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Highlights

Evidence from Banking Industry

Sensitivity of Non-Performing Loan

Discovering Thoughts, Inventing Future

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Trends of Financing Higher Education in Uzbekistan

By Dilshodjon Rakhmonov

University of World Economy and Diplomacy (UWED), Uzbekistan

Abstract- This paper suggests investigating the financing of higher education in Uzbekistan and its trends in the last years. Most expenses of higher education are covered by public funds, and although the share of public expenditure in GDP is higher than other countries, enrolment is still not in high rate. In general, government can afford to subsidize mass higher education because of Uzbekistan choice for socially oriented market economy. 20 percent of students can get public budget scholarship if their scores are on top of the list in entrance exams.

For a long time tuition fees have been introduced and its share in financing higher education is rising year by year. In turn, the amount of monthly scholarships, tuition fee and number of student influence on public expenditure insignificantly. Tuition fees might be paid by three main sources. Students pay their tuition using education loan that is given by commercial banks, however the loan has higher interest rate than assumed. Predominantly, parents share in the payment of tuition fee has highest role among the sources, in this case the income of parents is exempt from income tax.

Keywords: higher education, financing higher education, public expenditure, tuition fee, tuition loan.

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Trends of Financing Higher Education in Uzbekistan

Dilshodjon Rakhmonov

Abstract- This paper suggests investigating the financing of higher education in Uzbekistan and its trends in the last years. Most expenses of higher education are covered by public funds, ~~and~~ although the share of public expenditure in GDP is higher than other countries, enrolment is still not in high rate. In general, government can afford to subsidize ~~mass~~ higher education because of Uzbekistan choice for socially oriented market economy. 20 percent of students can get public budget scholarship if their scores are on top of the list in entrance exams.

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Obviously, private sources for financing higher education are needed to develop, as most EU countries can afford to use taxpayer's resources less and less. Even though EU countries public expenditure is higher share than private, states support students with financial aids under low interest rate.

Keywords: higher education, financing higher education, public expenditure, tuition fee, tuition loan.

I. Introduction

Nowadays scientific review possibilities of financing higher education in Uzbekistan is topical. Indeed, most of expenses are covered by public budget financial resources. Actually, mostly students in the country pay tuition fees for tertiary education. But 60-90 percent~~ages~~ of these fees are returned as monthly scholarships for student who paid tuition fee. That, in itself, creates condition for high education expenses to be depended on public budget trends. Most states are no longer affording to finance higher education and nowadays method of financing education is developed to assimilate of taxes less and less (Barr, 2005; Chapman,1997; Johnstone, 2004a).

Financing higher education is component of the expenses of social sector; of course this sector occupies 60 percent of public budget. To increase independence of higher education there should be more sources of financing, other than public expenditure. At the same time, this is peculiarity of Uzbekistan, government chose social market economy that's why public finance gives more opportunity to government to manage higher education. In this case, we are going to asses trends of financing higher education in Uzbekistan and give conclusions, which are focused on improving it in the case of Uzbekistan through experience of EU countries.

Uzbek scientists tend to improve private sector's role in financing. For instance, J. Yuldashev (2012) emphasized improving non-budget source via university entrepreneurship. He separated three marks of its usefulness for graduate quality, they are: transparence of highly qualified personnel, quality of higher education, and effective usage of resources. Author paid attention to developing non-public budget resources.

Makhmudov A. (2015) researched international experiences of the financing higher education. He emphasized three models of financing higher education that is used in most European countries. He noted that most EU universities are financed by private financial sources. In that matter, private sector share is 16-37 percentages in Denmark and the Netherlands. He studied only models of financing in western countries, but he didn't give comparative analyses with Uzbekistan. That's why our work will be new one in this area.

F. Nazarova (2012) argued that the most important thing to consider is the quality of education in financing higher education. Therefore, she noted significance of the requirements of ISO (The International Organization for Standardization) in financing higher education.

In 2015, the service sector has comprised more than half of gross domestic product. Currently, its share in GDP reached 54.5 percent compared to 49 percent in 2010. This sector employs more than half of the total employed population.

The company strives to develop banking, insurance, leasing, consulting and other kinds of market services contributing to the development of the private sector and small business in the country. In this industry, there are 80.4 thousand small businesses, accounting for more than 80 percent of the total number of service industries (Karimov I.A., 2016)

Indeed, preparing highly qualified workforce for above mentioned sectors, is the responsibility of higher

Author: PhD in Economics, University of world economy and diplomacy (UWED), Tashkent, Uzbekistan. e-mail: dilshodrahmon@mail.ru

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education. Oftentimes, high results are dependent on outcomes of higher education in the conditions of strong competition of XXI century. In this regard, Lijing Yanga, Brian McCall (2014) argued that workers tend to get education for high qualification, as a result, demand for knowledge increased; hence, it impacts the economic growth positively.

Mingat and Tan argued that level of economic conditions significantly influence the rates of return of education. Respectively low-income states tend to get the most return by means of investing on basic education, and high income states give attention to higher educational provision, hence, middle-income states have intentions to develop secondary education (Mingat and Tan, 1996). Individuals who are highly educated and experienced have ability to contribute more to the society, in the future (Oliveria et al., 2009).

In our opinion, there is more and more demand on getting experience through education under the conditions of developing highly competitive labour market. Indeed, this requires further development in higher educational system. Uzbekistan is going to get recognized as developed countries, therefore, financing opportunities are required to be expanded and perfected in perspective way.For example, the share of public budget expenditure on education in the GDP of Uzbekistan is higher in comparison with other countries, including OECD countries.

In this case, the incidence of students in the total population can be dependent on the level of financing of education. Particularly, according to UNICEF the coverage rate of primary school is 97 percent, while higher education is 15.

As mentioned earlier, Uzbekistan spends a lot on education but gets little results. This paper offers the ways we can assess and get scientific conclusion about financing system in the country and determines the experiences (based on EU) that are most suitable for Uzbekistan.

Bei Li, Jie Zhang (2015) analysed optimal version of financing higher education. Especially, the role of public finance was assessed for forming human capital of students. Furthermore, they argued “That efficient education subsidization involves two aspects, concerning not only how high the optimal rate of education subsidization should be but also who should pay for it intergenerationally. Intuitively, the stronger is the parental altruism towards children's welfare or education achievement, the higher is the optimal rate of education subsidies. This result holds in various models with different forms of altruism and different taxes. However, who should pay taxes to subsidize children's education are not straights forward across generations.” (p. 47).

Hence, facts encourage us to study finance of higher education of and give scientific conclusions about Uzbekistan.

Above mentioned articles studied many features of financing higher education. It encourages us to investigate financing trends ofhigher education in Uzbekistan and experiences of EU countries. The research paper consists of five sections. Section 2 gives information aboutInstitutional background and its idiosyncrasies. Section 3 studied Financing education: public expenditure and tuition fee. Section 4 discuses the results. Section 5 concluded paper.

II. Institutional Idiosyncrasies

Nowadays, there are109 students per 10 thousand people of the population (Mirkurbonov N.M., Anoshkina V., Danilova-Kross Ye. 2009). Of course, through increasing the autonomy of institutions of higher educationthere can be moreopportunities for increasing the volume of non-budget resources.

Here we can see that total number of studentsaccepted to the higher educational establishment have changed marginally since during the years 2011-2016. There is little reflection with rising population. For instance, 0.19 percent of population becomes student[1]. Indeed, the number of applicants wishing to be student is increasing. Currently, average share of students in the total population is less than one percentage (see Table 1).

In most EU countries, this indicator is higher than 3 percent, for example, 4.6 percent in the Netherlands, 3.6 in Germany, 3.9 in Great Britain, 3.4 in France and 4.1 in Czech Republic. Obviously, in these countries, non-budget resources are not higher than public fund; however the experience of utilizing this fund is of positive influence to the efficiency of the usage of funds. However, the ratio between public and private funds is relatively high: 70.5:29.5 in the Netherlands, 56.9:43.1 in Great Britain, 79.8:20.2 in France, 79.3:20.7 in Czech Republic, 66:34 in Italy and 85.9:14.1 in Germany (OECD, 2015). It should be noted that non-budget funds in financing higher education are of significant importance. As a result, these ratios and more autonomy of universities increase enrolment rates in tertiary education of EU countries.

In Germany, social expenses are covered with the deficit in the budget. Tuition fees were implemented in 7 of 16 states in the year 2005, but in the year 2007 the fees were cancelled (Kerstin Bruckmeier, BertholdU.Wigger (2014)).

[1] Calculated based on indicators of the Committee of Statistics of the Republic of Uzbekistan .

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Table 1

	2011	2012	2013	2014	2015
Total population, persons	29123400	29555400	29993500	30492800	31022500
Share of bachelor's quote, %	0,19	0,19	0,19	0,19	0,19
Share of master's quote, %	0,020	0,021	0,021	0,016	0,016
Ratio of bachelors and master students	104:10	111:10	111:10	86:10	86:10

Source: calculated based on indicators in the decree of the President of Uzbekistan that quote HEI

Conclusions of many authors emphasized that macroeconomic indicators of most countries show increasing public debt. Thus, states are trying to reduce share of public funds in the expenditures of higher education (Chevaillier & Eicher, 2008).

Since 2005 there has been budget profit in Uzbekistan. It is connected with the government's policy to achieve budget profit, that's why it is not common to increase budget expenditures, besides it raises tax burden. Therefore, it is required to increase the volume of non-budget funds to increaseenrolment rates in the country.

In this regard, for 20 years the enrolment rates has been decreasing. Notably, it was 17 percent in 1991, it decreased 8 percentage points by 2011 (note: share of educated people in the population). In OECD high income countries this indicator is equal to 75 percent.

