may withhold effort, which reduces the amount of MFI financing attainable. More importantly, the MFIs may also withhold effort, which limits the MFIs ability to raise financing. A deposit contract mitigates the MFIs holdup problem because depositors can run on the MFI if the MFIs threatens to withhold effort and therefore maximizes liquidity creation. Providers of capital cannot run on the MFIs, which limits their willingness to provide funds, and hence reduces liquidity creation. Thus, the higher a MFIs capital ratio, the less liquidity it will create.

And also Gorton and Winton (2000) show how a higher capital ratio may reduce liquidity creation through the crowding out of deposits. They argue that deposits are more effective liquidity hedges for investors than investments in equity capital. Thus, higher capital ratios

shift investors‟ funds from relatively liquid deposits to relatively illiquid MFIs capital, reducing overall liquidity for investors.

The second view is concerned with the risk absorption hypothesis; higher capital enhances MFIs ability to create liquidity, this insight is based on two strands of the literature. One strand consists of papers (e.g., Diamond and Dybvig 1983, Allen and Santomero 1998, Allen and Gale 2004) argue that liquidity creation exposes MFI to risk. The more liquidity that is created, the greater is the likelihood and severity of losses associated with having to dispose of illiquid assets to meet the liquidity demands of customers. The second strand consists of papers (e.g., Bhattacharya and Thakor 1993, Repullo 2004, VonThadden 2004) that posit a MFIs capital absorbs risk and expands MFIs‟ risk-bearing capacity. Combining these two strands yields the prediction that higher capital ratios may allow MFI to create more liquidity. Thus, under the second view, the higher is the MFIs capital ratio, the higher is its liquidity creation.

Non-performing loans and MFIs liquidity

Nonperforming loan is a loan that is not earning income and full payment of principal and interest is no longer anticipated; principal or interest is 90 days or more delinquent; or the maturity date has passed and payment in full has not been made (Hou 2004). Also it could be a loan that is outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract. Hence, nonperforming is any loan facility that is not up to date in terms of payment of both principal and interest contrary to the terms of the loan agreement. Therefore, the amount of nonperforming loan measures the quality of MFIs assets; besides large amount of nonperforming loans (NPL) leads the MFI sector to efficiency problem and the MFI system into failure.

As found by a number of economists that failing MFIs tend to be located far from the most efficient frontier because MFIs do not optimize their portfolio decisions by lending less than demanded (Barr et al. 1994). Bloem and Gorter (2001) indicated that, though issues relating to non-performing loans may affect all sectors, the most serious impact is on financial institutions such as large MFI and mortgage financing institutions which tend to have large loan portfolios; besides, the large bad loans portfolios will affect the ability of MFI to provide credit. Since large amount of nonperforming loans could result in loss of

confidence on the part of depositors and foreign investors who may start a run on MFIs, it leads to liquidity problems.

Therefore, the amount of nonperforming loans has a negative impact on MFIs liquidity.

Size and MFIs liquidity

As to Estrada (2011) as size grows it will help them to overwhelm the risk which is similar to economies of scale but also it should be noted that as a firm grow it may lead to failures. There was an argument concerning to the size of MFI, „„too big to fail““ argument which indicated that large MFIs would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets (Iannotta et al. 2007). Hence, "too big to fail" status of large MFI could lead to moral hazard behavior and excessive risk exposure. If big MFI are seeing themselves as "too big to fail", their motivation to hold liquid assets is limited, therefore in case of a liquidity shortage; they rely on a liquidity assistance of Lender of Last Resort (Vodová 2011).

Therefore, large MFIs are likely to perform higher levels of liquidity creation that exposes them to losses associated with having to sale illiquid assets to satisfy the liquidity demands of customers; hence, there can be positive relationship between MFI size and illiquidity. However, since small MFIs are likely to be focused on traditional intermediation and transformation activities (Rauch et al. 2008; Berger and Bouwman 2009) they do have small amount of liquidity. Size is measured in the natural logarithm of total assets (Poorman and Blake 2005; Shen et al. 2010). Hence, there can be negative relationship between MFIs size and illiquidity whereas as per this argument there was positive relationship between MFI size and liquidity.

Profitability and MFIs liquidity

Profitability is the ability of a MFIs to generate revenue in excess of cost in relation to the MFIs capital base. A sound and profitable MFI sector is better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou et al. 2005). However, in literature there have been varying reports on the relationship between MFIs liquidity and profitability. Bourke (1989) argued that MFIs holding more liquid assets benefit from a superior perception in funding markets, reducing their financing costs and

increasing profitability. On the other hand, other researchers argue that holding liquid assets imposes an opportunity cost on the MFIs given their low return relative to other assets which indicated the inverse relationship between liquidity of MFIs and profitability (Molyneux and Thornton 1992; Goddard et al. 2004). The tradeoffs that generally exist between return and liquidity risk are demonstrated by observing that a shift from short term securities to long term securities or loans raises a MFIs return but also increases its liquidity risks and the inverse is true. Hence, a high liquidity ratio indicates a less risky and less profitable MFIs (Hempel et al. 1994). Thus management is faced with the dilemma of liquidity and profitability.

