

## **An Empirical Investigation of the Impact of Bank Lottery Prizes on Bank Performances**

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### **ABSTRACT**

The aim of this study is to empirically investigate the role of lottery prizes, as a depositor marketing tool, on the performance of Jordanian commercial banks. It is of high interest for academics and specialists in finance and marketing as well as investors, to study the implications of lottery prizes on the general performance of banks, measured by the net interest margin and return on assets. Thirteen Commercial banks in Jordan were enrolled in this study between the years 2000-2016. The results of this study show that lottery prizes had a positive impact on the performance of banks, whereas bank efficiency was negatively affected by lottery prizes during the period under investigation. The study concluded that customers are paying the extra cost of lottery prizes provided by banks in the form of increased net interest margin.

**Keywords:** Lottery prizes, Performance, Net Interest Margin, Return on Asset, Banking Marketing.

### **INTRODUCTION**

Economic growth is one of the main aims of any economic system. Economists in their theories highlighted what is beneficial for economic growth. They suggest that banks, equity markets and bond markets are efficient financial systems that facilitate capital to its most productive uses. Moreover, the main role of financial sector development regarding growth is to convert from mobilizing savings to participating in raising economy wide productivity (Estrada et al., 2010). Various economic studies have acknowledged the role of the financial sector in economy. King and Levine (1993) stated that economic growth is affected by financial development since it improves the efficiency of investment through project selection, innovation and entrepreneurial growth.

Financial development has been reported throughout literature to have a positive role in the areas of banking systems and stock markets. Many empirical papers investigated the determinants of bank net interest margin, bank profitability, bank capital, bank credit and competitiveness, Yaseen et al. (2015) further contributed to this by stating that several studies have been undertaken to examine the possible impact of foreign banks may have on the performance of local banks.

Two of the most widely researched topics in banking literature include profitability and bank net interest margin. According to different studies examining these factors and covering banks in a large number of countries, banks operating in developing countries are more profitable and have better net interest margin compared to developed countries (Demirguc-Kunt and Huizinga, 2001). Several studies later emerged focusing on bank performance based on country in which the bank operates in (e.g. Gurbuz et al., 2013; Ally, 2013; Helhel, 2014). Arab banks have been featured in many of these studies including Mensi (2010), Ghazouni and Mhiri (2013) and Yaseen et al., (2015). For example, Yaseen et al. (2015) examined 17 banks (5 of

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which were non-Jordanian) in an effort to examine the impact of foreign banks entry on the net interest margin and competitiveness in the banking sector of Jordan. The researchers concluded that “*while the overall mean cost of financial intermediation in Jordan is similar to that which prevails in other countries, it is reported that, opposite to expectations, foreign banks in Jordan have not resulted in a decrease in the cost of financial intermediation (net interest margin)...following the entry of foreign banks, the competitive conditions in the Jordanian banking system have not witnessed any significant change and remains, as has been, monopolistic competition*” (Yaseen et al., 2015).

Another study applied by Omet et al. (2015) explored the effect of foreign exchange deposits on bank credits, the net interest margin, and the performance of banks in the Jordanian banking sector. They reached a similar conclusion to that of Yaseen et al.(2015) that foreign deposits had no influence on banks credits but did affect both performance and net interest margin in a positive way.

In addition, the study of Ajlouni in 2007 investigated the impact of the different marketing concepts on the performance of the Jordanian Banks in March and April. He used the interview methodology in order to figure out the most influencing marketing method that affect the performance of Banks. His study concluded that the managers of the different Jordanian Banks should pay more attention to the marketing tools and this can affect their performance positively.

It is worth noting that after thorough research it was found that the Jordanian banking sector is anomalous in distributing lottery (cash) prizes to its depositors in six banks. Given that this issue is present in 6 banks out of the 13 listed Jordanian banks, makes it an interesting area of research both for academics and bank managers. Specifically, academics from a finance and marketing management background would benefit from examining the impact of this marketing tool on the overall performance (return on assets) and efficiency (net

interest margin) of different banks.

The rest of the paper includes; Section 2 discusses the data and methodology used in this study. Section 3 presents the results and provides a brief discussion. Section 4 includes a summary and an overall conclusion for the study.

## 1- Data and Methodology:

### Sample Used:

The sample that was chosen for this study consisted of thirteen commercial banks (The banks that offered lottery prizes as a promotional strategy) from the overall twenty-six commercial banks in Jordan. Three Islamic banks, eight foreign bank branches, and one foreign Islamic bank branch were not included in the sample, as these banks do not offer cash prizes, and instead undertake other business activities. So, they are heterogeneous with the selected sample.

### Model and Hypothesis:

The literature used the following model in order to investigate the impact of prizes on the performance of banks:

$$Y_{i,t} = \alpha_i + X_{i,t} \beta + \varepsilon_{i,t} \quad i = 1, \dots, n, t = 1, \dots, t \quad (1)$$

$Y_{i,t}$  : net interest margin (interest income minus interest expense divided by total assets) of bank  $i$  at time  $t$ , or profit before tax to total assets.