LijingYang and Brian McCall (2014) argued that there is marginal relationship between public expenditure per tertiary student and enrollment ratio, at the same time, tertiary enrollment is affected positively by share of GDP in public spending on education and its per capita. Patrinos (2000) found that higher education influences welfare directly and it creates opportunity to develop economically and socially, that's why states pay increasingly high attention to financing education.

Thus, limited funds keep low tertiary enrollment rate, which means that new sources of funds are needed. The number of students is kept at a fixed rate and that also influences on the enrolment rate of master students, in turn we can see that ten percent of graduated bachelor students are going on in next step of tertiary education (see Table 1).

These tendencies might be related with reforms which were implemented by the Resolution (№PQ-1564) of the President of Uzbekistan in the year 2011.It caused reduction of bachelor specialties from 228 to 165 and masters from 1200 to 447.

III. Financing Education: Public Expenditure and Tuition Fee

a) Public expenditure

For many years government have be setting quotas for the number of students universities can accept; does it decrease or increase public expenditure?

Most governments subsidize higher education. Whereas all citizens have access to education, they take it up in different levels. "In particular, those who have a special aptitude for education and those for whom formal education makes a large contribution to market earnings are the most likely to acquire higher than average levels of higher education." (Craig Brett, John A. Weymark 2003, P. 2566-2567).

Table 2

	2010	2011	2012	2013	2014	2015
Expenses on education, billion UZ soms	4464,1	5582,9	7130,4	8803,2	10763	
Number of bachelor students (X1)		56607	56607	56607	57907	57907
Tuition fee, thousand UZ soms (pedagogical specialty) (X2)		3350	4000	4600	5050	5800
Amount of average[2] monthly scholarships, UZ soms (X3)	159187,7	175107	201373,7	260733,3	299844	329662,3

In this regard, experience of Uzbekistan has its own peculiarities. Conclusions below are made based on the analyses that are related to public expendituresin tertiary education. For this purpose, we form regression function with three indicators of table 2. Here, we use expenses on education as affected indicator. We

[2] Total amount of monthly scholarship is defined based on the number of students and average amount of monthly scholarship.

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investigate the correlation between expenses on education and three independent variables, number of bachelor students (X1); tuition fee (pedagogical specialty) (X2); amount of average monthly scholarship (X3).

As a consequence, we have relative results that designed in the table 3. Based on R-squared, the parameters of the standard model are considered as reliable.The significance of Fisher once again confirms that it is equal to 0.00868.

Ceteris paribus, we have equation (1) as followed below:

$$F(x) = -15990{,}99 + 0{,}2714x_1 + 0{,}3823x_2 + 0{,}0296x_3 \quad (1)$$ [3]

But, it should be noted that based on P-Value (P-Value<0,05 indicates strong evidence) variable indicators (x) do not have significant influence on public fund trends. This is due to the fact that all chosen indicators are determined by government; as a result trends are more or less stable.

Although budget expenses are growing on a continuous basis, the share of students in the population stays invariable (see Table 1). Noteworthy is the fact that, the enrolment rate has slight changes, in the meantime, population increases in a more rapid way. Thus, percentages of changing trends of public expenditures are predominantly similar. Ceteris paribus, financing of higher education is changing, together with three variables, in parallel. Based on aforementioned conclusion, the natural question that arises is: "do tuition fees influence on this trend as non-budget funds do?"

In this regard Lijing Yang and Brian McCall (2014) emphasized that most developing and some developed countries in Asia have introduced policy of public financial austerity in financing higher education by means of implementing tuition fees and student loans.

Between Ministries of Finance and Higher and Secondary Specialized Education of the Republic of Uzbekistan memorandum, regarding tuition fees for the academic year 2015/2016 was signed on 18th August, 2015. According to this memorandum tuition fees are 5800 thousand[4] UZ soms for pedagogical specialty. Here if we consider the highest amount of monthly scholarship, which is 439772 UZ soms, it can be seen that during a year student of this specialty get 91 percentages of his/her tuition fee as a monthly scholarship. At the same conditions with the specialties that have highest tuition fee, students will get 62 percentages of the tuition fees they pay.

CONCLUSION OUTCOME

The regression statistics	
multiple R	0,997097256
R-squared	0,994202939
Normalized R-squared	0,985507347
standard error	339,0602658
Observations	6

variance analysis

	df	*SS*	*MS*	*F*	*The significance of F*
Regression	3	39432193,53	13144064,51	114,3341285	0,008682978
the balance	2	229923,7277	114961,8639		
in total	5	39662117,26			

	Coefficients	*standard error*	*t-statistics*	*P-Value*	*The lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Y-intersection	-15990,99006	11832,81948	-1,351409956	0,309128779	-66903,50311	34921,52299	-66903,50311	34921,52299
Variable X 1	0,271428861	0,230455136	1,1777948	0,360045386	-0,72013956	1,262997283	-0,72013956	1,262997283
Variable X 2	0,382374123	0,958914301	0,398757347	0,72861763	-3,743501111	4,508249357	-3,743501111	4,508249357
Variable X 3	0,029609218	0,013227476	2,238463274	0,154587374	-0,027304016	0,086522453	-0,027304016	0,086522453

Indeed, students who pay tuition fees, receive their monthly scholarship not from public budget sources, but from their own tuition fee. In this regard, given the students receive back a significant portion of the money paid as a fee, the non-budget sources of universities need to be further increased.

On the other hand, as mentioned, tuition fees of tertiary education are determined by government. For example, in 2015/2016 academic year tuition fees of economics and business specialties are equal to 7650 thousands UZ soms.

Although there are differences in scientific level of teachers, facilities between HEI, the amount of tuition fees in the relevant specialties are equal. Daniela Glocker, Johanna Storck (2014) analyzed 75 different educational fields, in particular, their risk and return properties. The results show that financial performance of different educations varies across and within levels of

[3] See variables in table 2.

[4] It was for academic year 2015/2016, then it can be increased

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qualification. Indeed, qualification level influences noticeably on financial performance.

In Europe, tuition fees are defined based on the peculiarities of the specialty. In this regard, Walker & Zhu, (2011) argued that social sciences (business, law and medical subjects) are more attractive field for investment in terms of monetary returns, as opposed to humanities and arts.

Most HEIs in Uzbekistan prepare Bachelor degree students in Economics and Business spheres, and the same standard of education is used for these sphere in all HEIs.

In comparative study of teachers HEIs (of Tashkent and regions) that have scientific levels. We found that the number of teacher's with scientific level is higher in HEIs of Tashkent than in regional HEIs. The students of the same bachelor specialties are taught by different levels of teachers, while receiving seemingly identical standards of education and paying the same tuition fees. It can be concluded that HEIs with high rank receive the same tuition fees as HEIs with lower ranks for corresponding specialties.

In general, based on aforementioned opinions we come to conclusions related to the trend of public expenditure:

Firstly, tuition fees defined by government do not create opportunity to take into consideration possibilities and achivements of HEI.

Secondly, it is necessary to develop connection between ranking of HEIs and tuition fee in defining the amount of tuition fees.

Thirdly, it is required to form the competitive environment among HEIs when it comes to determining fees.

Fourthly, there is strong relationship between public expenditures and students who receive state scholarships.

Fifthly, mostly public expenditures are spent for the maintenance of HEIs and salaries of staff members.

Lastly, there is no correlation between tuition fees and salaries of HEI teachers.

b) Tuition fee

It should be noted that the share of students who pay tuition fees is raising year by year, this share increased from 62 percent in 2011/2012 to 67 percent in 2015/2016 academic year. In this regard, we can say that students' number who pays tuition fees is increasing insignificantly (see Table 3).This, in turn, not only creates opportunity to raise amount of non-budget funds, but also large part of paid tuition fees by students are returned to them as a monthly scholarship.

Steven Bednar and Dora Gicheva (2013)found that students between the ages 24-30 prefer to pay tuition fees by themselves. In the meantime, students between 18-23 years old tend to get financial support of parents, interestingly; this trend is increasing in prevalence. They found that if the tuition reimbursement tax exemption is given in a particular year for 24–30 year-old employed college graduates, then fulltime graduate enrollment in public institutions, for students in that age group and in that year, increases by about8%. Though there are some tax privileges in Uzbekistan, when it comes to paying tuition fees, it doesn't significantly increase the number of students, because the number of students for enrollment is defined by the government.

Table 3 : Quotas for accepting students to HEIs in Uzbekistan

	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016
Bachelors, total	56607	56607	56607	57907	57907
State scholarship (grant)	19560	19340	19120	19120	19120
Fee paying students	37047	37267	37487	38787	38787
Masters, total	5880	6300	6300	5000	5000
State scholarship (grant)	1566	1566	1548	1548	1548
Fee paying students	4314	4734	4752	3452	3452

Source: calculated based on indicators of the decrees of the President of Uzbekistan about quotas of HEI

Giuseppe Migali (2012) researched an income contingent loan (ICL) for financing higher education in Great Britain and argued that graduates would pay more to switch from mortgage loan to ICL. He emphasized that graduates, especially male graduates, have more willingness to pay for an ICL, compared to females. The reason for their preference is that males tend to be employed by private sector.

It should be noted that, Costas Christou, Michael Haliassos (2006) argued that repayable financial aid for paying tertiary fees influences on students loan or working possibilities in studying period. students loan or working possibilities in studying period. Mostly such kind of aids is provided by relatives, mainly by parents. Aforementioned sort of repayable financial aids also exist in Uzbekistan.

Notably, parental aid in paying tuition fees plays the main role in students decision to receive higher education (according to Tax Code of the Republic of Uzbekistan, Article 179, part 31, paragraph 1, there is tax privilege for parents who pay for their children's fee from their salaries). Furthermore, students (in some cases parents) may take loan from private financial resources of commercial banks'. Also, any company or

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firm that aims to recruit student can cover expenses of students for the tuition fee. That support of the firm not only gives financial aid to students, but also guarantees employment of students after graduation.