The adverse effect of increased liquidity for financial institutions stated that, „although more liquid assets increase the ability to raise cash on short notice, they also reduce the ability of management to commit credibly to an investment strategy that protects investors" which finally, can result in reduction of the firm's capacity to raise external finance in some cases (Myers and Rajan 1998). Hence, there can be a negative relationship between profitability and MFIs liquidity.

2.5 Empirical review

Since liquidity is the main concerns of MFI, many studies were done regarding the factors that determining the liquidity of MFI in Ethiopia. So that, it is quite difficult to present the results of all the studies available on the topic of this research, hence the most related studies were taken. To make it more convenient the researcher reviewed the related empirical evidence in Ethiopia.

2.5.1 Related empirical review in Ethiopia

Tseganesh (2012) made study on determinants of MFI liquidity and their impact of financial performance on MFI in Ethiopia. The aim of her study was concerned with two points; identify determinants of MFI liquidity in Ethiopia and see the impact of MFI liquidity up on financial performance through the significant variables explaining liquidity.

The data was analyzed by using balanced fixed effect panel regression model for eight MFI in the sample covered the period from 2000 to 2011 and the result of her study indicate that capital adequacy, MFI size, share of nonperforming loans in the total volume of loans, interest rate margin, inflation rate and short term interest rate had positive and statistically significant impact on banks liquidity whereas real GDP growth rate and loan growth had statistically insignificant impact on MFI liquidity. Also the result of her study revealed that; among the statistically significant factors affecting MFI liquidity, capital adequacy and MFI size had positive impact on financial performance whereas, non-performing loans and short term interest rate had negative impact on financial performance while interest rate margin and inflation had negative but statistically insignificant impact on financial performance. At the end she concluded as, the impact of MFI liquidity on financial performance was non-linear/positive and negative.

Also other study made by Worku (2006) in Ethiopia regarding liquidity and its impact on performance of MFI. And he argued that liquidity has an impact on the performance of MFI in Ethiopia and there was an inverse relation between deposit/net loan and ROE. And the coefficient of liquid asset to total asset was positive and directly related with ROE.

Also in the same year, the researcher studied capital adequacy and found that the capital adequacy of all MFI in Ethiopia were above threshold, means there was sufficient capital that can cover the risk-weighted assets. Depositors who deposit their money in all MFI were safe because all the studied MFI fulfilled requirement (Worku 2006).

Also Semu (2010) conducted study with the intension to assess the impact of reducing or restricting loan disbursement on the performance of MFI in Ethiopia. It also attempts to examine the possible factors that compel the MFI to reduce or restrict lending. For his

study, the researcher used Quantitative method particularly survey design approach was adopted. The finding of the study revealed that deposit and capital have statistically significant relationship with MFI‟ performance measured in terms of return on equity (ROE). New loan and liquidity have relationship with MFI‟ performance measured in terms of both return on asset (ROA) and ROE. However, the relationship was found to be statistically insignificant. Deposit and capital have no statistically significant relationship with MFI‟ performance in terms of ROA. The study suggested that when MFI face lending constraints, they have to use their funds like by purchasing treasury bills and bonds. Moreover, MFI must develop non-interest generating services. Excess cash maintained by MFI should be used by diversifying credit options and to avoid inefficiencies.

2.7 Conclusion and knowledge gap

In line with the above theoretical and empirical review; liquidity is important to all business specially for MFI since their function is creations of liquidity on both the asset and liability side of their balance sheet. It suggests that MFI liquidity can be affect by different factors such as MFI specific and regulatory factors. As it is evident in different literature (for instance Vodová 2011; 2013) the most important task is to choose the appropriate explanatory variables. Hence, the selection of variables for this study was on the basis of previous studies that review in the literature and the idea of the researcher and, so it focuses on MFI specific that determine the liquidity of MFI in Ethiopia.

Unlike the empirical studies, theory on MFI liquidity will document. According to the review, most of the empirical studies were done on the area of MFI liquidity following the U.S. subprime mortgage crisis. Although liquidity problems of some MFI during global financial crisis re-emphasized, the fact that liquidity is very important for functioning of

financial markets and the MFI sector; an important gap still exists in the empirical literature about liquidity and its measurement. Studies cited above suggest that MFI liquidity will determined both by MFI specific factors (such as size of the MFI, capital adequacy, Non-performing loan, profitability, and factors describing risk position of the MFI). Hence, as it was clearly indicated in the empirical review, most of the studies regarding the determinants of MFI liquidity were done in Ethiopia. However to the knowledge of the researcher, it is possible to say few or finger counted studies in Ethiopia concerning to MFI liquidity but most of them disregard studying determinants of liquidity directly, rather studying on points like the relationship between liquidity and performance of MFI in Ethiopia (Worku 2006; Semu 2010).

