# Impact of Capital Structure, Loan to Deposit, Firm Size and Asset Tangibility on the Profitability of Nepalese Commercial Banks

Pravisha Bhandari*

## Abstract

This study examines the impact of capital structure, loan to deposit, firm size and asset tangibility on the profitability of Nepalese commercial banks. Return on asset, return on equity and earnings per share are selected as the dependent variables. Similarly, capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio and debt to total equity ratio are selected as the independent variables. This study is based on secondary data of 13 commercial banks with 104 observations for the study period from 2013/14 to 202/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of capital structure, loan to deposit, firm size and asset tangibility on the profitability of Nepalese commercial banks.

The study showed that debt to equity ratio has a positive impact on return on assets, return on equity and earnings per share. It indicates that increase in debt-to-equity ratio leads to increase in return on assets, return on equity and earnings per share. Similarly, debt to assets ratio has a positive impact on return on assets, return on equity and earnings per share. It indicates that increase in debt to assets ratio leads to increase in return on assets, return on equity and earnings per share. Moreover, capital adequacy ratio has a positive impact on return on assets and return on equity. It indicates that increase in capital adequacy ratio leads to increase in return on assets and return on equity. In addition, firm size has a positive impact on return on assets and return on equity. It indicates that increase in assets size leads to increase in return on assets and return on equity. Furthermore, asset tangibility has a negative positive impact on return on assets, return on equity and earnings per share. It indicates that increase in asset tangibility leads to decrease in return on assets, return on equity and earnings per share. Likewise, loan to deposit ratio has a negative positive impact on return on assets, return on equity and earnings per share. It indicates that increase in loan to deposit ratio leads to decrease in return on assets, return on equity and earnings per share of Nepalese commercial banks.

* Ms. Bhandari is a Freelance Researcher, Kathmandu, Nepal. E-mail: pravishabhandari05@gmail.com

*Keywords:* return of asset, return on equity, earnings per share, capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio

## 1. Introduction

The capital structure decision holds significant importance for business organizations. It is a crucial consideration as it aims to maximize the firm's returns while also influencing its ability to navigate the competitive landscape effectively. Profitable and strong banking system promotes broader financial stability and increases the economy's resilience to adverse macroeconomic shocks. A healthy and sustainable profitability is important in maintaining the stability of the banking system and for sustainable economic growth in general. Taking risk is core to the bank's business, and risks are an inevitable consequence of being in business (Mudanya and Muturi, 2018). The bank's aim is, therefore, to achieve an appropriate balance between risk and return and minimize potential adverse effects on its performance. Capital structure of a bank can have significant implications for its profitability. A well-optimized capital structure can help maximize profitability by balancing the costs and benefits of debt and equity financing. Banks typically rely heavily on debt financing, as they can borrow funds from depositors and other sources at relatively lower interest rates (DeYoung and Rice, 2004). However, excessive reliance on debt can increase interest expense, which can eat into profitability. Managing the debt portion of the capital structure effectively is essential for banks to control interest costs and maintain profitability. Capital structure determines the proportion of debt and equity in the funding mix, which influences the overall cost of capital. Finding the right balance is crucial to minimizing costs and maximizing profitability (Eriotis et al., 2007).

One of the most perplexing issues faced by financial managers is the relationship between capital structure, which is the mix of debt and equity financing, and stock prices. The optimal capital structure exists only when the debt and equity combine to reduce the cost of capital and enhance the firms' profitability. The management of the firm itself has to set their capital structure in a way to maximize their firm value, and this decision is really important (Tailab, 2014). Singh and Bagga (2019) evaluated the effect of capital structure on the profitability of Nifty 50 companies listed on National Stock Exchange of India from 2008 – 2017. The study concluded that there is significant positive impact of capital structure on firm's profitability. Nasimi (2016) concluded that capital structure does impact the firm's profitability, and the optimum level of capital structure shall be employed to achieve the targeted level of efficiency

in business. On the contrary, Chadha and Sharma (2016) found that financial leverage has no impact on the firm's financial performance parameters of return on assets. However, it is negative and significantly correlated to return on equity. Fama and French (1998) analyzed the relationship among taxes, financing decisions, and the firm's value, concluded that the debt does not concede tax benefits. Besides, the high leverage degree generates agency problems among shareholders and creditors that predict negative relationships between leverage and profitability. Hadlock and James (2002) concluded that companies prefer loan (debt) financing because they anticipate a higher return. Abor (2005) investigated the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period. The results revealed a significantly positive relation between the ratio of short-term debt to total assets and ROE. However, there is a negative relationship between the ratio of long-term debt to total assets and ROE. With regard to the relationship between total debt and return rates, the results showed a significantly positive association between the ratio of total debt to total assets and return on equity.