Although there are three sources of financing tuition fees, these sources cannot raise the amount of non-budget funds. This is due to the fact that the bulk of fees will be given back to students in the form of monthly paid scholarships.

On 26th of July, 2001, Government of Uzbekistan accepted resolution about educational loans that that are given by banks. According to resolution educational loans can be given to students with Refinancing rate of Central Bank of Uzbekistan.HEI students enrolled in bachelor degree receive loans for a period of 10 years, meanwhile master's degree students are supposed to pay the loan back within 5-year period. All graduates must commence reimbursing the three months after their graduation.

However, the use of educational loans provided by commercial banks, is in the interest of banks rather than students, since the interest rate for the loan is high. Refinancing rate of Central Bank of Uzbekistan is equal to 9 percent, which makes already difficult situation for students, i.e. repayment of the after three months from graduation, even more complex. Finding a job in short period is not an easy task. Alan M. Saks and Blake E. Ashforth (2000) analyzed job searching processes of graduates of 121 universities, the results showed that getting a job in 4 months was a good result. Indeed, start of reimbursement period in Uzbekistan should be prolonged.

Lorraine Dearden, EmlaFitzsimons, GillWyness (2014) studied sources of financial aids to student and their role in getting higher education. Specifically, they considered reforms that were implemented during the years 2004-2007. Reform that set a tuition fee as 3000 pound sterling /year was accepted in Higher Education Act in the year 2004 and implemented from the academic year 2006/2007.Their research shows that if tuition fee is decreased to 2000 pound sterlings, the rate of participation in education rises 3.95 percents. Students whose parents had incomebelow 22500 pound sterling a year, could pay 1050 pound sterling as a maximal fee.

Educational loans are one of the sources of tuition fees that are common in international practice. Oftentimes, government has a responsibility to give financial aids to disabled children. For example, there are some privileges for disabled or the orphan: when half of loan is paid by students and the latter part of loan is paid by State Fund for Employment of the Republic of Uzbekistan under the Ministry of Finance.

In some EU countries there is support for disabled people, namely in Austria, Czech Republic, Ireland, Spain. Gottfried Biewer, Tobias Buchner, Michael Shevlin and others (2015) classified disabled students in three categories they are: residence, type of impairment and current employment status. In Austria, federal states support physical and visual impairments.

In Germany, state pays comprehensive attention to the disabled. Disabled students who have children are exempt from paying their tuition fee (this was the case during the years 2005-2007 when tuition fees were temporary introduced). In 2008 interest-free educational loans were introduced in Hamburg (Walker & Zhu, 2011).

Following conclusions can be made based on the studies of researches:

Firstly, the bulk of tuition fees are paid by students (or parents) directly.

Secondly, tuition fees that are based on educational loans of banks refunded with interest rates. In other words, three months after graduation, graduates have to reimburse the loan with 9 percent (2016) interest rate – refinancing rate of Central Bank of Uzbekistan. If the delay was introduced for the reimbursement of educational loan, total costs of students could be lower.

Thirdly, educational loans create opportunity to pay tuition fees for students who are in difficult financial situation.

Fourthly, parents who cover tuition fee for education of their children, from their salary, are given financial support as tax privileges.

Fifthly, disabled students in Uzbekistan have advantages when it comes to reimbursing the educational loan.

IV. Discussion: Experience of Eu Countries

In EU, financing and governance of higher education has its own peculiarities. Notably, universities in EU have financial independence, which boosts sources of non-budget resources. Below is the study of these cases.

Greenaway D. and Haynes M. (2003) argued that majority of universities of Europe have higher financial dependence on tuition fees of students, rather than public funds. Hence, most universities are independent in managing their finance. The benefits of this, in different stages of education, are abundant. For example, public financing of primary schools raises literacy level of all groups of population. The poor, compared to the rich, have higher results of return from primary education than from higher education. Although, restricted allocation of public funds for primary education exist. The author's research suggested the introduction of user changes within universitylevel (Psacharopoulos, 1994).

In the last decade of XX century, public funds of some European (e.g., Germany, Denmark, Greece and Luxembourg) countries were under pressure of "free-of-

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charge" higher education. From the start of current century, privatization and cost sharing occurred. (Stamoulas, 2005). In Italy, for instance, tuition fees increased with the ratification ofAct of Parliament (537/93).This Act influenced on the policies of some states. Firstly, this act decreased the volume of public fund resources of HEIs. Decreasing contribution of public budget, in turn, reduces the amount of taxes to be paid. Secondly, newly accepted Act supported universities to introduce tuition fees independently (G. Di Pietro, 2003).

Of course, HEIs rank and specialties available increase the level of their financial independence when define the level of tuition fee. In turn, that will not only rise enrolment rate, but also decreases the demand for public expenditure.

Low rate of enrollment rate in Uzbekistan can be explained by fixed number of student quotas. Naturally, there is very high competition among applicants who want to acquire the diploma of tertiary education, that in itself, increases competition for the entrance exams of the following year. Thus, getting enrolment for a university becomes increasingly arduous task. That means additional number of quotas would be needed in future.

Similar situation can be observed in Greece. For example, unsuccessful applicants' families spend money for tutors that equals to 46.1 percent of public expenses on education (Costas Kanellopoulos and George Psacharopoulos, 1997). As a result, it influences on increasing number of young men and women with high potential to go abroad in search of tertiary education. Costas Kanellopoulos and George Psacharopoulos (1997) came up with two reasons for spending so much resources on tutors of Greek families:(i)benefits of education in society are highly related to the level of individual's attendance; also (ii) restricted public fundsdo not create opportunity to get the level and type of education that Greek families seek. Along with this, 17 percent of students in Italy cover their tuition fees by means of financial aid. Work-study programs were very popular among all aid programs,12% of students were involved in aid programs. On the other hand, guaranteed studentloans are used by merely 0.2 percent of students to finance their studies (G. Di Pietro, 2003).

For instance, "Student Finance England"service was especially organized to give financial support for students in Great Britain. The interest rate of tuition loans are linked to the rate of inflation,as well as to the Retail Prices Index. There is no specific requirement for the period of repaying the loan, conversely, it isset based on the income of graduates. Graduates have to repay when they begin to earn more than £15,000 annually (GDP per capita was $23,000, 2006 year estimate). It requires students to pay 9 percent of their income per year. Graduates will be exempt from repaying tuition fees until reaching financial independence, this is considered to be one of the positive aspects ofthe policy.

According to Sweden's experience graduates need to repay the loan they take till the age of 60. Graduates need to pay5 percent of their income for reimbursement of their loan for tuition; volume of payment must rise at least 2 percent annually.

Many peculiarities of EU experience in repayment tuition loan could be seen above. In this regard, introduction of conveniences in the provision of educational loans in Uzbekistan is important. As was pointed out earlier, educational loan in Uzbekistan should be repaid in five year period, and started paying three month after graduation. Many discrepancies can observed when the experience educational loans of Sweden and Uzbekistan. Many advantageous aspects of the experience of Great Britain could be applied in Uzbekistan as well. Indeed, positive results could be achieved in providing educational loan for students, if Uzbekistan exploited some features of foreign experience.

V. Conclusion

Public expenses play pivotal role in financing tertiary education. These expenses have higher share of GDP in comparison with other countries, which shows that social market economy in the country is well-developed. Although public fund covers tuition fees of 20 percent of students, the remaining 80 percent of the students pay tuition fees by themselves, simultaneously receiving monthly allowances which compensate the bulk part of the fees they pay.

Parents are exempt from paying income tax when they pay tuition fees of their offspring. It once again proves Uzbekistan's attention for social market economy.

By way of conclusion, tuition fees and scholarships have marginal influence on planning public expenditure in education. Enrolment rate is low because of little financial support, which in turn requires developing financial activity of HEIs. This development of financial activities will not only increases competitive environment among HEIs, but also creates opportunity to develop private sources financing.

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Effect of Capital Structure on Firm Profitability (An Empirical Evidence from London, UK)

By Assad Naim Nasimi

The University of Lahore, Pakistan

Abstract- This paper intends to explore the effect of capital structure on firm profitability. For the purpose of empirically investigating the effect of capital structure, a sample of 30 firms have been selected from FTSE-100 index of the London Stock Exchange. The data period for the study was 2005 to 2014. The study used multiple regression analysis method to explore the impact of capital structure on firm performance. The results revealed that Interest Coverage has positive significant impact on ROA, ROE and ROIC where DE has positive significant impact on ROE but negative significant impact on ROA and ROIC. The study concluded that an optimal level of capital structure, effective utilization and allocation of resources shall be employed to achieve the targeted level of efficiency in business.

Keywords: debt to equity (DE), interest coverage (IC), return on asset (ROA), return on equity (ROE), return on invested capital (ROIC).

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I. Introduction

a) Introduction

In an era of globalization of economic policies and financial markets, investment opportunities and financing options have increased, causing a significant increase on the dependence of capital markets. A new business requires capital and further capital is needed if the firm is to expand. The required funds can come from various sources, which can be categorized into two major proportions comprising of debt and equity capital. The relative proportion of these two major sources in the total capital of a firm is a measure of capital structure. One of the most important reference theories in companies financing policy is the theory of capital structure.

Capital structure is the combination of debt and equity capital that composite a firm's financing its assets. Financing is referred to as a process of generating cash which can be used for acquisition of assets, current operations or any expected growth. Firms can use either debt or equity capital to finance their assets. Therefore, capital structure can be written as the sum of net worth plus preferred stock plus long-term debts. Besides these sources of finance, enterprises may issue hybrid securities such as income bonds. These hybrid securities possess the features of both equity and debt securities.