The study made by Tseganesh (2012) on the determinants of MFI liquidity and their impact on financial performance, and she tried to investigated determinants of MFI liquidity directly.

But the measurement use by the researcher for liquidity risk was only liquidity ratios. However, according to Poorman and Blake (2005) measuring liquidity risk based on the traditional liquidity ratios only was not enough.

Therefore, the MFIs in Ethiopia is on the growth stage with opening of new MFI, besides with the absence of active secondary stock exchange in the country; it is important to notify the important determinants of MFI liquidity by making empirical investigation to already established MFI. Hence, this study aims to investigate MFI specific factors affecting MFI liquidity by using financing gap for measurements of liquidity.

CHAPTER THREE

Research Methodology

Introduction

3.1 Research Design

The study was use exploratory types of research design based on data. This type of research design helps to identify and evaluate the causal relationships between the different variables under consideration (Creswell, 2008). So that, the explanatory research design was be used to examine the relationship of the dependent and independent variables. Data are analysis by quantitative approach. Quantitative approach is measurement of quantity or amount.

3.2 Data collection method

So as to conduct the study was use for this study to collect required information, which was relevant for addressing the objectives of the study. The panel secondary data was quantitative in nature and encompasses ten years MFI audited financial statements (balance sheet and income statement).

3.3 Method of data Analysis

In order to meet the stated research objectives, the collected data was being analyzed based on the nature of the objective. Accordingly, the data collected ten years (2005-2014) data in five MFI financial statement and published data MFI will be examined using the model specified below:

3.4 Variable description

3.4.1 Dependent variable

Liquidity of MFI: liquidity is the ability of MFI to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. As indicate in the theoretical literature, there are different measures of liquidity, such as liquidity gap, liquidity ratios, one dimensional or multi-dimensional, Liquidity index, financing gap, and etc. But some of the liquidity measures have their own limitation; if we see liquidity gap, it will more data intensive and there will no standard technique to forecast inflows and outflows and the liquidity ratio do not always capture all, or any of liquidity risk (Vodová 2013). For the purpose of this study financing gap will used as a measure of liquidity in the bank. Therefore, the following formula will develop for the dependent variable: by (Nigist melsew 2010)

3.4.2 Independent variable

Capital adequacy of MFI: Capital of MFI includes; common stocks and other capital reserves. As it will discuss in the literature review part, there are two opposing theoretical views regarding to the relationship between MFI liquidity and capital adequacy. These are financial fragility-crowding of deposit hypothesis and risk absorption hypothesis. The first argument suggests that there is negative relationship between capital adequacy and MFI liquidity whereas, the second argument is opposing to this. This study considers the second hypothesis since it has been use by various empirical studies review under this study (i.e Diamond and Dybvid 1983). The proxy for capital adequacy use in this study will the ratio of equity to total assets as of (Gorton and Winton 2000; Berger and Bouwman 2009).

Non-performing loans: Nonperforming loans are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contain in the loan contract. This measures the quality of MFI asset. Unlike other firm's MFI assets are compose of large amount of loans. If this loan is considered to be uncollectable that leads to reduction in MFI profitability and make large number of depositors to fear and run against the MFI. Therefore, it expects that there will negative relationship between MFI

liquidity and the amount of nonperforming loans. The proxy use for nonperforming loans will the ratio of provision for impairment loses to the total outstanding loan and advance to customer as per (Barr et al. 1994).

MFI size: MFI size measures its general capacity to undertake its intermediary function. As it will state in the literature review part there will two opposing arguments both theoretically as well as empirically regarding to the relationship between MFI liquidity and size. The first view will too big to fail which considers negative relationship between size and liquidity whereas; the traditional transformation view suggests positive relationship. Therefore, this study supported the second argument that will positive impact of MFI size on liquidity. The proxy for MFI size use in this study will the natural logarithm of total assets as of (Poorman and Blake 2005; Shen et al. 2010).

Profitability: Profitability is the ability of a MFI to generate revenue in excess of cost, in relation to the MFI capital base. However, as indicate in the literature; there have been varying reports on the relationship between MFI liquidity and profitability. The first argument is that MFI holding more liquid assets benefit from a superior perception in funding markets, reducing their financing costs and increasing profitability, which indicate the positive relationship between liquidity and profitability. On the other hand, other researchers argue that, holding liquid assets imposes an opportunity cost on the MFI given their low return relative to other assets which indicate the inverse relationship between liquidity of MFI and profitability. Hence, this study supporte the second argument that there will a negative relationship between liquidity and profitability. To proxy profitability return on asset (i.e. the ratio of Net income after tax to total asset) will use as of (Molyneux and Thornton 1992).