Rahim *et al.* (2021) revealed that debt to assets ratio, bank size and bank efficiency have significant impact on profitability. Bank size and bank efficiency have negative impact while debt to assets ratio has positive impact on profitability of Islamic bank. Similarly, Farooq *et al.* (2021) indicated that among internal factors, capital adequacy ratio, deposit ratio, leverage ratio, liquidity ratio, and bank size have significant effect on the return on asset. If firms are more profitable, they prefer debt financing as compared to equity for the sake of profit. According to Myers and Majluf (1984), firms having high profits tend to attain low debt profile because when firms are more profitable, their first priority is to generate financing through retained earnings because they can maximize the value of the existing shareholders. If retained earnings are not sufficient, the firms can then go for debt and if further financing is required, they issue new equity. Moreover, Musah (2018) examined that impact of capital structure on profitability of commercial banks in Ghana. The study revealed the debt equity ratio is positively associated with profitability of banks in Ghana. Similarly, Lestari (2021) found that debt to equity ratio has a positive effect on return on assets but has a negative and significant effect on return on equity. Likewise, Dodoo *et al.* (2023) stated that debt to equity ratio has a positive association with return on asset and negative association with return on equity. Saeed *et al.* (2013) revealed that short term debt has a positive and significant impact on return on assets, return on equity and

earnings per share. On the other hand, total debt has a significant impact of return on assets, return on equity and earnings per share. Likewise, size of the firm is also positively and significantly related to return on assets, return on equity and earnings per share.

Gill et al. (2011) assessed the effect of capital structure on profitability by examining the effect of capital structure on profitability of the American service and manufacturing firms. The results showed a positive relationship between short-term debt to total assets and profitability and total debt to total assets and profitability in the service industry. The findings of this study also showed a positive relationship between short-term debt to total assets and profitability. Similarly, there is a positive relationship between long-term debt to total assets and profitability in the manufacturing industry. Juwita (2018) investigated the effect of CAR (capital adequacy ratio), BOPO (operational costs on operational revenues) and LDR (loan to deposit ratio) on ROA (return on assets). The study concluded that there is a positive and significant effect of capital adequacy ratio to return on assets. Sunaryo (2020) investigated the effect of capital adequacy ratio, net interest margin, non-performing loan, and loan to deposit ratio on the return on asset of the commercial banks. The results revealed that capital adequacy ratio (CAR) and net interest margin (NIM) have positive and significant effect on return on asset (ROA). Begum *et al.* (2022) investigated the effect of liquidity management on the profitability of Bangladesh banks. The study found that capital adequacy ratio has statistically significant influence on the performance of the bank. Likewise, Wuave *et al.* (2020) examined the effect of liquidity management on financial performance of banks in Nigeria. The study found that liquidity ratio (LQR) has positive and significant effect on financial performance.

In the context of Nepal, Adhikari (2021) assessed the efficiency, profitability and stability of the Nepalese commercial banks. The study showed that capital adequacy ratio and asset tangibility are positively related to return on assets. The study also found that bank size has a positive and significant relationship with return on assets but capital adequacy has a negative and significant relationship with return on assets of Nepalese commercial banks. Koju *et al.* (2018) revealed that there is a positive and significant relationship between return on assets and non-performing loans. In addition, Hakuduwal (2021) investigated the impact of bank specific factors on the profitability of Nepalese commercial banks. The study concluded that bank size has a positive significant impact on profitability of Nepalese commercial banks.

Gautam (2018) identified that credit to deposit ratio is positively related to return on assets and return on equity. Further, the study found that non-performing loans has a positive and significant relationship with return on assets but negative and insignificant relationship with return on equity of Nepalese commercial banks. Bhatt and Verghese (2018) concluded that credit to deposit ratio has a negative and significant relationship with return on assets of Nepalese commercial banks.

The above discussion shows that empirical evidences vary greatly across the studies concerning the impact of capital structure, loan to deposit, firm size and asset tangibility on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major purpose of the study is to examine the impact of capital structure, loan to deposit ratio, firm size, and asset tangibility on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio and debt to total equity ratio with return on asset, return on equity and earnings per share of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

## 2. Methodological aspects

The study is based on secondary data which were gathered from 13 Nepalese commercial banks for the study period from 2013/14 to 2021/22, leading to a total of 104 observations. The study has used purposive sampling method to select the banks. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1

**List of commercial banks selected for the study along with study period and number of observations**

| S. N. | Name of the banks | Study period | Observations |
|---|---|---|---|
| **Public Banks** | | | |
| 1 | Nepal Bank Limited | 2013/14 - 2020/21 | 8 |
| 2 | Rastriya Banijya Bank Limited | 2013/14 - 2020/21 | 8 |
| 3 | Agricultural Development Bank Limited | 2013/14 - 2020/21 | 8 |
| **Joint Venture Banks** | | | |
| 4 | Everest Bank Limited | 2013/14 - 2020/21 | 8 |
| 5 | NMB Bank Limited | 2013/14 - 2020/21 | 8 |
| 6 | Nepal SBI Bank Limited | 2013/14 - 2020/21 | 8 |
| 7 | Standard Chartered Bank Nepal Limited | 2013/14 - 2020/21 | 8 |
| **Private Banks** | | | |
| 8 | Citizens Bank International Limited | 2013/14 - 2020/21 | 8 |
| 9 | NIC Asia Bank Limited | 2013/14 - 2020/21 | 8 |
| 10 | Prime Commercial Bank Limited | 2013/14 - 2020/21 | 8 |
| 11 | Sanima Bank Limited | 2013/14 - 2020/21 | 8 |
| 12 | Siddhartha Bank Limited | 2013/14 - 2020/21 | 8 |
| 13 | Machhapuchchhre Bank Limited | 2013/14 - 2020/21 | 8 |
| **Total number of observations** | | | **104** |

Thus, the study is based on 104 observations.