$\beta$ : The coefficients of the different explanatory variables.

$X_{i,t}$  : represents the vector 1 of  $x$  explanatory variables.

$\varepsilon_{i,t}$  is the disturbance term.

The vector of bank characteristics includes measures like bank size, bank capital, and operational efficiency. In addition, both real Gross Domestic Product (GDP) growth rate and inflation rate are included in the estimated models. This study used two models to measure the effect of lottery prizes as a promotional strategy on bank performance and efficiency.

$$ROA_{i,t} = \beta_0 + \beta_1 Lottery_i + \beta_2 COM_{i,t} + \beta_3 Size_{i,t} + \beta_4 Expense_{i,t} + \beta_5 Capital_{i,t} + \beta_6 INF_t + \beta_7 Loans_{i,t} + \beta_8 Growth_t + \varepsilon_{i,t} \quad (2)$$

$$NIM_{i,t} = \beta_0 + \beta_1 Lottery_i + \beta_2 COM_{i,t} + \beta_3 Size_{i,t} + \beta_4 Expense_{i,t} + \beta_5 Capital_{i,t} + \beta_6 INF_t + \beta_7 Loans_{i,t} + \beta_8 Growth_t + \varepsilon_{i,t} \quad (3)$$

(i) represents the bank (i = 1, 2, 3, ..., n)

(t) represents the time (t = 1, 2, 3, ..., t)

The Dependent Variables include: NIM (Net Interest Margin) which is equal to (Interest Income – Interest Expense) divided by total assets. And ROA (Return on Assets) which is equal to income before taxes divided by total assets.

The Independent Variables include: bank-specific variables and the macroeconomic environment. They are obtained from the logarithm of net noninterest income to total asset (COM), real GDP growth rate (Growth), total credit (Loans), inflation rate (INF), the natural logarithm of total assets (Size), equity capital to total assets (Capital), and total operating expenses to total assets (Expense). Also, the study adds a dummy variable which is (Lottery) it has two values either zero if the bank does not offer cash prize or one if the bank does offer cash prizes.

Based on the previous studies there are two main assumptions:

H<sub>1</sub>: There is a significant positive impact of lottery prizes on bank profitability (Return on asset)

H<sub>2</sub>: There is a significant positive impact of lottery prizes on bank efficiency (Net Interest Margin).

## 2- Statistical Analysis

The best Method to estimate the two models is the Period Seemingly Unrelated Regression (SUR) rather than Estimated Generalized Least Squares (EGLS); because this method is valid for either arbitrary period serial correlation or period heteroscedasticity between the residuals for a given cross-section. The statistical analysis is performed through two phases; the first one is obtaining the residuals

and using them to make an estimate.

The second phase is estimating adequate GLS specification. In addition, other statistical measurements like covariance and the standard error are computed using (panel-corrected) cross section weights (PCSE) to get a strong estimate of the cross-section residual (contemporaneous) covariance matrix.

## Results and Analysis

Tables 1 and 2, represent the mean values of the dependent variables in addition to the descriptive statistics of all the variables during the period 2000-2016. Based on these tables, some comments can be made including the following:

**Table 1: Descriptive Statistics of the Annual Cumulative Data of the Sample Banks during the Years (2000-2016)**

Year	ROA	NIM	Year	ROA	NIM
2000	0.0050	0.0210	2008	0.0217	0.0320
2001	0.0060	0.0212	2009	0.0169	0.0293
2002	0.0067	0.0232	2010	0.0187	0.0319
2003	0.0120	0.0253	2011	0.0157	0.0310
2004	0.0192	0.0237	2012	0.0175	0.0321
2005	0.0344	0.0261	2013	0.0180	0.0320
2006	0.0249	0.0287	2014	0.0200	0.0345
2007	0.0213	0.0282	2015	0.0210	0.0360
			2016	0.0224	0.0351
Mean (ROA)		0.0174	S.D (ROA)		0.0638
Mean (NIM)		0.0284	S.D (NIM)		0.1036

First, during the period (2000-2016), bank profitability reflected less annual fluctuations than NIM as can be seen in table 1. When the global crisis occurred in 2008 the ROA decreased from 2.17 percent to 1.69 percent and that reveals the decline in the net interest margin which dropped from 3.2 percent to 2.93 percent.