3.5 Model specification

To examine the determinants of liquidity micro finance institution five MFI the following general empirical research model is developed. This model formulated by (Nigist melese 2010).

$LIQ_{i,t} = \alpha i + \beta 1(CAP_{i,t}) + \beta 2(NPL_{i,t}) + \beta 3(SIZE_{i,t}) + \beta 4(PROF_{i,t}) + \varepsilon_{i,t}$

Where, $_{LIQi}$,t: is liquidity of MFI i at time t

CAPi,t: is capital adequacy of i^{th} MFI on the year t, the proxy was the ratio of total MFI Capital to total assets. i.e. CAP = Equity/ total assets

NPLi,t: is the nonperforming loan of i^{th} MFI on the year t, the proxy was provision for impairment loses/total outstanding loan and advance to customer.

SIZEi,t: is the size of i^{th} MFI on the year t, the proxy will natural logarithm of MFI‟ total assets

PROFi,t: is the profitability of i^{th} MFI on the year t, the proxy was Return on asset i.e ROA, or NI after tax/total asset

α_i : The constant term for MFI i

$\beta_{1\text{-}9:}$ are parameters estimated/coefficient of the independent variables and

$\varepsilon_{i,t}$: the error term

Chapter 4
DATA PRESENTATION AND ANALYSIS

4.1 Descriptive statistics of the variables

This section provides the descriptive statistics of dependent and independent variables which helped to have the overall look at variables being studied. It indicated the result of all variables calculated as mean, median, standard deviation, minimum and maximum values with the number of observations under the study was demonstrated in tabular form.

Hence, table 4.1 below presented the descriptive statistics values of the study variables that were both dependent and independent variables for the study period and all variables comprised 50 observations. The study used the dependent variable which measures the liquidity of sampled MFI and 4 independent variables.

Table 4.1 Descriptive statistics of the variables

	LIQUDITY	CA	SIZE	ROA	NPL
Mean	0.176332	0.395080	8.751405	0.035704	0.110034
Median	0.173500	0.280000	8.882626	0.030000	0.000000
Maximum	0.676000	2.808000	9.927381	0.235000	4.144500
Minimum	0.019000	0.090000	7.011894	-0.085000	-0.007700

Std. Dev.	0.106616	0.394163	0.715427	0.058640	0.594203
Observations	50	50	50	50	50

Source: E-views8

Liquidity had a mean value of 0.176332 and a standard deviation of 0.106616. The highest performance was 9.927381 while the list performance -0.007700 was for the ten-year period. This finding show that some MFIs were not able to hold their financial performance as a result of varied liquidity.

CA Adequacy had a mean of 0.395080 and a standard deviation of 0.394163; size had a mean of 8.751405 and a standard deviation of 0.715427; ROA had a mean of 0.035704 and a standard deviation of 0.058640; NPL had a mean of 0.110034 and a standard deviation of 0.594203.

4.2 correlation analysis between study variables

Correlation is a way to index the degree to which two or more variables are associated with or related to each other. Correlation coefficient between two variables ranges from +1 (i.e. perfect positive relationship) to -1 (i.e. perfect negative relationship). If it is stated as *y* and *x* are correlated, this means that y and x are being treated in a completely symmetrical way. Thus, it is not implied that changes in *x* cause changes in *y*, or indeed that changes in *y* cause changes in *x* rather it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient (Brooks 2008). Hence, table 4.2 indicated the correlation between dependent and independent variables of the study.

Table 4.2 correlation between dependent and independent variable

	LIQUDITY	CA	SIZE	NPL	ROA
LIQUDITY	1.000000	0.583728	-0.062501	0.492739	-0.185218
CA	0.583728	1.000000	-0.465586	0.099757	-0.090211
SIZE	-0.062501	-0.465586	1.000000	0.115045	0.207432
NPL	0.492739	0.099757	0.115045	1.000000	-0.039225
ROA	-0.185218	-0.090211	0.207432	-0.039225	1.000000

Source: E-views8

According to table 4.2 above, capital adequacy was positively correlated with liquidity indicated by the correlation of 0.583728. This correlation showed that as the MFI capital strength increase, liquidity increase. Nonperforming loan was positively correlated with liquidity, with the correlation coefficient of 0.492739. This correlation revealed that as the nonperforming loan of MFI increase, liquidity increase. The size of MFI was negatively correlated with liquidity, with the correlation coefficient of -0.062501. This indicated that as the MFI size increases, liquidity also decreases. On the other hand, ROA negatively correlated with liquidity, with the coefficient of -0.185218. This revealed that as the ROA increase liquidity move to opposite direction.

