An Evaluation of Credit Appraisal Techniques Adopted by Commercial Banks in Kenya in Lending to Small and Medium-Sized Enterprises

Milcah Chepkorir1  Kirochi Edward Osiemo2  Joseph Mwanza Wambua3
1. Marist International University College P.O. Box 24450 Karen
2. Wisesbay Publishers Limited P.O Box 21800 Nairobi
3. Marist International University College P.O. Box 24450 Karen
csmilcah@gmail.com

Abstract
The main purpose of this study was to evaluate the credit appraisal techniques used by commercial banks in Kenya in lending to small and medium sized enterprises. The study sought to achieve two specific objectives: to determine the credit appraisal techniques used by commercial banks in Kenya in lending to small and medium sized enterprises and establish challenges facing banks in using the applicable credit appraisal techniques. The study adopted a descriptive research design and the target population of the study included 41 commercial banks that have branches within Nairobi’s Central Business District. Primary data was collected by means of semi-structured questionnaires. The data was analyzed using multivariate regression analysis as well as percentages and frequencies. The findings reveal that the following attributes were considered to be of great importance when making lending decision: strength of income statements, strength of the balance sheet, long histories, quality of accounts receivable and inventory, history of the principal owner and transparency of firms through provision of certified financial statements.

1.1 Introduction and Background
The main concern of both profit and non-profit private or public firms is to offer best goods and services to their customers. This can only be achieved when there is a sound relationship with various stakeholders. However, the business environment in which firms operate is increasingly becoming uncertain but also more tightly interconnected. This requires a threefold response from these organizations. They are required to think strategically as never before, need to translate their insight into effective strategies to cope with their changed circumstances and lastly, to develop rationales necessary to lay the groundwork for adopting and implementing strategies in this ever-changing environment (Bryson, 1995). Bryson’s observation implies that organizations operate within a wider environment that is composed of a number of variables: political, economic, socio-cultural, technological, ecological, and legal. Consequently, any change in any one of these variables is expected to have far-reaching implications in the way organizations operate.

Commercial banks being financial intermediaries that deal with the mobilization of funds from savers and the accumulation of the same in pools for disbursement to those requiring funds for investment, must adopt various techniques that can enhance their success (Gordon et al, 2002). Thygerson (1995) asserts that commercial banks perform the role of servicing and portfolio risk management. Stiglitz (1993) identified five roles of financial institutions: they act as intermediaries between savers and borrowers; they relieve the savers the risk of lending, they therefore encourage savers to lend without bearing the associated risk; they provide facilities such as savings deposits which act as savers investment. They therefore provide investment opportunities for savers while at the same time mobilizing capital for ultimate investment; they play the role of liquidity adjustment in the financial market by taking surplus liquidity and providing it when needed; they provide savers with experts in financial management to manage their future funds. Such experts are usually unaffordable by individual savers.

The banking sector in Kenya is composed of commercial banks, non-bank financial institutions, Forex Bureaus and the Central bank of Kenya as the regulatory body. Currently the banking sector has 42 commercial banks and one mortgage finance company. Commercial banks and Mortgage Finance companies are licensed and regulated under the banking Act, cap 488 and prudential regulations issued there under. Each of these commercial banks have their own tailor made appraisal techniques that are applicable when lending to various customers including the small and medium sized enterprises.

According to the World Bank Group definition, SMEs comprise of enterprises with up to 300 employees and total annual sales of up to US$15 million while the European Union define SMEs as enterprises which employ less than 50 employees and with turnover of less than US$10 million. McCormick’s (1993) empirical analysis of Nairobi’s small scale manufacturers used four categories: very small enterprises have six or fewer workers, small enterprises have 7-10 workers, medium sizes firms have 11-50 workers, and large enterprises have over 50 workers. However for the purpose of this study SMEs will comprise enterprises of up
to 50 employees. SMEs are important to almost all economies in the world especially to those in developing countries with major employment and income distribution challenges. Provision and delivery of credit and other financial services to SME sector by commercial banks has been below expectation (Omino 2005).