The capital structure decision is an important decision as it influences the investors' return on their investment. It is therefore obligatory on the management of company to make appropriate capital structure so to maintain the interest of its investors.

b) Objectives of the Study

The study is intended to undertake the following objectives:

- To identify the nature of relationship between capital structure and firm performance.
- To explore the impact of capital structure on firm performance.

Considering the dependent variables (return on equity, return on assets and return on invested capital) and independent variables (debt to equity and interest coverage), the objective of the study has been divided into models as under:

Model 1: UK firms and Return on Asset (ROA): To investigate the effect of independent variables on return on asset.

Model 2: UK firms and Return on Equity (ROE): To investigate the effect of independent variables on return on equity.

Model 3: UK firms and Return on Invested Capital (ROIC): To investigate the effect of independent variables on return on invested capital.

c) Significance of the study

The relationship between capital structure and profitability cannot be ignored because the long-term survivability of firm depends upon the improvement in the profitability of the firm. The interest paid on debt is tax deductible payments, so the addition of debt in the capital structure will improve the profitability of the firm. It is important to know the relationship between capital structure and the profitability of the firm in order to make sound decision on capital structure.

Findings of the study are useful for the investors as well as companies who wants to invest in FTSE-100 index. Findings are also useful for the Government sectors for collecting more taxes and boost that particular sectors.

Author: Lahore School of Accountancy & Finance, the University of Lahore Islamabad, Pakistan. e-mail: assadnasimi@aol.com

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II. Literature Review

a) Literature View

Based on literature review there is a plenty of research which intends to enlighten the relationship between capital structure and performance of listed firms.

Determining the ideal capital structure and value of firms can be traced back to *Modigliani and Miller (1958)* who in their research concluded that the value of the firm is self-determining of capital structure and that the value of an unlevered firm is equal to that of a levered firm. The research was based on the assumption of absence of taxes. This assumption was considered unrealistic and in their subsequent research *Modigliani and Miller (1963)* took tax into consideration and concluded that because of tax shield on debt as a factor, the value of a levered firm was more than the value of an unlevered firm and that this value was equal to the value of the tax shield. *Modigliani and Miller (1977)* later modified their earlier research of 1963 and incorporated the effect of personal taxes. Personal taxes were classified into two categories, tax on income from holdings shares and tax on income from debt securities. In this research (1977), Modigliani and Miller identified certain special cases where gain from leverage became zero, giving the original (1958) result. Thus their results signify the existence of an optimal capital structure at the macro level but not at the micro level.

Deesomsak et al. (2004) examining the effect of capital structure's effect on firm performance, reported a negative relationship between capital structure and firms performance measured by gross profit margin in the Malaysian firms. The study indicated that in Singapore, Taiwan and Australian the relation of leverage with firm's performance is negative but statistically insignificant. Moreover, the effect of firm size on leverage is significant and positive for all the countries except Singapore, because in Singapore firms have government support and are less exposed to financial distress costs.

Nimalathasan & Brabete (2010) examined methodically the relationship between capital structure and financial performance of firms listed on Columbia Stock Exchange, Sri Lanka. The study guides the entrepreneurs and policy planners to formulate better policy decisions regarding the mix of debt and equity capital to control over capital structure planning.

Abor (2005) investigate the relationship between capital structure and profitability of listed firms on Ghana Stock Exchange. He reveals a positive relationship between short term debt to total assets and return on equity due to low interest rates. Further, he suggests that in Ghanaian firm's short term financing shows 85 percent of total debt and is considered a main element of financing for them. Moreover, a negative relationship find between long term financing and equity returns, and a positive relation exists between total debt and profitability. He also suggests that debt is considered as a major source of financing for high profitable firms.

b) Hypothesis of the Study

Based on above literature review, the researcher formulates the following hypothesis.

Model 1

H_0: There is no significant impact of Independent Variables[1] on Return on Asset.

H_1: There is significant impact of Independent Variables on Return on Asset.

Model 2

H_0: There is no significant impact of Independent Variables on Return on Equity.

H_1: There is significant impact of Independent Variables on Return on Equity.

Model 3

H_0: There is no significant impact of Independent Variables on Return on Invested Capital.

H_1: There is significant impact of Independent Variables on Return on Invested Capital.

The hypothesis for each model has been described in Table 1 as shown in appendix.

III. Research Methodology

a) Population and Sample Set of the study

The population for this study is all top 100 companies listed in FTSE-100 index. The researcher has selected the sample for the research from this population to check the effect of capital structure on firm performance.

In this study, a sample of 30 firms has been selected from the FTSE-100 index of London Stock Exchange for the purpose of investigating the effect of capital structure on firm performance. This panel data has been collected for the period of 10 years i.e. from 2005 to 2014 from the financial statements of the firms in order to empirically investigate the relationship between capital structure and firm performance.

b) Theoretical Framework/ Conceptual Framework

The study uses following variables to investigate the effect of capital structure on firm performance.

[1] Independent Variables include Debt to Equity and Interest Coverage

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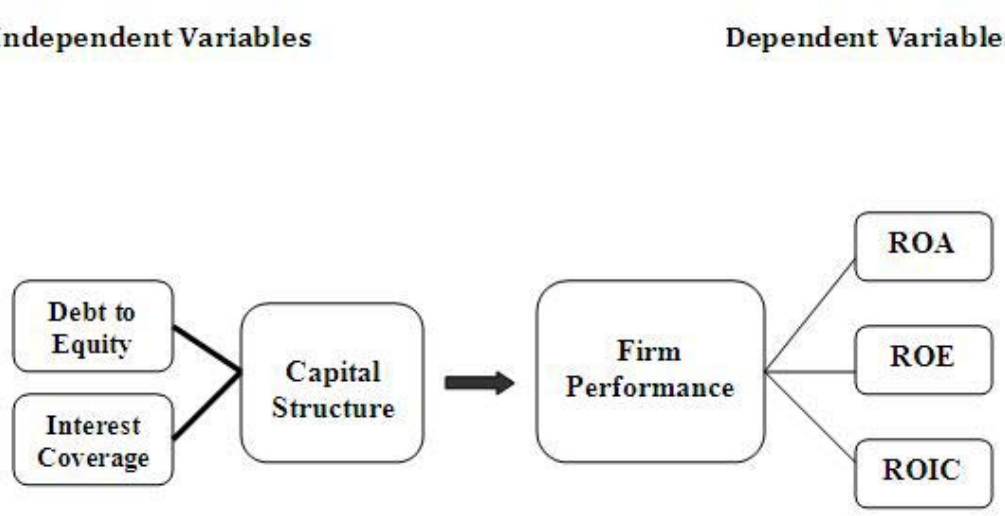

Figure 1 : Conceptual Framework

The selected variables of the study are followed by the existing literatures [Muhammad, Shah & Islam (2014), {14}]; [Nimalathasan & Brabete (2010), {12}].

i. *Independent Variables*

In this study, the capital structure being measured by interest coverage and debt to equity ratios are taken as independent variables.

a. Interest Coverage

The interest coverage ratio (ICR) is measure of company's ability to meet its interest payments. It is a financial ratio that measures company's ability to make interest payments on its debt in a timely manner.

Interest Coverage = EBIT / Interest Expense

[Nimalathasan & Brabete (2010), {12}]

b. Debt to Equity

Debt/Equity Ratio is used to measure a company's financial leverage, calculated by dividing a company's total liabilities by its shareholders' equity. The D/E ratio indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity.

Debt to Equity = Total Liabilities / Total Shareholder's Equity

[Muhammad, Shah, & Islam (2014), {14}]

ii. *Dependent Variables*

Financial performance is considered to be a major standard to measure firms' operational and financial efficiency. The current study uses three measures of firm performance including return on assets, return on equity and return on invested capital.

a. Return on Assets

Return on Assets or Investment is the raise in the cash flows produced by the operating cycle as a result of asset or investment outlays. It is the return for forsaking immediate spending (Vernimmen et al., 2005).

Return on Assets = Net Income / Total Assets

[Muhammad, Shah, & Islam (2014), {14}]

b. Return on Equity

Return on Equity is the measure of the amount of net income returned as a percentage of shareholders equity. Return on equity measures a firm's profitability by revealing how much profit a company generates with the money shareholders have invested.

Return on Equity = Net Income / Shareholder's Equity

[Muhammad, Shah & Islam (2014), {14}]

iii. *Return on Invested Capital*

Return on Invested Capital is used to assess a company's efficiency at allocating the capital under its control to profitable investments. Return on invested capital gives a sense of how well a company is using its money to generate returns.

ROIC = Net Income – Dividends/ Total Capital

c) Regression Analysis

Regression analysis is used to investigate the effect of capital structure on firm performance. More precisely, it helps to understand how the value of the dependent variable changes when independent variable is varied. This study uses the following regression models:

$$ROA = \beta_0 + \beta_1 DE + \beta_2 IC + \varepsilon \quad (1)$$

$$ROE = \beta_0 + \beta_1 DE + \beta_2 IC + \varepsilon \quad (2)$$

$$ROIC = \beta_0 + \beta_1 DE + \beta_2 IC + \varepsilon \quad (3)$$

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Where:
β_0= Coefficient of Intercept
$\beta_1 - \beta_2$ = Slope of Intercept
DE = Debt to Equity
IC = Interest Coverage
ROA = Return on assets
ROE = Return on Equity
ROIC = Return on invested Capital
ε = error term.