4.3 Choosing fixed versus random effect model

The collected data were estimated based on the panel model, which included cross sectional and time series observations for five large MFIs that ranges over 2005 to 2014. Fixed effects and random effects models are commonly used models for the panel data. In order to choose fixed or random effect model a formal test so called hausman test was used which was based on the null hypothesis in favor of random effect model estimator. When the test is made it is important to see the p-value because the decision was made on the basis of this value, accordingly if p value is higher than 0.05 (i.e. it is insignificant) hence random effects is preferable whereas if p value is lower than 0.05 (i.e. it is significant) fixed effect is preferable

(Gujarati 2004). Hence according to hausman test for this panel data model shown in table 4.3 below, the model is better off if fixed effect model is used since the p-value for the model is 0.6876, which is greater than 0.05(insignificant).

Table 4.3 Tests for choosing fixed versus random effect model

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.

Cross-section random	2.262563	4	0.6876

Source E: view 8

4.4 Testing assumption of classical linear regression CLRM

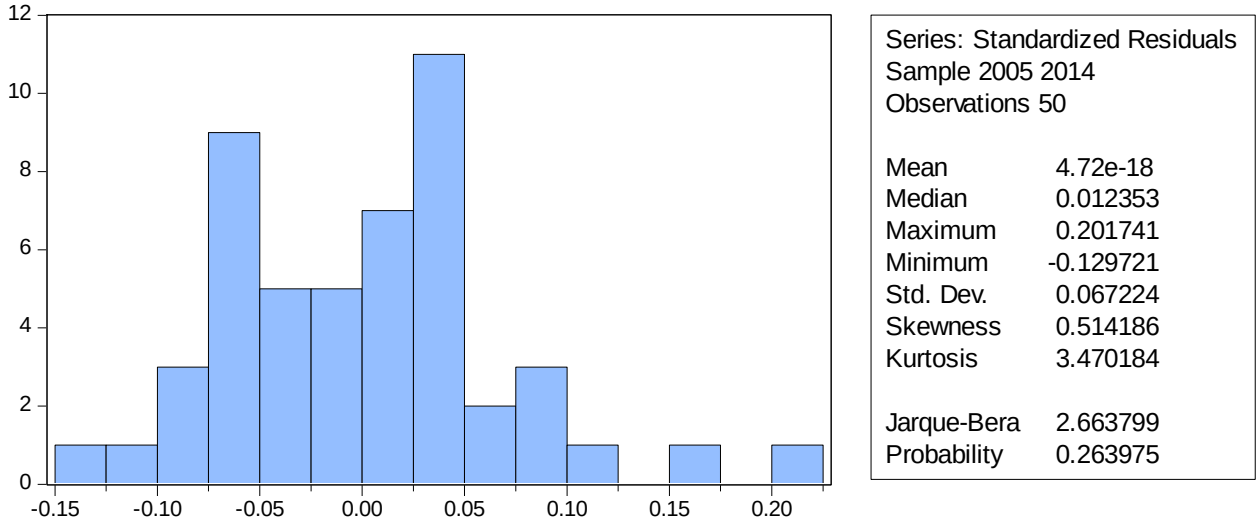
After choosing whether fixed or random effect was appropriate for the study, the next step was testing for the assumption of CLRM. This was important to make sure that the data and the model fit with classical linear regression model assumptions. Hence, the assumptions of CLRM was tested to know whether the data and the model for this study was fit or not with the assumption.

As per Brooks (2008), the first assumption required that the average value of the errors is zero (E (ut) = 0*)*. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term (i.e. α) was included in the regression equation, the average value of the error term in this study was expected to be zero.

- Test for normality assumption

  Checking whether the disturbances are normally distributed or not is one of the assumptions of CLRM; hence the normal distribution is not skewed and is defined to have a coefficient of kurtosis 3. Accordingly, one of the most commonly applied tests for normality was the BeraJarque (BJ) test, so which test the residuals for normality and testing whether the coefficient of skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. If the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level (Brooks 2008).

Table 4.4 test for normality assumption



Source: E-views8

As shown in the appendix B1, kurtosis approaches to 3 (3.470184) and the Bera-Jarque statistics were not even at 10% level of significance as per the P-values shown in the histogram in the appendix B1(0.263975). Therefore, the null hypothesis that is the error term was normally distributed should not be rejected and it seems that the error term in this case follows the normal distribution.

- Test for multicollinearity assumption

This is the other assumptions of CLRM and concerned with the existence of relationship between variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect collinearity, and it cannot be estimated by OLS (Brooks 2008). The condition of multicollinearity exists where there is high, but not perfect, correlation between two or more variables (Cameron and Trivedi 2009; Wooldridge 2006). Churchill and Iacobucci (2005) stated that when there is multicollinearity, the amount of information about the effect of variables on dependent variables decreases. As a result, many of the variables could be judged as not related to the dependent variables when in fact they are. This assumption does allow the independent variables to be correlated; they just cannot be perfectly correlated. If we did not allow for any correlation among the independent variables, then multiple regressions would not be very useful for analysis.