1.2 Research Problem
SMEs have faced persistent pressure when seeking funds for investment and expansion from financial institutions because they have short business history and they lack formal securities to act as guarantees. (Berger and Udell 2002), studied on small business credit availability and relationship appraisal and sought to establish the importance of bank organizational structure in relationship lending. Commercial banks provide the lowest amount of financing to SMEs and where it is provided, the credit is rationed (Atieno 1998). Large commercial banks tend to have temporarily shorter, less exclusive, less period and longer distance associations with small business borrowers than small banks, Berger et al (2005).

Large number of population in Kenya derive livelihood from small and medium enterprises (poverty reduction strategy paper 1999) and financing small and medium sized enterprises is critical in fostering entrepreneurship, competition, innovation and growth. Wasonga (2008) in his study of challenges in financing SMEs in Kenya noted that by streamlining the problem of governance and finance that hinder SME growth, the rate of employment and SME contribution to GDP in the next five years could be doubled. SME financing is critical in fostering entrepreneurship, increasing competition, improving innovation and facilitating growth. Mwirigi (2006) in his study concluded that promoters of small and medium sized enterprises lack education and ability to convince investors of financial intermediaries. According to Ngare (2006) banks’ economic performance and hence value depends on the quality of services provided and the efficiency of its credit risk management. Credit risk management is necessary and critically important to ensure the long term survival of banks. In order for the banks to be effective in their operations, they should employ appropriate credit appraisal techniques (Roberto, 2008). Gariga (2007) did a study on the relationship between appraisal techniques and banking competition in the USA. The study concluded that relationships are prevalent so long as a firm commits to borrow from one lender.

Considering various studies that have been done the researcher found out that there is no known study which has focused on the credit appraisal techniques used by Kenyan commercial banks in lending to SMEs and therefore this study sought to address this knowledge gap. In addition to this, SMEs pose a great challenge to banks when lending because they are highly risky and they often lack collateral. In some cases they lack clear structure of management and they lack proper financial records. This study therefore sought to answer the following questions; which credit appraisal techniques are adopted by commercial banks to evaluate the creditworthiness of SMEs in Kenya and to identify the challenges facing banks in using the applicable credit appraisal techniques when lending to SMEs.

2.0 Literature Review
2.1 Small Business Credit Appraisal Techniques
Credit appraisal is the process by which a lender appraises the creditworthiness of the prospective borrower. This normally involves appraising the borrower’s payment history and establishing the quality and sustainability of his income. The lender satisfies himself of the good intentions of the borrower, usually through an interview. Small business appraisal by financial intermediaries can be categorized into four main distinct credit appraisal techniques – financial statement lending, asset-based lending, credit scoring, and relationship lending. These techniques are employed to address the types of problems that can lead to either credit rationing (Stiglitz and Weiss, 1981) or ‘overlending’ (de Meza and Webb, 1987; de Meza, 2002). The first three credit appraisal techniques are often referred to as transactions-based lending, under which the appraisal decisions are based on ‘hard’ information that is relatively easily available at the time of loan origination and does not rely on the ‘soft’ data gathered over the course of a relationship with the borrower.

Exposure to credit risk is a major issue in contemporary financial management. Credit managers need to adopt appropriate mitigation measures to curb the risk. Most of the credit problems reveal a basic weakness in credit granting and the monitoring process. These problems can be avoided by formation of an internal credit process (Brealy & Myers 1998). Creditworthiness of a customer lies in assessing if that customer is liable to repay the loan amount in the stipulated time, or not and every bank has their own methodology of determining whether the borrower is creditworthy or not. It is determined in terms of the norms and standards set by the banks. Being a very crucial step in the sanctioning of a loan, the borrower needs to be very careful in planning his financing modes. However, the borrower alone doesn’t have to do all the hard work. Banks need to be cautious to minimize their risk exposure.

2.2.1 Transactions-Based Appraisal Technique
Financial statement appraisal places most of its emphasis on evaluating information from the firm’s financial statements. The decision to lend and the terms of the loan contract are principally based on the strength of the
balance sheet and income statements. Financial statement appraisal is best suited for relatively transparent firms with certified audited financial statements. Thus, it is likely the technology of choice in bank appraisal to large firms. However, some small firms with long histories, relatively transparent businesses and strong audited financial statements also qualify for financial statement lending.