IV. Results and Discussions

a) Descriptive Statistics

The descriptive statistics is used as a measure for the analysis of mean, median, maximum, minimum, standard deviation, skewness and kurtosis of the study sample in order to explore the data variation in the firm's listed on the FTSE – 100. The below

Table 2 : Shows the descriptive statistics of variables of the current study

Sample: 2005 2014
Table 2 – Descriptive Statistics

	DE	IC	ROA	ROE	ROIC
Mean	0.846667	18.15027	0.075340	0.311095	0.148971
Median	0.605000	8.030000	0.067000	0.200250	0.126550
Maximum	5.970000	423.0000	0.671100	9.850200	1.215300
Minimum	0.010000	-39.54000	-0.535400	-2.623200	-0.965800
Std. Dev.	0.855844	41.02593	0.089427	0.774534	0.161158
Skewness	2.531492	6.420749	0.010960	8.065354	0.494186
Kurtosis	11.01491	55.10743	19.98988	91.87858	17.97986
Jarque-Bera	1123.408	36001.11	3608.207	101995.0	2817.163
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	254.0000	5445.080	22.60200	93.32850	44.69140
Sum Sq. Dev.	219.0085	503254.9	2.391137	179.3709	7.765562
Observations	300	300	300	300	300

The highest value of mean is 18.15027 of IC, where ROA has the lowest mean of 0.075340. IC has the highest value of standard deviation being 41.02593 and the lowest value is 0.089427 relating to ROA. In respect of Kurtosis, IC has the highest value of kurtosis where ROIC has the lowest value 17.97986.

b) Correlation Analysis

Correlation means the relationship between two variables. The correlation shows two things, first it shows the direction between two variables and secondly it shows the strength of associations between two variables. The below **Table 3** shows the correlation between dependent (ROA, ROE and ROIC) and independent (DE and IC) variables.

Sample: 2005 2014

Table 3 : Correlation Analysis

	DE	IC	ROA	ROE	ROIC
DE	1.000000				
IC	-0.192475	1.000000			
ROA	-0.016145	0.307764	1.000000		
ROE	0.404273	0.081229	0.494161	1.000000	
ROIC	0.047440	0.334291	0.937808	0.573084	1.000000

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The results revealed that DE is positively correlated with ROE and ROIC while negatively correlated with ROA, whereas IC is positively correlated with ROA, ROE and ROIC. DE is negatively correlated with IC. A positive correlation is revealed among all dependent variables.

c) *Regression Analysis*

Panel regression consists of Common Effect, Fixed Effect and Random Effect in order to test the hypothesis of the study. Likelihood and Hausman tests have been considered for the appropriate selection of panel regression.

i. *Model 1 – UK firms and ROA*

The result of Hausman Test (cross section random with Prob. 0.0103) shows that Fixed Effect is the appropriate test.

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.151944	2	0.0103

Table 4 in the appendix shows the results of regression analysis for model 1. The results shows all the 30 firms have a common co-efficient of 0.083955.

The coefficient value of interest coverage is 0.000532, which means that 0.0532 percent variation of return on asset has been explain by the variation of interest coverage. The t-statistics of interest coverage is 4.012955 with a p- value is < 0.05 shows that interest coverage has got significant positive impact on return on asset. If one unit increases in interest coverage then return on asset will increase at 0.000532 units. The coefficient value of debt to equity is -0.021581, which means that 2.1581 percent negative variation of return on asset has been explain by the variation of debt to equity. The t-statistics of debt to equity is -2.475469 with a p- value is < 0.05 shows that debt to equity has got significant negative impact on return on asset. If one unit increases in debt to equity then return on asset will decrease at 0.021581units.

The values of determination of coefficient R^2 is 0.347279, which means that 34.7279 percent variation of return on asset has been explain by the variations of independent variables, which are debt to equity and interest coverage.

The value of AdjR^2 is 0.271778, shows that if the researcher incorporate more relevant variables than it will adjust R^2 at the rate of 27.1778 percent.

Model is found statistically significant ($F = 4.599651$, $p < 0.01$); the value of F-statistics is 4.599651 and p-value is <0.05 shows that the model is good fit for the study.

ii. *Model 2 – UK firms and ROE*

The result of Hausman test (cross section random with Prob. 0.0876) shows that Random Effect is the appropriate test for the study.

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.869432	2	0.0876

Table 5 in the appendix shows the results of regression analysis for model 2. The result shows that all 30 firms have a common coefficient of 0.040741.

The coefficient value of interest coverage is 0.001930, which means that 0.1930 percent variation of return on equity has been explain by the variation of interest coverage. The t-statistics of interest coverage is 2.051486 with a p- value is < 0.05 shows that interest coverage has got significant positive impact on return on equity. If one unit increases in interest coverage then return on equity will increase at 0.001930 units. The coefficient value of debt to equity is 0.277936, which means that 27.7936 percent variation of return on equity has been explain by the variation of debt to equity. The t-statistics of debt to equity is 4.893138 with a p- value is < 0.05 shows that debt to equity has got significant positive impact on return on equity. If one unit increases in debt to equity then return on equity will increase at 0.277936 units.

The values of determination of coefficient R^2 is 0.079153, which means that 7.9153 percent variation of return on equity has been explain by the variations of independent variables, which are debt to equity and interest coverage.

The value of AdjR^2 is 0.072952, shows that if the researcher incorporate more relevant variables than it will adjust R^2 at the rate of 7.2952 percent.

Model is found statistically significant ($F = 12.76463$, $p < 0.01$); the value of F-statistics is 12.76463 and p-value is <0.05 shows that the model is good fit for the study.

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iii. *Model 3 – UK firms and ROIC*

The result of Hausman test (cross section random with Prob.0.0038) shows that Fixed Effect is the appropriate test for the study.

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	11.147838	2	0.0038

Table 6 in the appendix shows the results of regression analysis for model 3. The results revealed that all 30 firms have a common coefficient of 0.15742.

The coefficient value of interest coverage is 0.001028, which means that 0.1028 percent variation of return on invested capital has been explain by the variation of interest coverage. The t-statistics of interest coverage is 4.651186 with a p- value is < 0.05 shows that interest coverage has got significant positive impact on return on invested capital. If one unit increases in interest coverage then return on invested capital will increase at 0.001028 units. The coefficient value of debt to equity is -0.032028, which means that 3.2028 percent negative variation of return on invested capital has been explain by the variation of debt to equity. The t-statistics of debt to equity is -2.203081 with a p- value is < 0.05 shows that debt to equity has got significant negative impact on return on invested capital. If one unit increases in debt to equity then return on invested capital will decrease at 0.032028 units.

The values of determination of coefficient R^2 is 0.441113, which means that 44.1113 percent variation of return on invested capital has been explain by the variations of independent variables, which are debt to equity and interest coverage.

The value of AdjR^2 is 0.376466, shows that if the researcher incorporate more relevant variables than it will adjust R^2 at the rate of 37.6466 percent.

Model is found statistically significant ($F = 6.823382$, $p < 0.01$); the value of F-statistics is 6.823382 and p-value is <0.05 shows that the model is good fit for the study.

V. Conclusion and Recommendation

a) Conclusion

The main objective of the study is to empirically investigate the effect of capital structure on firm performance of 30 companies listed on FTSE-100, London Stock Exchange, United Kingdom. For the purpose of exploring the effect, the study consists of three models including two independent variables and three dependents.

Based on the correlation analysis of the study, DE is positively correlated with ROE and ROIC while negatively correlated with ROA, whereas IC is positively correlated with ROA, ROE and ROIC. There is negative correlation between DE an IC. A positive correlation is revealed among all independent variables.

Besides, the regression results of first model reveals that DE and IC have p-value of 0.0139 and 0.0001 respectively showing significant impact on Return on Asset and the value of R-squared is 0.347279 which denotes that 34.7279% of variation in ROA is due to debt to equity and interest coverage. This shows that IC has positive significant impact on return on asset while DE has negative significant impact on return on asset.

The regression result of the second model reveals that variables DE and IC have p-value of 0.0000 and 0.0411 respectively showing significant impact on Return on Equity. The value of R-squared is 0.079153 which denotes that 7.9153% of variation in ROE is due to independent variables debt to equity and interest coverage. This shows that DE and IC have positive significant impact on return on equity.

The regression result of third model reveals that DE and IC shows p-value of 0.0284 and 0.0000 respectively meaning that independent variables have significant impact on Return on Invested Capital Both independent variables (DE and IC) showing significant value 0.0284 and 0.0000 respectively showing significant impact on return on invested capital. The value of R-squared is 0.441113 which denotes that 44.1113% of variation in ROIC is due to independent variables debt to equity and interest coverage. This shows that IC has positive significant impact on return on invested capital where DE has negative significant impact.

Based on the empirical finds the study concludes that there is significant effect of capital structure on firm performance.

The study concludes that there is significant effect of capital structure on firm performance. The results of the study determines that the higher the value of debt, higher will be the tax benefits (tax shield) received by firms. Therefore, the firms' executives and managers shall maintain optimum level of capital structure in order to achieve the targeted level of efficiency in business.

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b) Recommendation

The researcher has conducted the research on effect of capital structure on firm performance evidence from FTSE-100 index over the period of 2005-2014 by using two independent and three dependent variables. If anyone else wants to conduct the research on the same topic:

- The researcher must incorporate more independent variables
- The period of the study should be more than 20 years for better results
- The researcher must collect the data more the 50 companies for better results

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Appendices

Table 1: Hypothesis

Model 1

$H_{0\,11}$: There is no significant impact of Debt to Equity ratio on Return on Asset.

$H_{1\,11}$: There is significant impact of Debt to Equity on Return on Asset.

$H_{0\,12}$: There is no significant impact of Interest Coverage on Return on Asset.

$H_{1\,12}$: There is significant impact of Interest Coverage on Return on Asset

Model 2

$H_{0\,21}$: There is no significant impact of Debt to Equity ratio on Return on Equity.

$H_{1\,21}$: There is significant impact of Debt to Equity on Return on Equity.

$H_{0\,22}$: There is no significant impact of Interest Coverage on Return on Equity.

$H_{1\,22}$: There is significant impact of Interest Coverage on Return on Equity.

Model 3

$H_{0\,31}$: There is no significant impact of Debt to Equity ratio on Return on Invested Capital.

$H_{1\,31}$: There is significant impact of Debt to Equity on Return on Invested Capital.

$H_{0\,32}$: There is no significant impact of Interest Coverage on Return on Invested Capital.

$H_{1\,32}$: There is significant impact of Interest Coverage on Return on Invested Capital.

Table 4 : Regression Result for Model 1 – UK firms and ROA

Fixed Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.083955	0.009182	9.143380	0.0000
DE_?	-0.021581	0.008718	-2.475469	0.0139
IC_?	0.000532	0.000133	4.012955	0.0001
Fixed Effects (Cross)				
AAL--C	-0.019375			
ABDNF--C	-0.066916			
ANFGY--C	0.008207			
ARGKF--C	0.044487			
ASBFY--C	-0.029815			
AZN--C	0.051874			
BAESY--C	-0.031637			
BRGYY--C	-0.005128			
BTI--C	0.047545			
BTLCY--C	-0.032653			
BZLFY--C	-0.001997			
CMPGY--C	-0.007974			
COIHY--C	0.019579			
CPYYY--C	-0.023621			
EVRZF--C	-0.009078			
GKN--C	-0.034399			
HMSNF--C	-0.038829			

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ITYBY--C	0.024969
MGGT--C	-0.026288
NXT--C	0.201381
PFC--C	-0.009925
REL--C	0.024137
REXMY--C	-0.029355
RYCEY--C	-0.031547
SECCY--C	-0.072257
SGPYY--C	-0.009866
SMGKF--C	0.049948
TUWOY--C	-0.044454
UUGRY--C	0.012527
WG--C	0.040460

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.347279	Mean dependent var	0.075340
Adjusted R-squared	0.271778	S.D. dependent var	0.089427
S.E. of regression	0.076313	Akaike info criterion	-2.207409
Sum squared resid	1.560744	Schwarz criterion	-1.812339
Log likelihood	363.1114	Hannan-Quinn criter.	-2.049302
F-statistic	4.599651	Durbin-Watson stat	1.812590
Prob(F-statistic)	0.000000		

Table 5 : Regression Result for Model 2 – UK firms and ROE

Random Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.040741	0.098586	0.413255	0.6797
DE_?	0.277936	0.056801	4.893138	0.0000
IC_?	0.001930	0.000941	2.051486	0.0411
Random Effects (Cross)				
AAL--C	-0.029177			
ABDNF--C	-0.047389			
ANFGY--C	-0.045634			
ARGKF--C	0.058032			
ASBFY--C	-0.001291			
AZN--C	0.133399			
BAESY--C	-0.043541			
BRGYY--C	-0.019481			
BTI--C	-0.003306			
BTLCY--C	-0.133704			
BZLFY--C	-0.082136			
CMPGY--C	-0.043696			
COIHY--C	-0.056627			
CPYYY--C	-0.135063			
EVRZF--C	-0.228111			
GKN--C	-0.061691			
HMSNF--C	-0.143834			
ITYBY--C	-0.109032			

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MGGT--C	-0.083286
NXT--C	1.992695
PFC--C	0.138318
REL--C	-0.186068
REXMY--C	-0.133018
RYCEY--C	0.024978
SECCY--C	-0.337284
SGPYY--C	-0.024445
SMGKF--C	0.083380
TUWOY--C	-0.095970
UUGRY--C	-0.498114
WG--C	0.111097

Effects Specification	S.D.	Rho
Cross-section random	0.418185	0.3577
Idiosyncratic random	0.560326	0.6423

Weighted Statistics

R-squared	0.079153	Mean dependent var	0.121370
Adjusted R-squared	0.072952	S.D. dependent var	0.584760
S.E. of regression	0.563026	Sum squared resid	94.14844
F-statistic	12.76463	Durbin-Watson stat	1.419889
Prob(F-statistic)	0.000005		

Unweighted Statistics

R-squared	0.172241	Mean dependent var	0.311095
Sum squared resid	148.4759	Durbin-Watson stat	0.900350

Table 6 : Regression Result for Model 3 – UK firms and ROIC

Fixed Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.157423	0.015312	10.28129	0.0000
DE_?	-0.032028	0.014538	-2.203081	0.0284
IC_?	0.001028	0.000221	4.651186	0.0000
Fixed Effects (Cross)				
AAL--C	-0.060364			
ABDNF--C	-0.081484			
ANFGY--C	-0.057580			
ARGKF--C	0.028649			
ASBFY--C	-0.076158			
AZN--C	0.087408			
BAESY--C	-0.013653			
BRGYY--C	-0.046143			
BTI--C	0.044175			
BTLCY--C	-0.082528			
BZLFY--C	-0.006245			
CMPGY--C	-0.011159			
COIHY--C	0.032534			
CPYYY--C	-0.022619			
EVRZF--C	-0.023171			
GKN--C	-0.030655			
HMSNF--C	-0.087763			

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ITYBY--C	0.044140
MGGT--C	-0.062851
NXT--C	0.441973
PFC--C	0.121937
REL--C	0.048011
REXMY--C	-0.056897
RYCEY--C	-0.011594
SECCY--C	-0.129125
SGPYY--C	-0.048259
SMGKF--C	0.075485
TUWOY--C	-0.085777
UUGRY--C	0.002941
WG--C	0.066772

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.441113	Mean dependent var	0.148971
Adjusted R-squared	0.376466	S.D. dependent var	0.161158
S.E. of regression	0.127257	Akaike info criterion	-1.184682
Sum squared resid	4.340068	Schwarz criterion	-0.789612
Log likelihood	209.7023	Hannan-Quinn criter.	-1.026574
F-statistic	6.823382	Durbin-Watson stat	1.941166
Prob(F-statistic)	0.000000		

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Sensitivity of Non-Performing Loan to Macroeconomic Variables: Empirical Evidence from Banking Industry of Bangladesh

By Tandra Mondal

University of Barisal, Bangladesh

Abstract- This paper attempts to examine the potential effect of macroeconomic variables on the downfall of loans. The data used in this study range from 2005 to 2014 and cover 22 commercial banks operating in Bangladesh. Failure of credit policy is measured with the rate of non-performing loan (NPL) which indicates vulnerability of credit system in banking and financial industry. Several researches have been conducted in many countries where mix pattern of relationships has been found. In this research paper, four macroeconomic variables named GDP growth rate, inflation rate, interest rate spread of banking sector and rate of unemployment are tested with NPL ratio in order to ascertain significant relationship for commercial banks of Bangladesh. The result of econometric analysis revealed that NPL is negatively sensitive to inflation rate and interest rate spread and positively sensitive to GDP and unemployment rate.

Keywords: non-performing loan, GDP, inflation, interest rate spread, unemployment, banks.

GJMBR - C Classification : JEL Code : B22



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Sensitivity of Non-Performing Loan to Macroeconomic Variables: Empirical Evidence from Banking Industry of Bangladesh

Tandra Mondal

Abstract- This paper attempts to examine the potential effect of macroeconomic variables on the downfall of loans. The data used in this study range from 2005 to 2014 and cover 22 commercial banks operating in Bangladesh. Failure of credit policy is measured with the rate of non-performing loan (NPL) which indicates vulnerability of credit system in banking and financial industry. Several researches have been conducted in many countries where mix pattern of relationships has been found. In this research paper, four macroeconomic variables named GDP growth rate, inflation rate, interest rate spread of banking sector and rate of unemployment are tested with NPL ratio in order to ascertain significant relationship for commercial banks of Bangladesh. The result of econometric analysis revealed that NPL is negatively sensitive to inflation rate and interest rate spread and positively sensitive to GDP and unemployment rate.

Keywords: non-performing loan, GDP, inflation, interest rate spread, unemployment, banks.

I. Introduction

Banks and financial institutions in a country act as intermediary between supply side and demand side of fund. At present, 56 scheduled banks and 31 financial institutions are actively working at Bangladesh. Total credit provided in Bangladesh as on November 19, 2015 is BDT 5,721,461 and NPL ratio to total loan was 9.7% (up to June 2015) accordingly. Total assets of banking industry in 2014 reached at BDT 9,143 billion from BDT 8,000 billion in 2013 but NPL amount also increased to BDT 501.6 billion from BDT 226.2 billion in 2013 (net increase of BDT 275.4 billion in one year). This situation is raising a red flag for efficiency and effectiveness of banking system. There is clear evidence that banking industry is persisting excess liquidity as the total liquidity stood at BDT 6,965.1 billion in 2014 from BDT 6,273.0 billion in 2013. Conversely, rate of industrialization has been declining due to paucity in investor confidence, political instability, de-growth in real estate sector etc. Consequently, surfeit liquidity leads ambitious business projections of the banks subsequently pouring money in non-productive sectors mostly by taking over of other banks' customers by extending facility limit.

In general, banking sector performance is affected by both internal and external forces. Macroeconomic variables are external forces of determinants of credit assets quality and banks specific policies, staff quality, morale, asset management mechanism so on are internal drivers of banking performance. In Bangladesh, NPLs are investments of banks and financial institutions which are not repaid by borrowers for more than 90 days. Banks and financial institutions have to keep provisioning set aside from their earnings according to regulation of central bank which hits negatively on their profitability.

The lofty height of NPL has enforced the banking industry to lessen new borrowers. In the last few years as NPL has wounded up banks, management committee of banks should be vigilant in paying more attention in credit assessment system and smart collection strategy from borrowers. This is needed for regaining complete confidence of depositors on their banks side a side boosting sustainable growth of the country's economic activities.

As already mentioned macroeconomic variables and bank specific indicators are assumed to be responsible for NPLs. Several researches already have come into light with a conclusion of having significant relationships of NPL with those factors. This paper attempts to assess the sensitivity of macro variables such as GDP growth rate, inflation, unemployment rate, etc with Non-performing loan ratio of commercial banks of Bangladesh since banking industry is susceptible to total economic activities of the country. This study is found to be important as the NPL gets down confidence of investors in banking framework, drains out productive scant resources and threatens efficient resource distribution procedure.

II. Literature Review

Non-performing loan is like bug of any bank which creates discomforts in every action of financial system of a country. It wastes management valuation time, bank's profitability, depositor's confidence index and harms country's financial systems as well.

Many authors conducted various researches to find out the determinants of NPL. It remained difficult to state one exact relationship between them as different studies contain different determinants of NPL and those variables have shown different relationship with NPL.

Author: Lecturer, Department of Finance and Banking, University of Barisal, Barisal, Bangladesh. e-mail: t.mondal44@gmail.com

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Ekanayake E.M.N.N et al (2015) suggested that NPLs of banks depend on both bank-specific and macro-economic variables in Sri Lanka. They regressed nine variables to be statistically significant with NPL. The empirical results reveal that efficiency and size of the bank is also having explanatory power over NPLs. In line with previous research, this study discloses that when efficiency of the bank increases NPLs reduce. Size of the bank has inverse relationship with NPLs. Macro-economic variables GDP growth rate and inflation have recorded a significant inverse relationship while lending rate has recorded a significant positive influence.

From the view of Vasiliki Makri, Athanasios Tsagkanos and Athanasios Bellas (2014), using aggregate data on a panel of 14 countries for the period 2000-2008 and applying the difference GMM estimation, strong correlations between NPL and various macroeconomic and bank-specific factors are consecutively instituted.

In an empirical study of Liliana DONATH et al (2014) originated both exogenous determinants (macroeconomic indicators) and exogenous determinants (specific for the banking activity) are responsible for NPL. In Estonia, the NPL has proved to be strongly influenced by the unemployment rate. As for the influence of the other determinants, a significant, but negative influence has the decreasing growth rate of the GDP that is impacting on the banking sector by increasing NPLs ratio. Latvia exhibits a somewhat similar situation to that of Estonia's showing an increased rate of bad loans. In this case, the drop of the GDP had a significant impact, followed by the unemployment rate.

Ahlem Selma Messai et al (2013) depicted variables that can affect and influence doubtful accounts at credit institutions for a sample of European banks. The results showed that GDP growth and return on assets of credit institutions have a negative impact on NPLs. The unemployment rate and the real interest rate affect impaired loans positively. Furthermore, it was found that the provisions of banks increase with the NPLs.

In evaluating NPLs Sensitivity to macro variables for Malaysian Commercial Banks, Mohammadreza Alizadeh Janvisloo et al (2013) found strong confirmation of cyclical sensitivity of asset quality in commercial banks of Malaysia. Their result showed FDI-net outflow (%GDP) are the most effective factors on NPL ratio with simultaneous positive effects and a reverse effect with one-year delay. Also there is a robust negative relationship between NPL and GDP growth with the effects operating with up to two year lags. Inflation and domestic credit growth have positive and negative effects respectively and their effects last for up to two years, but a mild.

Bruna ŠKARICA (2013) outlined determinants of the changes in the non-performing loan (NPL) ratio in selected European emerging markets. Bruna ŠKARICA performed the study into single economy analysis and panel analysis. Real GDP growth rate was the main driver of the increase of the NPL ratio during the past 5 years in CEE countries.

In a study on Growth Rate and Non Performing Retail Loans, Sedat Mahmudi (2013) investigated that retail credit loan follows the business cycle and also has a positive relationship with growth of real GDP. Gross national product (GNP) also has direct sensitivity with NPLs of a bank.

Ali Shingjergji (2013) said that there exists positive relationship between the GDP growth and the NPLs ratio that is contrary to international evidence. According to international evidence the inflation rate is negatively related with NPLs ratio even in the Albanian banking system.

Wondimagegnehu Negera (2012), in assessing determinants of NPLs in Ethiopia, depicted that poor credit assessment, failed loan monitoring, underdeveloped credit culture, lenient credit terms and conditions, aggressive lending, compromised integrity, weak institutional capacity, unfair competition among banks, willful default by borrowers and their knowledge limitation, fund diversion for unintended purpose, over/under financing by banks ascribe to the causes of loan default. The study indicated that poor credit assessment ascribing to capacity limitation of credit operators, institutional capacity drawbacks and unavailability of national data for project financing that had also led to setting terms and conditions that were not practical and/or not properly discussed with borrowers had been the cause for occurrences of loan default.

Mamun, Yasmeen, Mehjabeen (2012) examined factors responsible for lending decision by Bangladeshi banks using a set of decision variables available in the standard loan application process. Among the variables examined investment type, investment risk grading score and borrower's previous transaction record have been identified as the most important determinant for loan approval probabilities.

Mabvure Tendai Joseph et al (2012) conducted a study in order to determine the causes of NPLs of Zimbabwe. They found internal factors such as poor credit policy, weak credit analysis, poor credit monitoring, inadequate risk management and insider loans have a limited influence towards non performing loans. Factors namely natural disaster, government policy and the integrity of the borrower were the major factors that caused NPLs. Findings indicated that there is an upward trend in NPLs since the adoption of multicurrency in 2009. The agricultural sector has not been performing well owing to climate changes and expensive costs related with farming in Zimbabwe.

Irum Saba, Rehana Kouser, Muhammad Azeem (2012) carried out a study on finding determinants of NPL in US banking sector. They found association of

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Interest rate and Real GDP per capita with the NPLs rate.

Sofoklis D. Vogiazas and Eftychia Nikolaidou (2011) applied time series modeling techniques to investigate the deterministic factors of NPLs in the financial system; a system dominated by foreign-owned commercial banks. They suggested those macroeconomic variables, specifically the construction and investment expenditure, the inflation and the unemployment rate, and the country's external debt to GDP and M2 together influence the credit risk of the banking system.

Dash and Kabra (2010) researched NPLs in Indian banking sector and found that both bank-level and macroeconomic-level data provided evidence of importance of loans growth, loans to assets ratio, economic growth, and exchange rate for loan losses.

In assessing relationship of NPLs with macro economic variables, Khemraj and Pasha (2009) established that GDP growth rate has inverse relationship with NPLs where exchange rate has significant positive force with that NPL.

Glogowski (2008) investigated set of macroeconomic variables such as GDP growth, real interest rates and unemployment in relation to NPL for 108 Polish banks.

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

Keaton and Morris (1987) investigated of 2,500 banks in the USA. They found that a substantial part of the variation in loan losses was due to differences in local economic conditions and to unusually poor performance in particular industries like agriculture and energy.

III. Objectives

The primary objectives of this research study are:

1. To explore the sensitivity of NPL to macroeconomic variables.
2. To find out the current situation of NPLs of Bangladesh banking industry.
3. To investigate the factors affecting the NPL in the banking industry of Bangladesh other than the bank specific variables.
4. To formulate an empirical relationship between NPL and four macroeconomic variables over a period of ten years for banks operating in Bangladesh.

IV. Research Methodology

a) Data Collection

The study relates to the period of most recent ten years for twenty two sample banks starting from 2005 and ending on 2014. For the purpose of this study, only secondary data have been used as information related to credit risk, credit policy, NPLs, loan recovery system, default rate are very much confidential to any lending institution specially a bank. The study employed the use of secondary data obtained from the audited balance sheets and profit & loss accounts and also the annual reports of the respective banks. The reason for choosing this source is primarily due to the better reliability of the audited financial statements. Data were obtained from the Dhaka Stock Exchange Library, past publications and official websites of Bangladesh Bank, World Bank and the banks incorporated in the study.

b) Variables of Study

The research takes into account the key variables that possibly can affect and has influence on NPL. Choice and selection of variables is influenced by the past research and different study conducted by different researchers on credit risk and NPL. All the variables (dependent and independent) have been used to test and examine the sensitivity of NPL to different macroeconomic variables. The independent variables selected are annual GDP growth rate, inflation rate, interest rate spread and unemployment rate. The dependent variable is NPL ratio. Hence all the data of this study are in relative form. Indicators have been selected by reviewing the literature to represent variables that are most suited for the country's financial system. NPL is denoted as the ratio of classified loans to total loans for bank. The annual growth rate in GDP is also considered. The annual percentage change of the Consumer Price Index (CPI) value is taken as the indicator of country's inflation growth rate. The gap between average lending and deposit rate has been considered as the interest rate spread in the economy. Unemployment rate is measured as a percentage of the labor force without jobs from total labor force in the country.

c) Hypotheses Formulation

Based on the early literature and variables of study following hypotheses are formulated:

1. There is significant relationship between the GDP growth rate and NPLs' rate.
2. There is significant relationship between the Inflation rate and NPLs' rate.
3. There is significant relationship between the Interest rate spread and NPLs' rate.

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4. There is significant relationship between the Unemployment rate and NPLs' rate.
5. NPLs' rate can be significantly determined by using annual GDP growth rate, Inflation rate, Interest rate spread and Unemployment rate collectively.

d) Research Model

Research model can be expressed mathematically as follows:

$$NPL = f(GDP, IFR, IRS, UNEMP)$$

Where, NPL is the proxy used for banks NPLs' rate, GDP for annual GDP growth rate, IFR is inflation rate, IRS is for interest rate spread and UNEMP is for unemployment rate.

e) Methods of Data Analysis

For the study, entire analysis is done by personal computer. Microsoft excels as well as a well known statistical package named EViews were used in order to analyze the data. This study makes the use of statistical tools for both its descriptive and quantitative analysis. In the descriptive sector of analysis, data were analyzed only to find out the general statistics. On the other hand, in quantitative analysis portion, data were analyzed by employing Augmented Dickey-Fuller (ADF) Unit Root Test, Pearson Correlation Matrix, Granger Causality Test and Regression Analysis.

V. Analysis and Findings

a) Descriptive Statistics

Descriptive statistics presents the general statistics of the variables. The statistics gives the mean value, median value, standard deviation value, maximum and minimum value of the variables of interest in the study over the 10 years.

Table 1 : Descriptive Statistics

	NPL	GDP	IFR	IRS	UNEMP
Mean	7.347818	6.202000	6.297000	4.832000	4.450000
Median	4.210000	6.310000	6.210000	5.885000	4.450000
Maximum	44.59000	7.100000	7.000000	6.820000	5.000000
Minimum	0.000000	5.000000	5.740000	1.420000	4.200000
Std. Dev.	8.179807	0.568423	0.370574	1.960507	0.211431
Observations	220	220	220	220	220

Source: Compiled by the author

Table 1 shows the descriptive statistics of dependent and independent variables in the study. The mean NPL of all the 22 banks over the ten years is 7.3478. This suggests that banks could not recover 7.35 percent of every loan provided to the borrowers. The highest NPL is 44.59 while the lowest is 0.00. Among the macro-economic variables the mean GDP growth rate over the test period is 6.20 percent, with the highest growth in 2007 of 7.10 percent and the lowest growth of 5.00 percent in 2009. The highest inflation growth of 7 percent was recorded in 2014. The correspondent minimum and mean recorded values for inflation are 5.74 and 6.29 percent. The mean value of interest rate spread is 4.83 percent with a standard deviation of 1.96 meaning that interest rate spread can vary from the mean value to both sides by 1.96 percent. The maximum value for that interest rate spread is 6.82 percent in a year while the minimum is 1.42 percent. The mean rate of unemployment is 4.45 percent with a low standard deviation of 0.21143. The lowest and highest unemployment rate of 4.20 and 5.00 percent were recorded in 2006 and 2009 respectively.

b) Quantitative Analysis

i. *Augmented Dickey-Fuller (ADF) Unit Root Test*

All the variables under the study must be stationary otherwise spurious regression may be found. Henceforth, Augmented Dickey-Fuller (ADF) Unit Root Test has been implemented to ensure that all the variables in the regression equation are stationary. The result is shown below:

Table 2 : Results of Unit Root Test - 1

Variables	Probability	Findings
NPL	0.1123	Non-stationary
GDP	0.1533	Non-stationary
IFR	0.0000	Stationary
IRS	0.0000	Stationary
UNEMP	0.1756	Non-stationary

Source: Compiled by the author

As all the series are not stationary, first differences of the non-stationary variables are taken. Three new variables are found named DNPL (1st difference of NPL), DGDP (1st difference of GDP) and DUNEMP (1st difference of UNEMP). Again the test is done on the new three variables. All the series are now stationary. The results of ADF test with the three new variables are as follows:

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Table 3 : Results of Unit Root Test - 2

Variables	Probability	Findings
DNPL	0.0025	Stationary
DGDP	0.0434	Stationary
IFR	0.0000	Stationary
IRS	0.0000	Stationary
DUNEMP	0.0129	Stationary

Source: Compiled by the author

ii. *Pearson Correlation Analysis*

The Pearson correlation test reveals the correlation among the variables. It indicates how the variables are related with each other and also to what extent.

Table 4 : Pearson Correlation Matrix

	DNPL	DGDP	IFR	IRS	DUNEMP
DNPL	1.000000	0.044387	-0.067582	-0.158227	0.011516
DGDP	0.044387	1.000000	0.487664	-0.129348	-0.616200
IFR	-0.067582	0.487664	1.000000	-0.156869	-0.407353
IRS	-0.158227	-0.129348	-0.156869	1.000000	0.168328
DUNEMP	0.011516	-0.616200	-0.407353	0.168328	1.000000

Source: Compiled by the author

Results of the Correlation analysis between DGDP and DNPL depict a positive coefficient of 0.044387. It denotes that if GDP increases it will have a positive impact on the NPL. The test result shows a negative relationship between inflation rate (IFR) and DNPL. It indicates that if the IFR increases it will have a negative impact on the NPL. The same relationship is found between the interest rate spread (IRS) and DNPL. The correlation between unemployment rate (UNEMP) and DNPL is 0.011516. It implies that NPL will be increased with increase of the unemployment rate. No significant strong relationship is found among the exogenous variables in the matrix. So it can be assumed that the data set is free from Multicollinearity problem.

iii. *Granger Causality Test*

The simple correlation does not imply anything regarding the causality amongst the variables. To find out the causal relationship between two variables Engle-Granger (1969) causality model is implemented between each exogenous variable and dependent variable.

The result presented in table 5 shows that there is no bilateral directional relationship between DGDP and DNPL, IFR and DNPL, IRS and DNPL, and even DUNEMP and DNPL at 5% significance level. The test results are tabulated below:

Table 5 : Test result of Granger Causality Model

Null Hypothesis:	Obs	F-Statistic	Probability
DGDP does not Granger Cause DNPL	217	3.88952	0.02193
DNPL does not Granger Cause DGDP		2.07150	0.12854
IFR does not Granger Cause DNPL	217	8.02152	0.00044
DNPL does not Granger Cause IFR		2.60243	0.07646
IRS does not Granger Cause DNPL	217	8.93290	0.00019
DNPL does not Granger Cause IRS		2.42981	0.09050
DUNEMP does not Granger Cause DNPL	217	6.79722	0.00138
DNPL does not Granger Cause DUNEMP		0.53738	0.58507

Source: Compiled by the author

iv. *Regression Analysis*

The regression equation gives an estimation of the linear relationship between a dependent and one or more independent variables. The four explanatory variables named DGDP, IFR, IRS and DUNEMP are regressed on the one and only dependant variable DNPL to test the multiple regression of the selected empirical model.

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Table 6 : Test result of Regression Model

Dependent Variable: DNPL
Method: Least Squares
Sample(adjusted): 2 220
DNPL=C(1)+C(2)*DGDP+C(3)*IFR+C(4)*IRS+C(5)*DUNEMP

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	12.37451	6.419712	1.927580	0.0552
C(2)	0.938095	0.674145	1.391534	0.1655
C(3)	-1.656781	0.998430	-1.659387	0.0485
C(4)	0.419316	0.165006	2.541214	0.0118
C(5)	1.181748	1.567125	0.754086	0.4516

R-squared	0.042459	Mean dependent var	-0.086484
Adjusted R-squared	0.024561	S.D. dependent var	4.751687
S.E. of regression	4.692970	Akaike info criterion	5.952575
Sum squared resid	4713.130	Schwarz criterion	6.029951
Log likelihood	-646.8069	Durbin-Watson stat	2.295605

Source: Compiled by the author

The regression equation can be written as follows:

$$DNPL=12.37451+0.938095*DGDP-1.6567816*IFR+0.419316*IRS+1.181748*DUNEMP$$

The coefficients of determination (R-square) represents a value of 0.042459 which means that the explanatory power of the four independent variables (DGDP, IFR, IRS and DUNEMP) of this model is very low to explain the variation in the dependent variable (DNPL). Here, the intercept term of the equation is 12.37451 but it is not statistically significant. The regression coefficient of DGDP is 0.938095 which affects the NPL positively though the result is not statistically significant at 5% significance level. The regression coefficients of IFR and IRS are -1.656781 and 0.419316 respectively and both of them are statistically significant at 5% significance level. This result implies that NPL is significantly sensitive to the increase or decrease in inflation rate and interest rate spread. The last regression coefficient of this model is 1.181748. This indicates that as the unemployment rate increases by 1% the NPL will increase by 1.18% although the result is statistically insignificant.

VI. Concluding Remarks

Non-performing loan is considered to be one of the most perilous factors of any economy since this is derived from inefficiency, hinders growth and proficient resource allocation. With the growth of the economy, NPL has to be reduced to a level so that it cannot be headache of any economic escalation aspect. This research paper analyzed selected macro economic variables namely GDP growth rate, interest rate spread, inflation rate and unemployment rate with relation to non-performing loan ratio.

Findings of this research concluded that inflation rate has 1.656 points negative relationship with NPL considering other factors constant. Inflationary effects increase repayment capacity because it seems to be less costly of the borrowings in highly inflationary economic provision thus decreases non-performing loan ratio. Side a side, interest rate spread has 0.4193 points positive relationship with NPL ratio considering other things constant. This relationship makes sense in practice as higher the interest rate spread, higher the cost of borrowings which leads to lower debt servicing capacity of the borrowers thus increase non-performing loan ratio.

Nonetheless, other two factors; GDP growth rate and unemployment rate are statistically insignificant according to the results of the analysis. Practically, GDP growth rate and unemployment rates are stirring factors to the increase of economic activity and non-performing loan ratio should have relationship with those variables. In this research paper it is found that there is a positive relationship between GDP growth rate and NPL ratio. This relationship is questionable in practice as higher GDP growth will lead to higher earning capacity of borrowers which will eventually help the economy to get a lower NPL ratio. On the contrary, as the unemployment rate increases NPL also increases. This is true because unemployed borrowers cannot repay their debts as they have limited purchasing power to fulfill their financial obligations.

This paper only took into account of four macroeconomic variables to find out the sensitivity of NPL. Other microeconomic factors, such as banks internal management, credit assessment criteria, lending policy, borrowers' demographic factors, receivable collection strategy, equity base, profitability,

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operating efficiency etc., have not been considered in the analysis. Therefore, the whole analysis of this paper is limited to macroeconomic variables only. It is expected that further studies will be carried out incorporating bank specific variables also known as micro variables along with macroeconomic variables.

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3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

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24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.



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27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



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Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



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Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

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- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

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- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.



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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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