Even if how much correlation causes multicollinearity is not clearly defined, there is an argument provided by different authors. Hair et al (2006) argue that correlation coefficient below 0.9 may not cause serious multicollinearity problem. Malhotra (2007) stated that multicollinearity problem exists when the correlation coefficient among variables is greater than 0.75. Kennedy (2008) suggests that any correlation coefficient above 0.7 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results. This indicates as there is no consistent argument on the level of correlation that causes multicollinearity.

- Test for Heteroskedasticity assumption

This was the third assumption of CLRM and stated that the variance of the errors is constant; which is known as the assumption of Homoscedasticity. If the residuals of the regression have systematically changing variability over the sample, (i.e. the errors do not have a constant variance) that a sign of Heteroskedasticity is observed. To test this assumption, the white test was used having the null hypothesis of Heteroskedasticity. Hence, according to table 4.5 below the p- value was in lower of 0.05, therefore it is possible to say that there was evidence for the presence of Heteroskedasticity. The white test result was fully attached in the appendix B3.

Table 4.5 Heteroskedasticity test

Heteroskedasticity Test: White

F-statistic	8.089466	Prob. F(10,39)	0.0000
Obs*R-squared	33.73572	Prob. Chi-Square(10)	0.0002
Scaled explained SS	33.39164	Prob. Chi-Square(10)	0.0002

- Test for Autocorrelation assumption

This was the last assumption of CLRM for this study and states that CLRM‟s disturbance term is the covariance between the error terms over time (or cross-sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one

another. Besides if the errors are not uncorrelated with one another it would be stated that they are autocorrelated or that they are serially correlated (Brooks 2008).

This test was made by using Durbin and Watson test. Durbin-Watson (DW) is a test for first order autocorrelation i.e. it tests only for a relationship between an error and its immediately previous value. DW is approximately equals to $2(1 - \hat{\rho})$, where $\hat{\rho}$ is the estimated correlation coefficient between the error term and its first order lag (Brooks 2008).

Therefore, from table 4.6 fixed effect regression result the value of Durbin-Watson stat (i.e.1.086200) this revealed that there was no serious evidence of autocorrelation in the data since the DW test result approaches two (2) because as per Brook (2008) stated above there is no autocorrelation problem if the *DW* is near 2. To make it more convincible for the absence of autocorrelation problem a formal test so called Breusch-Godfrey was made because as stated above the Durbin-Watson tests only for the first order autocorrelation or (i.e. it test only for one lag- value). Hence, the BG- test was made for ten lag-values and the result was given, besides the full result was attached in the appendix B4. Since the p-value of F-stat was 7.766108, we fail to reject the null hypotheses in that the p-value was 5% which indicated that there is no autocorrelation problem.

4.5 Results of the regression analysis

In this section the results of fixed effect regression model were presented. The regression results have their own implications, and hence beta indicates each variables level of influence on the dependent variable which may has a coefficient of negative or positive. P-value indicates at what percentage or precession level of each variable is significant and R^2 values indicate the explanatory power of the model and in this study adjusted R^2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. Therefore, the results of fixed effect regression model in this study were presented in table 4.6 below.

The operational panel regression model used to identify the statistically significant determinants of MFI liquidity measured by the ratio of financing gap to total asset was:

$$\mathbf{LIQi,\ t = \alpha i + \beta 1(CAPi,t) + \beta 2(NPLi,t) + \beta 3(SIZEi,t) + \beta 4(PROFi,t)}$$

Table 4.7 Fixed effect regression

Dependent Variable: LIQUDITY

Method: Panel Least Squares

Date: 05/24/19 Time: 04:44

Sample: 2005 2014

Periods included: 10

Cross-sections included: 5

Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.065815	0.303101	-0.217140	0.8292
CA	0.188625	0.033842	5.573726	0.0000
SIZE	0.019293	0.034918	0.552525	0.5836
NPL	0.068738	0.018784	3.659371	0.0007
ROA	-0.245887	0.241594	-1.017769	0.3148

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.602439	Mean dependent var	0.176332
Adjusted R-squared	0.524866	S.D. dependent var	0.106616
S.E. of regression	0.073490	Akaike info criterion	-2.221779
Sum squared resid	0.221433	Schwarz criterion	-1.877615
Log likelihood	64.54448	Hannan-Quinn criter.	-2.090720
F-statistic	7.766108	Durbin-Watson stat	1.086200
Prob(F-statistic)	0.000003		

According to table 4.6 fixed effect regression results, adjusted R^2 has the value of 0.602439 which revealed that the explanatory power of the model was good. The value (i.e. 0.602439) could be interpreted as; the variations of liquidity in Ethiopian MFIs 0.602439 were explained by CAP, NPL, SIZE, ROA whereas the rest 39.76% variation of liquidity in MFI were explained by no variables used in this study rather it goes to the error term. Generally, the value of adjusted R^2 in this study indicated good model specification. Also, the overall test of significant F statistics shows that the model was good enough fitted and statistically significant at 1% level (i.e. p-value = 0.000003).