Under asset-based lending, credit decisions are principally based on the quality of the available collateral. This type of appraisal is very monitoring-intensive and relatively expensive. Generally, the collateral is accounts receivable and inventory, and requires that the bank intensively monitor the turnover of these assets. Asset-based appraisal is available to small firms of any size, but is expensive and requires that the firm have high-quality receivables and inventory available to pledge.

2.2.2 Relationship Appraisal Technique

In relationship lending, the lender bases its decisions in substantial part on proprietary information about the firm and its owner gathered through a variety of contacts over time. This information is obtained in part through the provision of loans (Petersen and Rajan, 1994; Berger and Udell, 1995) and deposits and other financial products (Degryse and van Cayseele, 2000). Additional information may also be gathered through contact with other members of the local community, such as suppliers and customers, who may give specific information about the firm and owner or general information about the business environment in which they operate. Importantly, the information gathered over time has significant value beyond the firm’s financial statements, collateral, and credit score, helping the relationship lender deal with informational opacity problems better than potential transactions lenders.

Under relationship lending, the strength of the relationship affects the pricing and availability of credit. Traditionally, empirical studies of relationship appraisal have measured the strength of the relationship in terms of its temporal length i.e. the amount of time the bank has provided loan, deposit, or other services to the firm (Ongena and Smith, 2000). According to Cole (1998), alternative measures of relationship strength used in empirical research include the existence of a relationship, the breadth of a relationship in terms of the bank providing multiple services or multiple account managers (Degryse and van Cayseele, 2000), exclusivity of the relationship in terms of the being the sole provider of bank loans to the firm (Ferri and Messori, 2000), the degree of mutual trust between the bank and the firm (Harhoff and Körtig, 1998a), the presence of a housebank or main bank (Elsas and Krahnen, 1998).

Empirical studies of small business appraisal are often consistent with the importance of strong relationships. Stronger relationships, measured in various ways described above, are empirically associated with lower loan interest rates (Scott and Dunkelberg, 1999; Degryse and van Cayseele, 2000), reduced collateral requirements (Berger and Udell, 1995; Harhoff and Körtig, 1998; Scott and Dunkelberg, 1999), lower dependence on trade debt (Petersen and Rajan, 1994, 1995), greater protection against the interest rate cycle (Berlin and Mester, 1998; Ferri and Messori, 2000) and increased credit availability (Cole, 1998; Elsas and Krahnen, 1998; Scott and Dunkelberg, 1999; Machauer and Weber, 2000). In addition, small businesses tend to have long outstanding relationships with their banks, over 9 years on average (Berger and Udell, 1998).

2.3 Bank Lending Process

This delegation of authority to loan officers in banks offering relationship appraisal may intensify agency problems between the loan officer and the bank as a whole because of differing incentives. Loan officers may have incentives to overinvest in generating new loans, rather than monitoring existing small business relationships because of relatively short horizons or because remuneration is often based on short-term revenues generated by the loan officer (Udell, 1989). This could result in ‘over lending’ although the motivation here is not an asymmetry of information between banks and firms (de Meza and Webb, 1987; de Meza, 2002), but rather an agency problem between loan officers and their banks. It may also be in a loan officer’s interest to hide a deteriorating borrower’s condition because of a personal friendship with the owner, the prospect of a future job offer from the firm, an undisclosed financial interest in the firm, or illegal kickbacks. All of these problems are exacerbated by delegating more authority to loan officers.