*The model*

The model used in this study assumes that the profitability of Nepalese commercial banks depends upon the capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio and debt to total equity ratio. The dependent variables selected for the study are return on asset, return on equity and earning per share. Similarly, the selected independent variables capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio and debt to total equity ratio .Therefore, the model takes the following form:

Bank's profitability = $f$ (CAR, AT, FS, LDR, DAR and DER)

More specifically, the given model has been segmented into the following models:

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DAR_{it} + \beta_6 DER_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DAR_{it} + \beta_6 DER_{it} + e_{it}$$

$$EPS_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DAR_{it} + \beta_6 DER_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net profit to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net profit to total equity, in percentage.

EPS= Earnings per share as measured by the ratio of net income to number of share outstanding in percentage.

CAR= Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

AT=Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage.

FS = Firm size as measured by the total assets of the banks, Rs in billions.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

DAR=Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage.

DER= Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage.*

The following section describes the independent variables used in this study along with hypothesis formulation.

*Capital adequacy ratio*

Alzoubi (2018) concluded a positive relationship between capital adequacy ratio and profitability of banks measured by return on assets. Farkasdi *et al.* (2021) determined the determinants of profitability in commercial banks in Germany. The study showed a positive relationship between capital adequacy ratio and profitability measured by return on equity. Similarly, Nahar *et al.* (2020) identified a positive relationship between capital adequacy ratio and profitability. Kumar *et al.* (2020) investigated the relationship between monetary policy and bank profitability in New Zealand. The study revealed that capital adequacy ratio is positively related to return on assets. Likewise, Widyastuti *et al.* (2017) found that capital adequacy ratio positively influences bank profitability. Based on it, this study develops the following hypothesis:

$H_1$: There is a positive relationship between capital adequacy ratio and bank profitability.

*Asset tangibility*

Isayas (2022) investigates the key firm specific and macroeconomic determinants of profitability of commercial banks in Ethiopia. The results of the study revealed that firm size, liquidity ratio, asset tangibility, capital adequacy, leverage and real GDP growth rate have a positive and statistically significant effect on the profitability of banks, while firm age and the inflation rate have a negative but statistically insignificant effect on the profitability of banks in Ethiopia. Hifza (2011); Naveed et al. (2011) found a positive and significant relationship between asset tangibility and profitability of financial institutions. Based on it, this study develops the following hypothesis:

$H_2$: There is positive relationship between asset tangibility and bank profitability.

*Firm size*

Fisseha (2015) analyzed the profitability of commercial banks on the basis of bank size, capital adequacy, liquidity risk, credit risk, management efficiency, labor efficiency, inflation rate and real GDP rate. The study showed a positive impact of bank size, capital adequacy and liquidity risk on the profitability of commercial banks. Bikker and Hu (2002) stated a positive impact of bank size on the profitability. Irawati and Maksum (2017) stated that firm size has a positive and significant effect on return on assets. In the same way, Goddard *et al.* (2004) found that size is positively related to profitability. Based on it, this study develops the following hypothesis:

$H_3$: There is a positive relationship between firm size and bank profitability.

*Loan to deposit ratio*

Salim and Bilal (2016) examined four commercial banks in Oman for the period of 2010-2014. The study found a positive relationship between bank liquidity and bank profitability. In addition, Ibrahim (2017) examined the influence of liquidity on the profitability of Iraqi banks over the period of 2005-2013. The study concluded a significant positive impact of liquidity on bank profitability. Yigermal (2017) analyzed the impact of bank specific and macro-economic factors on the profitability of selected Ethiopian private commercial banks. The study concluded that credit to deposit ratio is positively related to profitability of Ethiopian private commercial banks. Mohanty and Krishnankutty (2018) showed that return on asset has a positive

and significant relationship with credit to deposit ratio. Likewise, Vellanita *et al.* (2019) revealed a positive relationship between credit to deposit ratio and profitability as measured by return on equity. Based on it, this study develops the following hypothesis:

$H_4$: There is a positive relationship between loan to deposit ratio and bank profitability.

*Debt to total asset ratio*

Meng and Ugut (2022) analyzed the commercial bank performance in Indonesia and China. The results showed that loan to deposit ratio, assets growth and debt to assets have positive and significant influences on return on assets in Indonesian banks. Hafidh (2022) showed that debt to total asset ratio has a positive and significant relationship with return on assets. Endri *et al.* (2021) found that debt to equity ratio has no relationship to return on assets and earning per share, while debt to assets ratio has a significant effect on return on asset and earnings per share. Moreover, long term debt to total equity has positive significant relationship to return on equity. Based on it, this study develops the following hypothesis:

$H_5$: There is a positive relationship between debt to total asset ratio and bank profitability.

*Debt to total equity ratio*

Khalid *et al.* (2014) revealed that Pakistani firms' debt to equity ratio is positively related to bank profitability. In addition, Avci (2016) found positive link between leverage with bank profitability. Moreover, Kester (1986) examined the impact of leverage and found the positive link of leverage and profitability. The study revealed a positive connection of firm leverage with profitability. Manullang *et al.* (2020) investigated the effect of debt-to-equity ratio and current ratio to the probability of manufacturing companies. The results of the study indicated that debt to equity ratio has insignificant positive effect on profitability. Based on it, this study develops the following hypothesis:

$H_6$: There is a positive relationship between debt-to-equity ratio and bank profitability.

## 3. Results and discussion

*Descriptive statistics*

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 202/21.