In general, the above table 4.6 indicated that; out of the total four variables of the study two of them were statistically significant at 1% level (i.e. CAP and NPL). The rest two

variables had not statistically significant impacts on liquidity of MFI for the period between 2005-2014.

4.6 Discussions of the regression results

Capital adequacy and liquidity

Capital adequacy which was measured by the ratio of equity to total asset was statistically significant variable that affected liquidity of MFI at 1% significant level with the p-value of 0.0000. And has a coefficient value of 0.188625 which indicated that when the ratio of capital to total asset rises by 1%, the liquidity of MFI decreases by 18.86%, holding other variables constant. This finding was opposite to the hypotheses of this study (H1) and in line with the findings of Vodová (2012); Subedi and Neupane (2011); and Laurine (2013). The positive and statistically significant impact of capital adequacy on liquidity of MFI were supported the arguments of the financial fragility-crowding out hypotheses. According to this argument, MFI capital tends to impede liquidity creation through two distinct effects: the financial fragility structure and the crowding-out of deposits. The financial fragility structure is characterized by lower capital, tends to favor liquidity creation; this theory was supported by (Diamond and Rajan 2001), and hence they model a relationship MFI that raises funds from investors to provide financing to an entrepreneur. The entrepreneur may withhold effort, which reduces the amount of MFI financing attainable. More importantly, the MFI may also withhold effort, which limits the MFI ability to raise financing. A deposit contract mitigates the MFI holdup problem because depositors can run on the MFI if the MFI threatens to withhold effort and therefore maximizes liquidity creation. Providers of capital cannot run on the MFI, which limits their willingness to provide funds, and hence reduces liquidity creation. Thus, the higher a MFI capital ratio, the less liquidity it will create.

The second theory was concerned to a higher capital ratio may reduce liquidity creation through the crowding out of deposits. This argument was supported by Gorton and Winton (2000), and they stated that deposits are more effective liquidity hedges for investors than investments in equity capital. Thus, the finding of this study revealed that higher capital ratios shift investors‟ funds from relatively liquid deposits to relatively illiquid MFI capital, which reducing the overall liquidity for investors. Therefore, the hypotheses stated; there

was positive and statistically significant relationship between capital adequacy and MFI liquidity was fail to rejected.

Nonperforming loan and liquidity

Nonperforming loan of MFI in this study was measured by the ratio of provision for impairment loses to the total outstanding loan and advance to customer found to be 1% significant with the p-value of 0.0007 and has a coefficient of (i.e. 0.068738) and it was positive to the hypotheses of this study (H2). But in line with the findings of Vodová (2012) made study on Slovaks‟ MFI regarding the determinants of liquidity and found that non-performing loans have statistically significant effect of the liquidity of Slovak MFI. And the coefficient of 0.068738 indicated that for 1% rises in the NPL leads to a 0.68% decreases in liquidity of MFI for the sampled period under the study, holding other variables constant. Since the amount of nonperforming loan measures the quality of MFI assets, large amount of nonperforming loans (NPL) leads the MFI as per the finding of this study NPL has statistically significant impact on the liquidity position of MFI. Therefore, the hypotheses stated; there was positive and statistically significant relationship between nonperforming loan and MFI liquidity was fail to rejected.

MFI Size and liquidity

Natural logarithm of the total asset as a proxy of MFI size was used to know the effect of MFI size on liquidity of MFI study. MFI size found to be an opposite and statistically insignificant with a p value of 0.5836 and this was in line with the hypotheses of this study (H3). The coefficient value of 0.019293 indicated that one birr increases in the total asset, resulted in the rises of 0.019293 birr in liquid assets of Ethiopian MFI, holding other variables constant.