From the bank’s perspective, offering relationship appraisal is a choice variable that may require an organizational structure that addresses these inherent agency problems between the bank and the loan officer. Banks that engage in relationship appraisal may be expected both to delegate more authority to their loan officers and to spend more resources monitoring their loan officers and the performance of their loans. Consistent with these arguments, it was found that banks that delegate more authority to their loan officers invest more in monitoring the performance of their individual loan officers’ loans through the loan review function (Udell, 1989). To understand these organizational issues and the factors that affect the supply of relationship credit fully, the loan officer-bank contracting problem must be viewed within the broader organizational issues faced by the bank. The bank’s small business borrowers contract with the bank’s loan officers. Bank loan officers in turn contract with the bank’s senior management. The bank’s senior management in turn contracts with the bank’s stockholders. Finally, the stockholders contract with creditors and government regulators. Each of these layers is associated with a different kind of agency problem.
The magnitude of the contracting problem between the bank and its loan officers is likely to increase the proportion of the bank’s loan portfolio invested in relationship loans because of the greater information problems and greater authority given to the loan officers. This contracting problem may also depend on the complexity and the size of the banking institution. In the smallest banks, the problem is often resolved with the president of the bank making or reviewing most of the business loans. In effect, a small bank may be able to resolve some of the contracting problems associated with relationship appraisal by eliminating layers of management and reducing the agency problems between the loan officer and senior management of the bank.

Larger and more complex banks may require more intervening layers of management that introduce Williamson (1967, 1988) type organizational diseconomies associated with producing information-driven small business loans alongside their core business of producing transaction-driven loans and other capital market services for large corporations. Large, hierarchical firms may also be at a disadvantage in transmitting the type of soft information associated with relationship appraisal (Stein, 2002). This could lead large institutions to adopt standardized credit policies based on easily observable, verifiable, and transmittable data, i.e. the type of hard data that characterizes transactions-based lending, rather than relationship lending.

Small banks are also often closely held with no publicly traded equity or debt, with the principal owner of the bank also serving as its president. Large banking organizations typically have publicly-traded equity and debt, with more layers through which at least summary information about relationship loans must pass. Large banks may also choose to avoid relationship appraisal because these banks are more often headquartered at a substantial distance from potential relationship customers, aggravating the problems associated with transmitting soft, locally-based relationship information to senior bank management. Consistent with this, a recent theoretical model predicts that relationship appraisal diminishes with ‘informational distance’, or the costs of generating borrower-specific information, which is likely to be associated with physical distance (Hauswald and Marquez, 2000).

Larger institutions are expected to be less likely to make relationship loans, and some empirical evidence supports this view. A number of studies found that large banks tend to devote lower proportions of their assets to small businesses, which more often have information problems that require relationship appraisal (Berger et al., 1995). Moreover, the small business loans that are made by large banks tend to be to larger, older, more financially secure businesses, which are most likely to receive transactions-loans, particularly financial statement loans (Haynes et al., 1999). As well, large banks were found to base their small business loan approval decisions more on financial ratios and less on the existence of a prior relationship than small banks, consistent with transactions-based appraisal by large banks (Cole et al., 1999). Small business loans made by large banks were also found to have lower interest rates and lower collateral requirements than the small business loans made by small banks, consistent with transactions-based loans to relatively safe small businesses by the large banks (Berger and Udell, 1996).

The agency costs associated with the next contracting layer – the layer between the senior bank management and stockholders – reflects the standard corporate governance problem. The acuteness of this problem depends on such factors as concentration of ownership and the depth of the bank takeover market. It can affect appraisal behavior, for example, if risk-averse senior managers alter value-maximizing behavior through the substitution of safe loans for more profitable loans. The final contracting layer is between the bank’s stockholders on the one hand and the bank’s creditors and government regulators on the other hand.

2.4 Small and Medium Enterprises in Kenya

Since independence, the Kenyan government has expressed commitment to supporting entrepreneurship and particularly the small and medium enterprises. Numerous efforts have been made including policies targeting the small enterprises. The Government spelt out its policies towards the small and “Jua Kali” enterprises in various Sessional papers. In these papers, the government stressed the critical role of small enterprises in the national economy and outlined the policy interventions needed to enhance their growth. According Sessional paper No.2 of 1992, SMEs are critical to employment creation, enhance the participation of indigenous Kenyans in the economy, and promotes local savings and investments. According to Meghana et.al, (2007) the roles of SMEs include: ensuring a sustained global and regional economic recovery, employment and wealth creation, promotes competition, foster entrepreneurship and innovation.

There are several challenges facing SMEs in Kenya including the existence of marked informational asymmetries between small businesses and lenders, or outside investors; the intrinsic higher risk associated with small scale activities; the existence of sizeable transactions costs in handling SME financing. A fourth problem very often cited in the literature (and loudly lamented by small entrepreneurs) is the lack of collateral that typically characterizes SME (Roberto 2008). There are two major challenges in financing SMEs which are lack of supportive governance framework and lack of adequate access to credit (Wasonga2008).