Table 2

**Descriptive statistics**

This table shows the descriptive statistics of dependent and independent variables of 13 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage), ROE (Return on equity as measured by the ratio of net income to total equity, in percentage) and EPS (Earning per share as measured by ratio of net income to total number of share outstanding, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), AT (Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), FS (Firm size as measured by the total assets of the banks, Rs in billions), DAR (Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage), DER (Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage*).

| Variables | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| **ROA** | 0.55 | 3.57 | 1.67 | 0.49 |
| **ROE** | 7.57 | 72.50 | 17.95 | 8.56 |
| **EPS** | 0.31 | 111.77 | 28.93 | 16.00 |
| **CAR** | 4.55 | 22.99 | 13.69 | 2.92 |
| **FS** | 12.61 | 346.14 | 115.29 | 63.81 |
| **AT** | 0.00 | 0.10 | 0.01 | 0.02 |
| **LDR** | 48.92 | 96.69 | 81.77 | 10.78 |
| **DAR** | 0.09 | 1.00 | 0.92 | 0.13 |
| **DER** | 0.92 | 36.15 | 11.04 | 5.59 |

Source: SPSS output

*Correlation analysis*

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3

**Pearson's correlation coefficients matrix**

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 13 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage), ROE (Return on equity as measured by the ratio of net income to total equity, in percentage) and EPS (Earning per Share as measured by ratio of net income to total number of share outstanding, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), AT (Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to

total deposits, in percentage), FS (Firm size as measured by the total assets of the banks, Rs in billions), DAR (Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage), DER (Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage*).

| Variables | ROA | ROE | EPS | CAR | FS | AT | LDR | DAR | DER |
|---|---|---|---|---|---|---|---|---|---|
| **ROA** | 1 | | | | | | | | |
| **ROE** | 0.356** | 1 | | | | | | | |
| **EPS** | 0.553** | 0.618** | 1 | | | | | | |
| **CAR** | 0.319** | 0.264** | -0.052 | 1 | | | | | |
| **FS** | 0.232* | 0.158 | 0.009 | 0.190 | 1 | | | | |
| **AT** | -0.048 | -0.210* | -0.075 | 0.040 | 0.110 | 1 | | | |
| **LDR** | -0.073 | -0.261** | -0.287** | 0.203* | 0.171 | 0.136 | 1 | | |
| **DAR** | 0.052 | 0.189 | 0.093 | -0.151 | -0.276** | -0.087 | -0.239* | 1 | |
| **DER** | 0.029 | 0.554** | 0.492** | -0.419** | -0.286** | -0.217* | -0.456** | 0.537** | 1 |

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that there is a positive relationship between capital adequacy ratio and return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets. However, there is a positive relationship between firm size and return on assets. It means that increase in firm size leads to increase in return on assets. In contrast, loan to deposit ratio has a negative relationship with return on assets. It shows that higher the loan to deposit ratio, lower would be the return on assets. In addition, asset tangibility has a negative relationship with return on assets. It indicates that increase in asset tangibility leads to decrease in return on assets. Further, this study shows that there is a positive relationship between debt to asset ratio and return on assets. It indicates that increase in debt to asset ratio leads to increase in return on assets. Furthermore, there is a positive relationship between debt to equity ratio and return on assets. It indicates that increase in debt to asset ratio leads to increase in return on assets.

Similarly, the result also shows that there is a positive relationship between capital adequacy ratio and return on equity. It indicates that increase in capital adequacy ratio leads to increase in return on equity. However, there is a positive relationship between firm size and return on equity. It means that increase in firm size leads to increase in return on equity. In contrast, loan to deposit ratio has a negative relationship with return on equity. It shows that higher the loan to deposit ratio, lower would be the return on equity. In addition, asset tangibility has a negative relationship with return on equity. It indicates that increase in asset tangibility leads to decrease in return on equity.

Further, this study shows that, there is a positive relationship between debt to asset ratio and return on equity. It indicates that increase in debt to asset ratio leads to increase in return on equity.

Similarly, the result also shows that there is a negative relationship between capital adequacy ratio and earning per share. It indicates that increase in capital adequacy ratio leads to decrease in earnings per share. However, there is a positive relationship between firm size and return on equity. It means that increase in firm size leads to increase in earnings per share. In contrast, loan to deposit ratio has a negative relationship with earnings per share. It shows that higher the loan to deposit ratio, lower would be the earnings per share. In addition, asset tangibility has a negative relationship with earnings per share. It indicates that increase in asset tangibility leads to decrease in earnings per share. Further, this study shows that, there is a positive relationship between debt to asset ratio and earnings per share. It indicates that increase in debt to asset ratio leads to increase in earnings per share.

*Regression analysis*

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4, Table 5 and Table 6. More specifically, Table 4 shows the regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio and debt to total equity ratio with return on assets of Nepalese commercial banks.