This finding was consistent with the findings of Malik and Rafique (2013); Vtyurine et al. (2012); Chagwiza(2011); Subedi and Neupene (2011). And also it was supported the arguments that; small MFI focus on the traditional intermediation and transformation activities and hold less liquid assets. This is to mean that small MFI has little cash and cash equivalent reserves in other MFI and hold less liquid assets (i.e. since they have little dealing with other types of investment instruments than loans). Besides the finding of this study showed that large MFI have better trust

by customers and good deposit attraction capacities that makes them more liquid than small MFI i.e. LIB. Therefore, fail to reject the hypotheses not stated; there was opposite and statistically insignificant relationship between MFI size and liquidity.

profitability and liquidity

Profitability was measured by return on asset (ROA) for Ethiopian MFI in the sampled period and found to be insignificance with the p-value of 0.3148. The coefficient of -0.245887showed that a 1% rises in MFI leads to 24.58% decrease in the ratio of financing gap to total asset, holding other variables constant and it was in line with the hypotheses of this study (H4). This finding was consistent to the findings of Vtyurine et al. (2012); Vodová (2011); Berger and Bouwman(2007); Aspaches et al.(2005); Deep and Schaefer (2004). Also Valla et al.(2006) asserts that MFI profitability which is according to finance theory negatively correlated with liquidity. Besides, it was in line with the arguments of that; holding liquid assets imposes an opportunity cost on the MFI given their low return relative to other assets, which indicated the inverse relationship between liquidity of MFI and profitability (Molyneux and Thornton 1992; Goddard, et al. 2004). Also the adverse effect of decrease liquidity for financial institutions stated that although more liquid assets increase the ability to raise cash on short-notice, they also reduce the ability of management to commit credibly to an investment strategy that protects investors which finally can result in reduction of the firm's capacity to raise external finance in some cases (Myers and Rajan 1998). Hence, both the empirical founding's of the previous researchers and theoretical argument supported the finding of this study in that there was negative and statistically insignificant relationship between profitability and liquidity of MFI in Ethiopia. Therefore, fail to reject the hypotheses not stated; there was negative and statistically insignificant relationship between profitability and MFI liquidity.

CHAPTER FIVE

Summery conclusion and recommendation

5.1 summery

As it was stated in the literature part of this study, Liquidity creation is the primary reason why MFIs exist. MFI do this through transforming their short-term deposits into long-term loans which make them inherently vulnerable to liquidity risk, both of an institution specific nature and that which affects markets as a whole. Therefore, the main objective of this study was to identify the determinants of large MFI liquidity in Ethiopia. In doing so, the study covered the data of five MFI Ethiopia from the period 2005-2014.

To achieve the intended objective, the study used fixed effect panel regression model for five variables of the study which were one dependent and four independent variables. Concerning the data of this study; audited financial statements were collected from MFIs financial report published books. Data was analyzed by using both descriptive statistic and inferential statistics/multiple regression model, in doing so hausman test was made for choosing of fixed effect panel data model and employed to measure estimators. And then test for CLRM were made and all the data fitted the assumptions, finally the fixed effect

regression results were presented and analyzed; Hence, the finding of this study proved that four explanatory variables,

(i.e CAP, and NPL) were statistically significant whereas, SIZE MFI and ROA and found to be insignificant in explaining liquidity of Ethiopian large MFIs for the tested period.

On the basis of fixed effect regression result, the following conclusions were made;

5.2 conclusion

The result of this study confirmed that MFI liquidity was highly affected by CA and NPL if compared to SIZE and ROA. Accordingly, MFI size which measured by LnTA has opposite and statistically insignificant impact on liquidity while capital adequacy measured by the ratio of equity to total asset and profitability measured by ROA, and rate have negative and statistically insignificant impact on liquidity. The coefficient of capital adequacy was opposite to the hypotheses of the study whereas MFI size, dependency on external funds, profitability. nonperforming loan have positive relationship with liquidity and their values were statistically significant different from zero. However, the finding of this study revealed that these variables have no any power in explaining liquidity of MFIs for the tested period.

In general, when it was seen from the hypotheses of this study, from five MFIs variables two of them were statistically significant the rest two variables was statistically insignificant in explaining liquidity of Ethiopian MFI and hence in statistical terms two variables were accepted, i.e. two of them at 1% level of significance while two of them insignificance whereas the two variables were reject.

5.3 Recommendation

This study was intended to investigate the determinants of liquidity of Ethiopian MFIs; and hence on the basis of the findings of the study, the following recommendations were drown:

- Concerning to capital adequacy of Ethiopian large MFI it become better if regulatory bodies like NBE make a periodic supervision and check up on capital strength of respective MFI. Since, as it was discussed in the descriptive statistic part of this study; the MFI with a capital adequacy ratio of 9.00% during the test period

which was far from the NBE requirement 8 % and would be exposed to liquidity problem which could be the problem of the MFI sector as a whole because it has a contagious effect.

- Generally, the empirical finding of this study revealed that MFI two variables (CA and NPL) have more significant impact on liquidity position of Ethiopian large MFI for the study period and management able to give more attention to MFI two variables, since they are under their control.

5.4 Room for further researches

This study was attempted to investigate the MFIs four variables that affected the liquidity of Ethiopian large MFIs. Since liquidity is very crucial to the existence of MFIs; factors that affect it should be identified, therefore there has to be further research on the area of factors that affecting liquidity of Ethiopian large MFIs by incorporating any other firm four variables, and regulatory factors since regulations are subject to frequent change.

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