**Table 2: Descriptive Statistics of the Cumulative Data of the Sample Banks/Years during the Years (2000-2016)**

Variable	Mean	Median	Maximum	Minimum	S.D
ROA	0.019	0.095	0.07	-0.03	0.02
NIM	0.031	0.032	0.045	0.006	0.01
Size	21.705	20.990	22.90	18.80	1.35
COM	0.008	0.007	0.02	0.001	0.001
Capital	0.08	0.009	0.35	0.001	0.05
Exp	0.03	0.03	0.08	0.009	0.01
Loans	0.490	0.495	0.75	0.150	0.08
INF	0.04	0.04	0.145	-0.005	0.04
Growth	0.06	0.059	0.08	0.02	0.02

Second, the Standard deviation (S.D) of the bank size is 1.35 which is the largest variation of the different variables as seen in table 2, this means that the Jordanian banks varies in size. Shehzad et al., (2013) measured the relationship between size, growth and profitability of banks and found that larger banks tend to have higher profit than smaller ones since they can diversify their investments better because of the better cash availability and easy access to the market. In addition, Soumandi and Aldaibat, (2012) measured the relationship between

bank growth and bank profitability and found that bank growth as measured by assets was correlated with bank profitability as measured by ROA. The last point to be noted is that the less variation in our sample is in net interest margin variable (NIM) and this means that most of the banks in Jordan produce the same spread in interest. In other words, all banks almost apply approximately the same interest on loans and pay the same interest on deposits, and this can be referred to the application of the central bank of Jordan policies.

**Table 3: The Results of Seemingly Unrelated Regression of the Impact of Lottery Prizes on Bank Performance**

Variables	ROA		NIM	
	Coefficient	Coefficient	Coefficient	Coefficient
Lottery	0.004*	0.004*	0.005*	0.006*
SIZE	0.0001*	0.0002*	0.0001*	0.0007*
COM	0.590	0.610	-0.06	-0.05
Capital	0.002	-0.005	-0.05	-0.09
Expense	-0.580*	-0.490*	0.185*	0.179*
Loans	0.03*	0.029*	0.04*	0.038*
INF	-	-0.004*	-	0.035*
Growth	-	0.075	-	-0.045
Adjusted $R^2$	0.850	0.0880	0.810	0.905
F-Statistic	235*	275*	350*	410*
D-W Statistic	1.851	1.890	1.985	1.990

\*, \*\*, and \*\*\* indicate significance at the 1, 5, and 10 percent levels, respectively.

Table 3 shows the results of the models associated with ROA and NIM respectively. The positive sign of the Lottery variable coefficient indicates that when banks distribute cash prizes they would have better profitability and better efficiency. The signs and significance of most other variables are as expected in the previous literature; for example the bank profitability is negatively affected by the operating expense and this justified that the higher the expenses the lower the net income. Whereas the net interest margin is positively affected by the operating expenses, and this could imply that less efficient banks pass on their “extra” expenses to their customers compared to other banks.

The COM variable has a positive significant impact on banks profitability and that measures how banks can convert and distribute their income to perform better in the market. In other words, the higher the noninterest margin the more profitable the bank is simply because they have more customer base or they charge more on their operations and services (Al Tarawneh et.al., 2017). The total loans to total deposits ratio is significantly positive which means that as the credit risks increase, the bank profitability and interest margin increase mutually. Finally the macroeconomic factors (Growth and Inflation) do affect the local banks’ performance; as shown above the real economic growth as a positive

effect on bank profitability and negative effect on the net interest margin. On the other hand, the banks’ profitability is not affected by the rates of inflation, but the interest margin is negatively affected. This result can be attributed to the major policies applied by the central bank of Jordan and all banks that operate in Jordan are obliged to follow.

### 3- Summary and Conclusion

Banks increase their customers’ satisfaction and loyalty, by providing them with many offerings such as prizes throughout the year. This paper selected the banks that offer lottery cash prizes to their customers as a promotional strategy in order to examine the effect of lottery prizes on the profitability and net interest margin on banks performance during the period of 2000-2016 for 13 banks. The results showed that profits increase with banks that offer lottery prizes for their customers because of their wide net interest margin. Generally, the additional cost of the prizes is passed on to the concerned customers. If net interest margin is the tool of efficiency measurement rather than the Return on Assets, then offering prizes should be considered as a bad practice that must be abandoned by monetary policies adopted by the central bank of Jordan.

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## دراسة تطبيقية لآثر جوائز اليانصيب المصرفية على أداء البنوك

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### ملخص

الهدف من هذه الدراسة هو التحري التجريبي لدور جوائز اليانصيب، كأداة تسويقية لزيادة اعداد المودعين، على أداء البنوك التجارية الأردنية. يعتبر هذا الموضوع ذو أهمية بالغة للأكاديميين والمتخصصين في المالية والتسويق وكذلك المستثمرين، لدراسة الآثار المترتبة لجوائز اليانصيب على الأداء العام للبنوك، تقاس بهامش صافي الفائدة والعائد على الأصول. تم جمع المعلومات المالية لثلاثة عشر مصرفاً تجارياً في الأردن في هذه الدراسة خلال السنوات 2000 - 2016. وأظهرت نتائج هذه الدراسة أن لجوائز اليانصيب تأثير إيجابي على أداء البنوك، في حين تأثرت كفاءة البنوك بشكل سلبي بجوائز اليانصيب. وخلصت الدراسة إلى أن العملاء يدفعون التكلفة الإضافية لجوائز اليانصيب التي تقدمها البنوك، على شكل زيادة هامش صافي الفائدة.

**الكلمات الدالة:** جوائز اليانصيب، أداء البنوك، هامش صافي الفائدة، العائد على الأصول، التسويق المصرفي.

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