Table 4

**Estimated regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio on return on assets**

The results are based on panel data of 13 commercial banks with 104 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DTAR_{it} + \beta_6 DTER_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage. The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), AT (Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), FS (Firm size as measured by the total assets of the banks, Rs in billions), DAR (Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage), DER (Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage*).

| Model | Intercept | Regression coefficients of | | | | | | Adj. $R\_bar^2$ | SEE | F-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CAR | FS | AT | LDR | DAR | DER | | | |
| 1 | 0.932 (4.195)** | 0.054 (3.395)** | | | | | | 0.093 | 0.469 | 11.528 |
| 2 | 4.562 (2.025)* | | 0.263 (1.284) | | | | | 0.006 | 0.491 | 1.649 |
| 3 | 1.696 -27.078 | | | -2.064 (0.670) | | | | 0.005 | 0.494 | 0.449 |
| 4 | 1.944 (5.220)** | | | | -0.003 (0.743) | | | 0.004 | 0.493 | 0.552 |
| 5 | 1.498 (4.391) ** | | | | | 0.186 (0.509) | | 0.007 | 0.494 | 0.259 |
| 6 | 1.642 (15.223)** | | | | | | 0.003 (0.291) | 0.009 | 0.495 | 0.084 |
| 7 | 5.187 (2.437)* | 0.061 (3.749)** | 0.394 (2.010)* | | | | | 0.119 | 0.462 | 7.956 |
| 8 | 5.089 (2.383)* | 0.062 (3.778)** | 0.383 (1.947) | -2.323 (0.801) | | | | 0.116 | 0.469 | 5.499 |
| 9 | 5.247 (2.458)* | 0.064 (3.941)** | 0.363 (1.841) | -1.662 (0.564) | -0.005 (1.209) | | | 0.120 | 0.462 | 4.509 |
| 10 | 4.989 (2.093)* | 0.064 (3.930)** | 0.349 (1.697) | -1.631 (0.55) | -0.005 (1.137) | 0.092 (0.248) | | 0.111 | 0.464 | 3.585 |
| 11 | 4.506 (1.834) | 0.069 (3.963)** | 0.319 (1.525) | -1.262 (0.421) | -0.004 (0.78) | -0.063 (0.152) | 0.011 (0.831) | 0.109 | 0.465 | 3.093 |

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is similar to the findings of Farkasdi *et al.* (2021). Likewise, the beta coefficients for firm size are positive with return on assets. It indicates that firm size has a positive impact on return on assets. This finding is consistent with the findings of Akbaş (2012)). Similarly, the beta coefficients for asset tangibility are negative with return on assets. It indicates that asset tangibility has a negative impact on return on assets. This finding is similar to the findings of KoralunBereźnicka, (2013). Likewise, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a positive impact on return on assets. This finding is consistent with the findings of Mohanty and Krishnankutty (2018). Moreover, the beta coefficients for debt to total asset ratio are positive with return on assets. It indicates that debt to total asset ratio has a positive impact on return on assets. This finding is similar to the findings of Ebaid (2009).At the last, the beta coefficients for debt to total equity ratio are positive with return on assets. It indicates that debt to total equity ratio has a positive impact on return on assets. This finding is similar to the findings of Goyal's (2013).

Table 5 presents the estimated regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio with return on equity of Nepalese commercial banks.

Table 5

**Estimated regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio on return on equity**

The results are based on panel data of 13 commercial banks with 104 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DTAR_{it} + \beta_6 DTER_{it} + e_{it}$ where, the dependent variables is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), AT (Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), FS (Firm size as measured by the total assets of the banks, Rs in billions), DAR (Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage), DER (Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage*).

| Model | Intercept | Regression coefficients of | | | | | | Adj. $R\_bar^2$ | SEE | F-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CAR | FS | AT | LDR | DAR | DER | | | |
| 1 | 28.568 (7.277)** | 0.775 (2.765)** | | | | | | 0.061 | 8.298 | 7.645 |
| 2 | 59.008 (1.503 | | 3.729 (1.04) | | | | | 0.001 | 8.557 | 1.095 |
| 3 | 19.505 (18.349)** | | | -120.82 (2.311)* | | | | 0.041 | 8.386 | 5.342 |
| 4 | 34.903 (5.574)** | | | | -0.207 (2.731)** | | | 0.059 | 8.305 | 7.457 |
| 5 | 6.772 (1.162) | | | | | 12.112 (1.938) | | 0.026 | 8.449 | 3.756 |
| 6 | 8.557 (5.500)** | | | | | | 0.849 (6.730)** | 0.301 | 7.159 | 45.297 |
| 7 | 51.19 (1.336) | 0.745 (2.606)** | 2.092 (0.594) | | | | | 0.055 | 8.324 | 3.974 |
| 8 | 46.524 (1.234) | 0.714 (2.540)* | 1.577 (3.470)** | -110.53 (2.159)* | | | | 0.088 | 8.177 | 4.299 |
| 9 | 50.748 (1.36) | 0.621 (2.199)* | 1.035 (0.301) | -92.793 (1.802) | -0.143 (1.857) | | | 0.109 | 8.079 | 4.165 |
| 10 | 32.479 (0.784) | 0.602 (2.126)* | 0.056 (0.016) | -90.569 (1.758) | -0.129 (1.639) | 10.13 (1.578) | | 0.11 | 8.078 | 3.537 |
| 11 | -14.417 (0.381) | 0.101 (0.376) | 2.861 (0.889) | -54.723 (1.184) | 0.005 (0.065) | 8.546 (1.336) | 0.946 (5.236)** | 0.299 | 7.169 | 8.311 |

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are positive with return on equity. It indicates that capital adequacy ratio has a

positive impact on return on equity. This finding is similar to the findings of Ariwidanta and Wiksuana (2018). Likewise, the beta coefficients for firm size are positive with return on equity. It indicates that firm size has a positive impact on return on equity. This finding is consistent with the findings of Akbaş (2012). Similarly, the beta coefficients for asset tangibility are negative with return on equity. It indicates that asset tangibility has a negative impact on return on equity. This finding is similar to the findings of Koksal et al. (2013). Likewise, the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that loan to deposit ratio has a negative impact on return on equity. This finding is consistent with the findings of Mohanty and Krishnankutty (2018). Moreover, the beta coefficients for debt to total asset ratio are positive with return on equity. It indicates that debt to total asset ratio has a positive impact on return on equity. This finding is similar to the findings of Ebaid (2009). Further, the beta coefficients for debt to total equity ratio are positive with return on equity. It indicates that debt to total equity ratio has a positive impact on return on equity. This finding is similar to the findings of Goyal's (2013).

Table 6 presents the estimated regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio with return on equity of Nepalese commercial banks.

Table 6

**Estimated regression results of capital adequacy ratio, asset tangibility, firm size, loan to deposit, debt to total assets ratio, debt to total equity ratio on earning per share**

The results are based on panel data of 13 commercial banks with 104 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $EPS_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 LDR_{it} + \beta_5 DTAR_{it} + \beta_6 DTER_{it} + e_{it}$ where, the dependent variables is EPS (Earning per Share as measured by ratio of net income to total number of share outstanding, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), AT (Asset tangibility as measured by the ratio of net fixed tangible assets to total assets, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), FS (Firm size as measured by the total assets of the banks, Rs in billions), DAR (Debt to total asset ratio as measured by the ratio of total debt by total asset, in percentage), DER (Debt to total equity ratio as measured by the ratio of *company's total liabilities to its shareholder, in percentage*).

| Model | Intercept | Regression coefficients of | | | | | | Adj. $R\_bar^2$ | SEE | F-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CAR | FS | AT | LDR | DAR | DER | | | |
| 1 | 32.861 (4.325)** | -0.287 (0.529) | | | | | | 0.007 | 16.060 | 0.28 |
| 2 | 26.554 (0.36) | | 0.216 (0.032) | | | | | 0.013 | 16.082 | 0.001 |
| 3 | 30.136 (14.847)** | | | -93.787 (0.946) | | | | 0.001 | 16.032 | 0.883 |
| 4 | 63.739 (5.487)** | | | | -0.426 (3.022)** | | | 0.073 | 15.407 | 9.135 |
| 5 | 18.821 (1.704) | | | | | 10.953 (0.925) | | 0.001 | 16.015 | 0.855 |
| 6 | 13.394 (4.391)** | | | | | | 1.407 (5.703)** | 0.234 | 14.004 | 32.52 |
| 7 | 23.408 (0.315) | -0.345 (0.541) | 0.874 (0.128) | | | | | 0.017 | 16.138 | 0.147 |
| 8 | 19.52 (0.262) | -0.274 (0.494) | 1.303 (0.19) | -92.08 (0.911) | | | | 0.019 | 16.151 | 0.374 |
| 9 | 31.98 (0.444) | -0.001 (0.002) | 2.904 (0.437) | -39.75 (0.4) | -0.422 (2.834)** | | | 0.048 | 15.612 | 2.309 |
| 10 | 19.172 (0.238) | -0.015 (0.027) | 3.59 (0.518) | -38.19 (0.382) | -0.412 (2.706)** | 4.563 (0.65) | | 0.044 | 15.681 | 1.857 |
| 11 | -83.943 (1.191) | -1.115 (2.228)* | 10.005 (1.669) | -40.626 (0.472) | -0.119 (0.861) | 28.54 (2.396)* | 2.081 (6.183)** | 0.304 | 13.348 | 8.508 |

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Earnings per share is the dependent variable.

Table 6 shows that the beta coefficients for capital adequacy ratio are negative with earnings per share. It indicates that capital adequacy ratio has a negative impact on earnings per share. This finding is similar to the findings of Ariwidanta and Wiksuana (2018). Likewise, the beta coefficients for firm size are positive with earning per share. It indicates that firm size has a positive impact on earnings per share. This finding is consistent with the findings of Lohano and Kashif (2019). Similarly, the beta coefficients for asset tangibility are negative with earning per share. It indicates that asset tangibility has a negative impact on earnings per share. This finding is similar to the findings of Martina (2015). Likewise, the beta coefficients for loan to deposit ratio are negative with earning per share. It indicates that loan to deposit ratio has a positive impact on earnings per share. This finding is consistent with the findings of Mohanty and Krishnankutty (2018). Moreover, the beta coefficients for debt to total asset ratio are positive with earnings per share. It indicates that debt to total asset ratio has a positive impact on earnings per share. This finding is similar to the findings of Ebaid (2009). Further, the beta coefficients for debt to total equity ratio are positive with earning per share. It indicates that debt to total equity ratio has a positive impact on earnings per share. This finding is similar to the findings of Goyal's (2013).

## 4. Summary and conclusion

Capital structure plays a crucial role in determining the profitability of banks. By balancing debt and equity financing, banks can optimize their cost of capital, manage interest expense, and balance risk and return. Achieving an optimal capital structure is a key consideration for banks to enhance their profitability and maintain financial stability. A well-balanced capital structure, with an appropriate mix of debt and equity, is expected to have a positive impact on profitability by enhancing the bank's stability and ability to absorb losses.

This study attempts to investigate the impact of capital structure, loan to deposit, firm size and asset tangibility on the profitability of Nepalese commercial banks. The study is based on secondary data of 13 commercial banks with 104 observations for the period from 2013/14 to 2020/21.

The study showed that debt to equity ratio and debt to asset ratio have positive impact on return on assets, return on equity and earnings per share of commercial banks of Nepal. Similarly, capital adequacy ratio and firm size have positive impact on return on assets and return on equity. However, asset tangibility and loan to deposit ratio have negative impact on return on assets, return on equity and earnings per share of Nepalese commercial banks. The study concluded that commercial banks with higher debt ratios tend to have higher ROEs. This is because debt is a cheaper source of capital than equity, so using more debt to finance a bank's assets can increase the bank's profits. The study concluded that capital adequacy ratio is the most influencing factor that explains the changes in return on assets in context of Nepalese commercial banks. The study also concluded that debt to equity ratio is the most influencing factor that explains the changes in the return on equity and earnings per share of Nepalese commercial banks.

## References

Abor, J., 2005. The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance* 6(5), 438-445.

Adhikari, P. R., 2021. Efficiency, profitability and stability of Nepalese commercial banks. *The Batuk* 7(2), 15-36.

Alzoubi, T., 2018. Determinants of bank profitability: Islamic versus conventional banks. *Banks and Bank Systems* 13(3), 106-113.

Avci, E., 2016. Capital structure and firm performance. An application on manufacturing industry. *Journal of Economic and Administrative Sciences*

1(2), 15- 30.

Begum, H., M. M. Rashid, M. S. Haque, and M. M. Uddin, 2022. Effect of liquidity on profitability of banks using revisited panel data analysis: Does Ownership structure matter? *International Journal of Asian Social Science* 12(6), 205-216.

Bhatt, S., and N. Verghese, 2018. Influence of Liquidity on Profitability: Evidence from Nepalese Banks. *International Journal of Multidisciplinary and Current Research* 6(5), 1085-1090.

Bikker, J.A. and H. Hu, 2002. Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the New Basel Capital Requirements. *BNL Quarterly Review* 22(1), 143-175.

Chadha, S., and A. K. Sharma, 2016. Capital structure and firm performance: Empirical evidence from India. *Vision* 19(4), 295–302.

DeYoung, R., and T. Rice, 2004. How do banks make money? The fallacies of fee income. *Economic Perspectives-Federal Reserve Bank of Chicago* 28(4), 34-51.

Dodoo, R. N. A., M. Kumi, and T. Mangudhla, 2023. The effect of capital structure on firm performance: empirical evidence from emerging economy. *EuroMed Journal of Management* 5(1), 83-99.

Endri, E., A. M Ridho, E. Marlapa, and H. Susanto, 2021. Capital structure and profitability: Evidence from mining companies in Indonesia. *Montenegrin Journal of Economics* 17(4), 135-146.

Eriotis, N., D. Vasiliou, and Z. Ventoura-Neokosmidi, 2007. How firm characteristics affect capital structure: An empirical study. *Managerial Finance* 33(5), 321-331.

Fama, E. F., and K. R. French, 1998. Taxes, financing decisions, and firm value. *Journal of Finance* 53(1), 819-843.

Farkasdi, S., B. Septiawan, and E. S. Alghifari, 2021. Determinants of commercial banks profitability: Evidence from Germany. *Jurnal Riset Akuntansi Kontemporer* 13(2), 82-88.

Farooq, M., S. Khan, A. Siddiqui, M. Khan, and M. Khan, 2021. Determinants of profitability: A case of commercial banks in Pakistan. *Humanities and Social Sciences Reviews* 9(1), 1-13.

Fisseha, F. L., 2015. Meta-analysis on the determinants of commercial bank's profitability: A conceptual framework and modeling. *European Scientific Journal* 11(19), 323-351.

Gautam, R., 2018. Impacts of non-performing loans on profitability of Nepalese

commercial banks. *National Journal of Arts, Commerce and Science Research Review* 1(5), 59-64.

Gill, A., N. Biger, and N. Mathur, 2011. The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management* 28(4), 3-15.

Goddard, J., P. Molyneux, and J.O.S. Wilson, 2004. Dynamics of growth and profitability in banking. *Journal of Money, Credit and Banking* 36(1), 1069-1090.

Hadlock, C. J., and C. M. James, 2002. Do banks provide financial slack? *Journal of Finance* 57(1), 1383-1420.

Hafidh, H. A., 2022. Examining the effect of capital structure on the banks' performance in Tanzania: A case commercial banks operating in Zanzibar. *International Journal of Management and Economics* 4(1), 24-32.

Hakuduwal, K., 2021. Impact of bank specific factors on profitability of Nepalese commercial banks. *Tribhuvan University Journal* 36(01), 122-133.

Hifza, M., 2011. Determinants of insurance companies' profitability in Pakistan. *Journal of International Academic Research* 1(3), 315–320.

Ibrahim. S. S., 2017. The impact of liquidity on profitability in banking sector of Iraq: A case of Iraqi commercial banks. *Journal of Finance and Banking studies* 6(1), 113-121.

Irawati, N., A. Maksum, I. Sadalia, and I. Muda, 2019. Financial performance of Indonesian's banking industry: The role of good corporate governance, capital adequacy ratio, non-performing loan and size. *International Journal of Scientific and Technology Research* 8(4), 22-26.

Isayas, Y. N., 2022. Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. *Cogent Economics and Finance* 10(1), 1-15.

Juwita, S., P. D. J. Raga, F. I. Prasetyo, and E. Rimawan, 2018. Effect of CAR (capital adequacy ratio), BOPO (operational costs on operational revenues) and LDR (loan to deposit ratio) to ROA (return on assets) PD Bank Pasar Bogor City. *International Journal of Innovative Science and Research Technology* 3(6), 305-309.

Kester, W. C., 1986. Capital and ownership structure: A comparison of United States and Japanese manufacturing corporations. *Financial Management* 15(1), 5-16.

Khalid, S., A. Ali, M. Q. Baloch, and N. Ali, 2014. Analysis of the impact of leverage on various measures of corporate performance, using Arellano and Bond dynamic panel data estimation technique. *Journal of Social Sciences* 7(1), 1-10.

Koju, L., R. Koju, and S. Wang, 2018. Macroeconomic and bank-specific determinants of non-performing loans: Evidence from Nepalese banking system. *Journal of Central Banking Theory and Practice* 7(3), 111-138.

Kumar, V., S. Acharya, and L. T. Ho, 2020. Does monetary policy influence the profitability of banks in New Zealand? *International Journal of Financial Studies* 8(2), 35-52.

Manullang, A. E. A., D. Togatorop, P. R. D. Purba, E.A.Y. Manik, E. N. Simorangkir, and R. K. Lase, 2020. The significance of accounts receivable turnover, debt to equity ratio, current ratio to the probability of manufacturing companies. *International Journal of Social Science and Business* 4(3), 464-471.

Meng, W. J., and G. S. Ugut, 2022. Analysis of the commercial bank performance in Indonesia and China. *KINERJA* 26(1), 47-64.

Mohanty, B. K., and R. Krishnankutty, 2018. Determinants of profitability in Indian banks in the changing scenario. *International Journal of Economics and Financial Issues* 8(3), 235-240.

Mudanya, L. E., and W. Muturi, 2018. Effects of financial risk on profitability of commercial banks listed in the Nairobi Securities Exchange. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)* 2(1), 75-93.

Musah, A., 2018. The impact of capital structure on profitability of commercial banks in Ghana. *Asian Journal of Economic Modelling* 6(1), 21-36.

Myers, S. C., and N. S. Majluf, 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13(2), 187-221.

Nahar, F. H., C. Faza, and M. Azizurrohman, 2020. Macroeconomic analysis and financial ratios on Sharia commercial bank profitability: A case study of Indonesia. *Journal of Islamic Economics, Finance, and Banking* 3(1), 37-50.

Nasimi, A. N., 2016. Effect of capital structure on firm profitability (Empirical evidence from London, UK). *Global Journal of Management and Business Research* 16(4), 9–19.

Naveed, A., A. Zulfqar, and O. Ishfaq, 2010. Determinants of capital structure; A case of life insurance sector of Pakistan. *European Journal of Economics, Finance and Administrative Sciences* 7(28), 83–104.

Rahim, A., M. M. Khan, W. Iftikhar, S. Ashraf, and S. Mehmood, 2021. An Implication of signaling theory to examine impacts of financial leverage on firm performance: A study of Islamic Banks in Asian region. *Psychology*

*Education* 58(2), 6700-6721.

Saeed, R. B. A., and R. Badar, 2013. Impact of capital structure on performance empirical evidence from sugar sector of Pakistan. *European Journal of Business and Management* 5(5), 78-86.

Salim, B. F. A., and Z. O. Bilal, 2016. The impact of liquidity management on financial performance in Omani banking sector. *International Journal of Applied Business and Economic Research* 14(1), 545-565.

Singh, N. P., and M. Bagga, 2019. The effect of capital structure on profitability: An empirical panel data study. *Jindal Journal of Business Research* 8(1), 65-77.

Sunaryo, D., 2020. The effect of capital adequacy ratio (CAR), net interest margin (NIM), non-performing loan (NPL), and loan to deposit ratio (LDR) against return on asset (ROA) in general banks in Southeast Asia. *Ilomata International Journal of Management* 1(4), 149-158.

Tailab, M. M. K., 2014. The effect of capital structure on profitability of energy American firms. *International Journal of Business and Management Invention* 3(12), 54–61.

Vellanita, A., I. G. Arimbawa, and E. Damayanti, 2019. Relationship between non-performing loans (NPL), capital adequacy ratio (CAR), loan to deposit ratio (LDR) towards return on equity (roe) at pt. bank central Asia. *Journal of World Conference (JWC)* 1(2), 211-216.

Widyastuti, U., E. D. Purwana, and S. Zulaihati, 2017. Internal determinants of commercial bank profitability in Indonesia. *Mediterranean Journal of Social Sciences* 8(3), 219-221.

Wuave, T., H. Yua, and P. M. Yua, 2020. Effect of liquidity management on the financial performance of banks in Nigeria. *European Journal of Business and Innovation Research* 8(4), 30-44.

Yigermal, M. E., 2017. The determinants of private commercial banks profitability: In the case of selected Ethiopian private banks. *International Journal of Economic Behavior and Organization* 5(1), 25-35.