A number of institutions provide credit to the small and microenterprise sector in Kenya. These include commercial banks, non-bank financial institutions, nongovernment organizations, multilateral organizations, business associations, and savings and credit cooperative societies. Many financial institutions, especially
commercial banks, rarely lend to small and microenterprises (SMEs) since they emphasize collateral, which most SMEs lack. Few enterprises are able to provide the marketable collateral and guarantee requirements of commercial banks, with the result that SMEs lacking such requirements have not been able to obtain credit from banks. Most of them therefore rely on their own savings and informal credit (Oketch et al., 1995). Commercial banks have a wide branch network that can reach most SMEs but Banks view SMEs as being very risky and have no formal collateral. Banks therefore find it difficult to offer credit facilities to SMEs because of the difficulty in loan administration Duncan (2008).

3.0 Methodology

The study was carried out through a descriptive survey design. This research design was considered appropriate as it deals with many members in a population where it is not possible to study all of them and hence calling for sampling in order to come up with a generalizations and inferences about the whole population. Similar studies that have successfully used this research design are Gakuo (2003) and Mwangi (2002). The population of this study comprised of forty one banks registered by CBK and with branches within CBD. The target respondents comprised of credit managers, credit analysts and credit officers from all the banks within the CBD that offer SME financing.

Primary data was collected by means of semi-structured questionnaires. The questionnaire consisted of both closed and open-ended questions. It sought information on the credit appraisal techniques adopted by commercial banks when lending to small and medium sized enterprises and the challenges facing banks in using the applicable credit appraisal techniques. The target respondents were credit analysts, credit managers and credit officers of the banks. Descriptive statistics and regression analysis were used to conduct the data analysis.

4.0 Findings

4.1 Credit appraisal techniques

The study sought to establish whether banks make use of real estate appraisal technique of lending as they appraise SMEs for loans. The research findings indicated that 56.3% of the respondents agreed that banks use this technique in SME appraisal to a large extent. The researcher also wanted to establish whether banks make use of small business credit scoring when appraising SMEs. The findings as indicated in table 4.10 below show that 40.6% of the respondents agree that banks use this technique but not to a large extent. The study also sought to establish whether equipment lending is among the techniques that are used by banks in appraisal of SMEs. From the findings it is evident that 40.6% of the respondents admitted that banks use this method to a medium extent. Asset based lending is also used as a technique of appraisal when making lending decisions to SMEs by Kenyan banks. It is evident from the findings in table 4.10 below that 50% of the respondents were in agreement that it is indeed used to a very large extent. The study also sought to investigate the extent to which factoring technique of appraisal is used by banks when appraising SMEs in Kenya for lending purposes. The findings as represented in the table 4.10 below indicate that 37.5% of the respondents believed that banks use this method to a very small extent.

<table>
<thead>
<tr>
<th>Credit appraisal techniques</th>
<th>Extent %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very small</td>
</tr>
<tr>
<td>Real estate</td>
<td>3.1</td>
</tr>
<tr>
<td>Financial ratios</td>
<td>-</td>
</tr>
<tr>
<td>Equipment lending</td>
<td>15.6</td>
</tr>
<tr>
<td>Small business credit scoring</td>
<td>3.1</td>
</tr>
<tr>
<td>Asset based lending</td>
<td>15.6</td>
</tr>
<tr>
<td>Factoring</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Source: Researcher (2011)

4.2 Challenges faced by banks when using the underlying appraisal technique

The study sought to establish whether collection of soft information by credit officers was a challenge. The findings indicated that 75% of the respondents believe that this is not a major challenge. The researcher also sought to evaluate how easy it was to verify soft information by other bank officials and if this was a challenge. The findings indicated that 34.4% of the respondents agree to a medium extent that the information may not be easily verified by others. The study also tried to establish if it was easy to transmit soft information to others and if this was a challenge in using the underlying appraisal technique. The findings tabulated in table 4.2 indicated that 43.8% of the respondents agree that it was actually not easy to transmit soft information to others.

It is also evident from the findings represented in the table 4.2 below that 78.2% of the respondents believed that lack of proper financial statements is not a challenge as appraisal technique. The study also wanted
to evaluate whether inaccurate financial statements can pose a challenge to the use of a given method of appraisal. It can be noted from the findings tabulated below that 40.6% of the respondents agreed that lack of accurate financial statements actually poses a challenge to the use of the underlying appraisal technique. The researcher also sought to find out whether concealing of borrower's condition by bank officials due to personal friendship with the owner was a challenge when conducting the appraisal using a given technique. The findings as represented in the table below indicate that 62.5% of the respondents felt that this was possible only to a medium extent.

The study also sought to investigate whether delegation of authority to loan officers in banks offering relationship appraisal may exacerbate agency problems between the loan officer and the bank as a whole because of differing incentives. The findings from table 4.2 indicate that 53.1% agreed on average that this may be true. The researcher sought to establish if emergence of illegal kickbacks was a challenge to the use of a given technique of appraisal. Finally, the study sought to investigate whether non-disclosure of financial interest in the firm could be a challenge during the appraisal process. The table 4.2 below confirms that this is true on average. It is further evident from the findings tabulated below that 53.2% of the respondents agree to a large extent that this is a challenge.

Table 4.2: Challenges faced by banks when using the underlying appraisal technique

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Extent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection of soft information by credit officers is difficult</td>
<td>-</td>
</tr>
<tr>
<td>The soft information may not be easily verified by other bank officials</td>
<td>9.4</td>
</tr>
<tr>
<td>The soft information may not be easily transmitted to other bank officials</td>
<td>9.4</td>
</tr>
<tr>
<td>Lack of proper financial statements</td>
<td>31.3</td>
</tr>
<tr>
<td>Inaccurate financial statements</td>
<td>9.4</td>
</tr>
<tr>
<td>Conceling of borrower's condition by bank officials due to personal friendship with the owner</td>
<td>9.4</td>
</tr>
<tr>
<td>Agency problems as a result of delegation of authority to loan officers in banks</td>
<td>9.4</td>
</tr>
<tr>
<td>Emergence of illegal kickbacks</td>
<td>12.5</td>
</tr>
<tr>
<td>Non-disclosure of financial interest by the firm</td>
<td>9.4</td>
</tr>
<tr>
<td>Lack of accurate credit scores</td>
<td>9.4</td>
</tr>
<tr>
<td>Presentation of fake real estate documents by the clients</td>
<td>28.1</td>
</tr>
</tbody>
</table>

Source: Researcher (2011)

5.0 Conclusions

It emerged from the study that the following attributes were considered to be of great importance: strength of income statements, strength of the balance sheet, small firms with long histories, quality of accounts receivable and inventory, history of the principal owner and transparency of firms through provision of certified financial statements. The above mentioned attributes were given a lot of weight by majority of the respondents. This therefore means that they play a major role in making decisions pertaining to credit appraisals. The other important objective that the study aimed to achieve was to establish the techniques which are commonly used by Kenyan banks in conducting credit appraisals for SMEs. The findings from the study indicate that there are quite a number of techniques that are used by banks in appraising SMEs. They include asset based lending which seems to be widely used, equipment lending, small business credit scoring lending and real estate appraisal. Among the above techniques, real estate and asset based lending emerge as the techniques with the highest percentages thus indicating that they are used more often than the other techniques. The challenges include: difficulty in transmitting soft information to other bank officials during credit assessment, lack of proper financial statements, loan officer's interest to hide a deteriorating borrower's condition because of a personal friendship with the owner, agency problems in the case of relationship lending as a result of delegation of authority to loan officers in banks, presentation of fake real estate documents by borrowers as security for loan as well as lack of accurate credit scores.

References


The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage: [http://www.iiste.org](http://www.iiste.org)

**CALL FOR JOURNAL PAPERS**

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

**Prospective authors of journals can find the submission instruction on the following page:** [http://www.iiste.org/journals/](http://www.iiste.org/journals/) All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

**MORE RESOURCES**


**IISTE Knowledge Sharing Partners**

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar