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The impact of efficiency on discretionary loans/finance loss provision: A comparative study of Islamic and conventional banks ☆

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Abstract

The paper investigates whether there is a significance difference between the practices of discretionary loan/finance loss provisions between Islamic and conventional banks. Same time, the paper tests whether the efficiency may influence the behaviour of discretionary loans/finance loss provisions, taken into consideration other micro and macro variables. The study utilizes panel data runs over 1996–2011 with unbalanced observations for 16 banks, of which 4 Islamic banks. In order to achieve research objectives, the two-stage approach is adopted to examine the factors that may influence the behaviour of discretionary loan/finance loss provisions with specific emphasize on the efficiency. Furthermore, efficiency scores are estimated using Data Envelopment Windows Analysis. The findings of the research show that Islamic banks employ the discretionary loans/finance loss provisions to manage their earnings. However, the magnitude of discretion of accruals is significantly lower than conventional banks with exception for foreign banks which have reported lower discretionary loans/finance loss provisions than Islamic banks. Moreover, the analysis showed that efficiency affects the overall discretionary loans/finance loss provision positively, although this impact is shaped differently for Islamic and conventional banks.

JELs classification: G2; P4

Keywords: Loan loss provisions; Islamic banks; Conventional banks; Efficiency; Yemen

1. Introduction

The issue of earnings management has received attention from practitioners and academicians for few decades in banking sector. It is evident that bank managers practice the discretion in estimating loan/finance loss provisions for various motives such as reducing earnings variability (Agarwal, Chomsisengphet, Liu, & Rhee, 2007; Kanagaretnam, 2004; Kim & Kross, 1998; Niswander & Swanson, 2000; Shrieves & Dahl, 2003). However, large body of literature have been conducted in the conventional banks and only few studies have focused on Islamic banks, for instance, Zoubi and Al-Khazali (2007) and Othman and Mersni (2014).

The significance of examining the issue in the context of Islamic banks stems from the fact that Islamic banks should not manage their earnings as conventional banks. This is because the underlying theoretical basis of Islamic banks is different from conventional banks. Islamic banks are based on *Shari'ah* principles, which constitute the linchpin of practices of Islamic banks. For example, Imam and Kpodar (2013) concluded that in the determination of Islamic bank expansion around the world, the interest rates were found to have a negative impact on banking selection, and the quality of institutions was not found to be a significant determinant. In such a way, Islamic banks must abide by the moral values of *Shari'ah* in all aspects including the business practices (Hamdi & Zarai, 2012). Therefore, it is important to underscore that the practices of earnings

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management in Islamic banking should not follow the same pattern as that of conventional banks. It would be of grave concern in Islamic banks given their ethical content and identity. In this regard, the Islamic banks should be more aware and reluctant than other organizations including conventional banks to earnings management activities, regardless of the fact that earnings management or manipulation is carried out through sound accounting practices and within the generally accepted accounting principles (GAAP). Islamic banks need to abide by their laws in all aspects and hence earnings management practices are deemed unethical as they tend to present a distorted picture.

Looking at the issue in depth and given the principles and the structure of Islamic banks, one of the unique characteristics of Islamic finance and Islamic banks is the observation of ethical values and *Shari'ah* constrains in their day-to-day operation (Saiti, Bacha, & Masih, 2014). Ethical and moral considerations should be followed in their substance (Hamdi & Zarai, 2012). As the earning management definition proposed by Healy and Wahlen (1999) represents an attempt at modifying financial numbers so as to either (i) mislead some stakeholders or (ii) influence contractual outcomes, it is very clear that both incentives are loaded with the concept of opportunistic behaviour, which is prohibited in Islam. This behaviour is condemned in Islam and there is an established code of ethics to be followed in all matters of conducting trade and business. According to Hamdi and Zarai (2013) Islamic banks should abide by and adopt the ethical codes in their strategic choices of products and services, how to deliver these products and services, how to finance their businesses, how to manage their day-to-day business practices and in what way they should be accountable to their stakeholders. Keeping high ethical values of business should be a priority for Islamic banks. Islamic banks executives are supposed to demonstrate high values which will not allow them to hide business practices that are not sync with *Shari'ah*. Therefore, with best business practices and high standards of morality, Islamic banks will refrain from manipulating their results through opportunistic earnings management or discretionary loan/finance loss provisions. Hamdi and Zarai (2013) have argued that Islamic banks should behave ethically and be free from manipulations out of sync with Islamic ethical values that prohibit harm to others from any kind of injustice, which includes disclosures of unfair and unreliable information in the annual reports.

Adopting the Discretionary Loan/Finance Loss Provisions (DLLP) as a measure of earning management, this paper, therefore, aims to examine the earnings management practices of Islamic banks in Yemen in a comparative fashion with conventional banks; and to investigate whether the efficiency may shape the managers opportunistic behaviour to use DLLP to alter the earnings in Yemeni banking sector. Arguably, earnings management is more important for less efficient firms. Bank managers are always subject to huge reputational and regulatory pressures to ensure stable earnings. In most cases, bonuses and incomes are linked to performance targets. As such, managers have incentives to ensure stable earnings. Earnings lower than previous years would reflect poorly on the management, which motivates them to manage bank earnings (Farook, Hasan and Clinch, 2014).

Our study contributes to the literature in the field of earnings management in Islamic banking. Specifically, this study use DLLP as proxy for earnings management rather than focussing on the overall LLP. Furthermore, this study compares the DLLP of Islamic and conventional banks for the specific case of Yemen, which remained unexplored. Besides, the study links the DLLP with efficiency rather than using traditional performance measures. To our best of knowledge, this study represents the first pioneer effort at examining the impact of efficiency on earnings quality in the context of Yemen using an objective measure of performance, compared to subjective and average traditional performance measures. Despite the extensive literature examining the earnings management and performance, the literature investigating the efficiency measures and earnings management remains scarce and this study aims to fill the void gap. The uniqueness of this method over traditional performance measures, such as Return on Assets (ROA) or Return on Equity (ROE) lies in its objectivity. Efficiency frontier methods are more objective than the financial ratios commonly used in financial analysis because these ratios only assess the average performance, whereas the efficient frontier method measures the distance of each observation relative to a target (Guillén, Rengifo, & Ozsoz, 2014). Therefore, we argue that drawing a conclusion on the link between performance and earnings quality based on this method is superior to that based on traditional methods. Moreover, using DLLPs as a proxy for earning quality rather than LLP as an aggregate measure provide better assessment for the discretionary part of accruals that depends on the managers and not the business activities. As this portion subjects to discretions and could be altered based on the results of operations.

Using a data of 16 banks in Yemen over the period 1996–2011, the results indicate that Islamic banks are not abiding by *Shari'ah* law in their operations as they tend to use discretion to manipulate their earnings in similar way with conventional banks. However, the magnitude of earnings management in Islamic banks is significantly lower than conventional banks with exception of foreign conventional banks.

The remainder of the paper is structured as follow: Efficiency and DLLP theoretical relationship is discussed in Section 2. Section 3 presents literature review and hypotheses development. Data and methodology are discussed in Section 4. The findings of research are reported in Section 5. Section 6 concludes the paper.

2. Efficiency and DLLP: theoretical relationship

As a measure of performance, efficiency may have an impact on loan/finance loss provision and in particular DLLP. The authors believe that efficiency is a better measure for the performance of banks compared to averaging method such as ROA and ROE. Previous studies have found a link between the earnings quality and traditional performance measures such as Return on Assets (ROA). However, some banks perform better than others. This is an indisputable fact, but how do we actually recognize a high performing bank? Can one consider a very

profitable bank a high performer or more efficient and vice versa? In this context, the efficiency frontier measures the deviation of a company's performance relative to that of the most successful bank. The main advantage of the efficiency frontier with respect to other performance indicators is that it is an objective quantitative measure.

With respect to relationship between DLLPs and efficiency, it can be argued that there is a theoretical relationship between efficiency and DLLP arising from the fact that subpar managers do not sufficiently monitor and control their operation which is reflected in low measured cost efficiency as a signal of poor managerial performance, in turn, affects loan granting behaviour (Berger and DeYoung, 1997). Indeed, poor managers do not adequately monitor loan portfolio management, owing to either poor loan evaluation skills or inadequate allocation of resources for loan monitoring activities. This results in a greater volume of non-performing loans. All these lend support to the hypothesis that lower efficiency would contribute to non-performing loans, requiring higher level of loan loss provision, which consequently, would lead to lower earnings. Thus, the manager would be motivated to boost their earnings by exercising their discretion over LLP in order to reduce the impact on earnings and try, among others, to influence contractual outcomes of bonus plans, debt covenants, and political costs.

Bank managers with poor skills in credit scoring tend to go for choose a relatively high proportion of loans/finance with low or negative net present values (Berger and DeYoung, 1997). They may also be less than fully competent in appraising the value of collateral pledged against the loans, and have difficulty in monitoring and controlling the borrowers after loans are issued to ensure that covenants are obeyed. Poor underwriting and monitoring practices would lead to more non-performing loans with moaning delinquencies. Thus, under the bad management hypothesis, low cost-efficiency is expected to occur due to above-mentioned reasons, all of which would badly affect the performance in term of earnings, creating incentives for managers to resort to earnings management practices to overcome and hide reduced earnings. This logic makes considerable sense in the context of Yemen where non-performing loans are on the rise, especially for conventional banks. This requires high loan loss provision to face such high expected loss and, in turn, the managers of banks with high non-performing loans ratio would tend to exercise their discretion over loan loss provision in order to hide the impact of high loan loss provision on earnings and to reduce the perceived credit risk. Furthermore, the bad management hypothesis may apply to Yemen in other context, where the loans granting behaviour, to some extent, depends more on relationship rather than creditworthiness. This also may occur as banks are mostly family businesses and hence they prefer to grant loans or financing to their related businesses.

3. Literature review and hypotheses development

Several studies have investigated the earnings management in the banking sector and managers' use of discretion in estimating loan loss provisions to reduce earnings variability (Agarwal et al., 2007; Kanagaretnam, 2004; Kim & Kross, 1998; Niswander & Swanson, 2000; Shrieves & Dahl, 2003). They find that banks with relatively high pre-managed earnings have positive DLLPs and banks with relatively low pre-managed earnings have negative DLLPs, consistently with the hypothesis that earnings management helps to reduce earnings variability. In addition, they find that bank managers' decisions to reduce earnings variability are related to the need for external financing and gains and losses on the sale of securities which serve as substitutes for accomplishing their objective of earnings variability reduction.

Ahmed, Takeda, & Thomas (1999) provide strong support for the hypothesis that loan loss provisions are used for earnings management and discovered that a positive relationship exists between earnings before taxes and loan loss provisions (EBTP) and loan loss provisions. However, contrary to their expectations, they reveal that there is no significance relationship between earnings and loan loss provisions. Beatty, Ke, and Petroni (2002) also evidently show that managers have incentives to smoothe earnings. In particular, when earnings are expected to be low, loan loss provisions are deliberately understated to mitigate the adverse effects of other factors on earnings. Likewise, Niswander and Swanson (2000), using call report data, examined whether the discretionary portion of loan loss provisions is influenced by the banks' level of capital, earnings, and taxes. In a sample of 11,000 banks, they indicate that banks below the capital adequacy threshold often make discretionary choices that reduce earnings and capital. Banks above the threshold exhibit different discretionary outcomes, with evidence of income-smoothing and tax-advantaged actions.

While the above studies deal with the issue of capital and earnings management in conventional banks, studies that look into the LLP in Islamic banks are scarce with only a few studies examining the issues in some Muslims countries. Zoubi and Al-Khazali (2007) investigated the factors that affect loss provisions for financing and investment in Mudharabah and Musharakah for banks in Gulf Cooperation Countries (GCC). The findings of the study reveals that managers of banks in the GCC region smoother earnings via loss provisions. The results also show that when return on assets before tax and loss provisions for a current year is higher than the previous year's return on assets, then management is expected to increase loss provisions for the current year. The results support the income smoothing hypothesis. A highly indicative and significant result is that the type of bank (Islamic or conventional) is not an important factor in the determination of the loan loss provisions. This means that Islamic banks follow the practices of conventional banks either in creating the financing loss provisions or in managing capital and earnings via financing loss provisions.

Similarly, Misman and Ahmed (2011) find a significance difference between the LLP of Islamic and conventional banks, however, both Islamic and conventional banks in Malaysia resort to earning management via LLP. Taktak, Zouari, & Boudriga (2010) find a contrast evidence showing that Islamic banks do not use LLP extensively. Ben Othman and Mersni (2014) examine the practices of DLLP by Islamic and

conventional banks in the Middle East and the findings show that Islamic banks use DLLP for smoothing and capital management in similar vein with conventional banks.

Despite the extensive literature examining the earnings management and performance, the literature investigating the efficiency measures and earnings management remains scarce. However, Naffati, Ben Fredj, and Schalck (2011) provide evidence that efficiency and earnings management were closely related. Higher banking performance corresponds to lower earnings management. Firms whose performance is close to the border have low earnings management because the deviation from the best performing firm is low. In contrast, a large gap encourages managers to carry out aggressive earnings management to improve performance and achieve the value realized by the most efficient firm.

3.1. Overall DLLP: Islamic vs. conventional banks

Watts & Zimmerman (1986) formulate PAT around management compensation, debt covenant and political violations. They hypothesize that managers try to influence contractual outcomes of bonus plan and the debt covenant, and reduce political costs by exercising judgement over accounting accruals. This applies to all firms including banks, and the literature provides evidence that conventional and Islamic banks resort to manipulation of earnings like other firms in various sectors. However, in the view of the authors, the level of discretionary accruals in conventional and Islamic banks may differ, as the ethical principles laid down by *Shari'ah* would understandably restrain Islamic banks from engaging in discretionary accruals as a way of altering earnings. Islamic banks are expected to behave more ethically as opportunistic behaviour is disallowed in Islam. Islamic banks should be ethical in all matters, including reporting aspects. Disclosures of unfair and unreliable information in the annual reports resemble opportunistic behaviours. Therefore, it is hypothesized that discretionary accruals are more prevalent among the conventional banks than in Islamic banks.

H1. Compared to conventional counterparts, Islamic banks are more likely to refrain from using DLLPs in managing their earnings.

With regards to influential factors on DLLP, the main factor proposed in this study is the efficiency. Based on various media reports, the Yemeni banking sector is performing poorly, which creates incentives for managers to use DLLP more aggressively to report good performance Neffati, Ben Fredj, & Schalck (2011) argued that the DLLP is more crucial for the inefficient than the efficient firms. This is because the inefficient banks are expected to report positive result and stabilize their earnings to avoid any public repercussion. This creates an incentive for managers to manage their earnings with higher DLLP (lower LLP) in order to maintain their reputation and reduce the regulatory pressures. Whenever the efficiency is not at the optimal level, the performance and earnings would be affected adversely. Earnings lower than previous years would reflect poorly on the management, which motivates them to manage bank earnings (Farook, Hasan and Clinch, 2014). However, this would apply to conventional banks and that the efficiency is less likely to lead Islamic banks to use their discretion over LLP in order to manage their earnings, given their *Shari'ah* constrains. Thus, the following hypothesis is formulated:

H2. In contrast to conventional banks, DLLPs of Islamic banks is not related to efficiency.

Apart from efficiency, this study utilizes additional variables to control for micro and macro economic factors. This includes capitalization, size, loan to deposits, type of auditor and GDP. The literature on conventional banks provides some evidences that conventional banks use DLLP to manage their capital. As an influential factor, capital is expected to be related negatively to DLLP. In the banking sector, equity capital is heavily regulated. Therefore, when banks experience low levels of capital relative to the regulatory standards required to be considered well-capitalized, managers have incentives to avoid writing off bad loans and to realize more securities gains in order to prop up capital levels (Cornett, McNutt, & Tehranian, 2009). Further, the executives can smoothen earnings downward intertemporally only when banks are considered well-capitalized. As such, the well-capitalised banks tend to report higher DLLP than the less capitalised banks. However, Islamic banks are expected to refrain from resorting to DLLP to manage their capital due to ethical dimensions laid down by *Shari'ah*. Thus, the following hypothesis is proposed.

H3. In contrast to conventional banks, Islamic banks are not likely to use DLLP for capital management.

With respect to size, larger banks are more likely to engage in discretionary accruals as they face more pressure than small banks, and they are more likely to use earnings management to reduce political scrutiny, as argued by Watts & Zimmerman (1986). In addition, when the banks are bigger in size, their capacity to bargain with auditors becomes stronger compared to the smaller banks (Kim, Liu and Rhee, 2003). Unlike conventional banks, Islamic banks may not pay attention to their values regardless of the political sensitivity of larger banks. Moreover, their bargain power with auditors is much more constrained by their values compared to conventional banks.

H4. Unlike conventional banks, the size of Islamic banks are less likely to be related to DLLPs.

Loan to deposit ratio (LD) is used in the literature as a proxy for external financing. If the ratio is high, the bank is in need of external financing and therefore, there is a tendency for the banks to report low DLLP so as to portray the low perceived credit risks and higher reported income in order to attract more deposit from the creditors and to give confidence to the depositors to channel their funds to the banks. DLLPs of conventional banks relate to LD negatively (Kanagaretnam, 2004; Kwak, Lee, & Eldridge, 2009). However, Islamic banks are anticipated to not alter their LLP as a response to the financing to deposits ratio (FD).

H5. Unlike conventional banks, DLLPs of Islamic banks is anticipated to be not related to FD ratio.

The role auditor in curbing earnings management also is very crucial. Prior studies provide evidence that reputable auditors have huge resources to perform auditing with due care. Arguably, the quality and reliability of financial reporting has much to do with the reputable international companies, as no single client is too important to larger accounting firms which are less likely to compromise their independence (DeAngelo, 1986). However, we propose that DLLP is less prevailed in banks whose auditors are among the international auditing companies. More importantly, the Islamic banks power to bargain with auditors is very restricted by *Shari'ah* law. Thus, the following relationship is anticipated:

H6. Unlike conventional banks, DLLPs of Islamic banks are anticipated to not be related with auditor type.

Fonseca & González (2008) advocated that the growth of real per capita GDP be included to control for the documented pro-cyclical effect of provisioning. The common view is that an economic upswing with rising incomes indicates improving conditions for firms with reduced likelihood of loan defaults, whereas a downturn or a recession will have the opposite effect. Banks are expected to reflect this feature in their decisions by lowering provisions during an economic boom and increasing them during a downturn. According to this cyclical behaviour, a negative coefficient for GDP in the loan loss provision equation is expected. Based on the above discussion, the following hypothesis is crafted:

H7. Overall DLLP of the whole banking sector in Yemen is expected to be negatively related to GDP.

4. Data and methodology

4.1. Data

The sample examined here consists of all banks operating in Yemen during the period of analysis (1996–2011). In total, there are 16 commercial banks operating in Yemen, of which four are Islamic banks. As the sample period envelops all commercial banks for the 1996–2011 periods with unbalanced observations, one would expect to have 230 observations for the entire period. However, after excluding the missing data, 221 observations were available for analysis. The data used in this study is obtained from the annual reports of the banks and the World Bank for the GDP.

4.2. Measurement of DLLP

Following previous literature, two-stage method for testing the discretionary accruals practices through DLLP is adopted (Kanagaretnam, 2004; Taktak et al., 2010). In the first step of first stage, the non-discretionary LLP (NDLLP) is estimated using the model in *equation (1)* so that the DLLP is isolated from the total LLP. Consistent with previous research, the change in non-performing loans ($CHNPL_{it}$), the beginning balance of non-performing loans (NPL_{it-1}), and change in total loans ($CHLOAN_{it}$) are used to estimate the non-discretionary component of LLP.

$$LLP_{it} = \alpha_0 + \beta_1 NPL_{it-1} + \beta_2 CHNPL_{it} + \beta_3 CHLOAN_{it} + \varepsilon_{it} \quad (1)$$

The NDLLPs represents the portion of total LLP dictated by changes in the business condition which cannot be controlled by managers. It is expected that the above variables are associated positively with LLPs. This is because higher non-performing loans will warrant higher loan loss provisions. Any positive changes in total loans may indicate the increase of uncollectable loans which ultimately leads to apportion of higher loan loss provisions to meet the expected losses. While the above equation estimates the non-discretionary portion of LLP, the DLLP is estimated as the residual in Equation (2). Using the estimated coefficients (β_1, β_2, β_3), the NDLLP is calculated as follows:

$$NDLLP_{it} = \alpha_0 + \beta_1 NPL_{it-1} + \beta_2 CHNPL_{it} + \beta_3 CHLOAN_{it} + \varepsilon_{it} \quad (2)$$

At the final step, the DLLP is calculated as the difference between total LLP and estimated NDLLP by the Equation (3).

$$DLLP_{it} = LLP - [\beta_1 NPL_{it-1} + \beta_2 CHNPL_{it} + \beta_3 CHLOAN_{it}] \quad (3)$$

4.3. Analytical tests

4.3.1Parametric and non-parametric tests

To compare DLLPs across banks, the test of difference is applied. Both parametric and non-parametric tests were undertaken to compare whether the DLLPs differ between Islamic and conventional banks.

4.3.2Regression estimation

This research adopts two-stage approach, where in the first stage, the DLLP is estimated and is used as dependent variable in the second stage to be regressed against influential variables in Equation (4). Table 1 shows that summary of the variables.

Panel data estimation with unbalanced data over 1996–2011 is used to examine the impact of efficiency and other determinants on DLLP in the Yemen banking sector in a comparative manner between Islamic and conventional banks. Validity test is used to select the appropriate statistical tests for the regression model among various panel techniques. Specifically, Breusch–Pagan Lagranges Multiplier (LM) is applied to choose between pooled OLS and random effects. Moreover, since the regression model contains dummy variable, which is fixed, it will be perfectly correlated with bank-specific effects. Accordingly, fixed effects cannot be employed, and the random effects are used against the pooled OLS. Therefore, if the null hypothesis

Table 1
Summary of the variables.

Variable	Name of the variable	Operationalisation
DLLPs	Discretionary Accruals proxy for earning quality	Estimated
TE (X-EFF)	Overall Efficiency	Ln (DEA Estimate)
CAP	Capital Ratio	Ln (Capital/Assets)
TA	Size of the Bank	Ln (Total assets)
LD	Loan to Deposits	Ln (Total loan/Total deposits)
GDP	Gross Domestic Product	GDP (IMF)
Auditor	Dummy Auditor	1 for big, 0 otherwise
Dummy Islamic	Dummy Islamic Banks	1 for Islamic, 0 otherwise

is rejected then it can be concluded that there is a significant random effects in the panel data and that the random effect model fits to deal with heterogeneity better than the pooled OLS (Dougherty, 2007). The following model is estimated:

$$DLLPs = \alpha + \beta 1TE + \beta 2CAP + \beta 3LD + \beta 4Size + \beta 5GDP + \beta 6\text{DummyIslamic} + \beta 7\text{DummyAuditor}\,\varepsilon \quad (4)$$

5. Empirical findings

5.1. Summary statistics

Using the panel data technique over the 1996–2011 periods, the coefficient parameters of first stage regression are calculated. Arising from Equation (1), Table 2 presents the mean coefficient estimate for *β1*, *β2*, *β3*. The model has a moderate explanatory power with an adjusted R^2 of 43.5%. As expected, the sign of non-performing (NPL) is positive and significant. The sign of change in non-performing loans (CNPL) is positive, but insignificant. This indicates that higher NPL and CNPL increase the level of LLP. However, the sign for loans is negative and insignificant which is not in line with the expectation. Overall, the model fit is significant at 1% level with an F value of 26.61.

Using the coefficient parameters for Beg. NPL, change in NPL and total loans, the process of evaluation of NDLLPs is conducted. In the last step, the difference between total LLPs and NDLLPs constitutes the portion of DLLP out of the total LLPs. Based on the results of the first stage analysis, the trends of DLLPs during the 1996–2011 period is reported in Table 3. Table 3 shows that overall DLLPs for the entire period stood at 1.2% out of total assets (5.6% out of total loans) which indicates that discretionary accruals activities loom very high in the Yemeni banking sector. Evidently, the percentage of DLLPs relative to its total assets or loans was on a rise from 1997 till 2001. A likely reason for that is the implementation of financial reforms with strict regulations, which motivated the banks to manipulate their earnings to avoid scrutiny. In addition, this period experienced declining efficiency, as shown in Fig. 1, and this could have motivated banks to engage in more earnings manipulation in order to show favourable results. Subsequently, DLLPs showed a downward trend over time, as can be seen in Table 3.

Further analysis is conducted in order to show the trend of DLLPs across different types of ownership. Table 4 and Fig. 2 show that overall DLLPs have been higher for conventional banks than for Islamic banks. This lends no supports for our argument that indicates the conservatism of Islamic banks to engage in discretionary accruals, given their ethical identity.

Table 2
Results of regression in stage one.

Variables	Coefficient estimate	(p-value)
Beg. NPL	0.166	(0.000)
ΔNPL	0.027	(0.525)
ΔTL	−0.003	(0.866)
F-statistic	26.61	
R^2 overall	0.435	

Table 3
Summary of DLLPs for 1997–2011.

Year	DLLPs % of total assets				DLLPs % of total loan			
	Mean	Max	Min	Std. Dev.	Mean	Max	Min	Std. Dev.
1997	0.012	0.013	0.066	−0.001	0.028	0.111	−0.004	0.034
1998	0.014	0.014	0.065	−0.005	0.036	0.124	−0.001	0.035
1999	0.022	0.022	0.086	−0.003	0.066	0.195	0.003	0.061
2000	0.021	0.021	0.114	−0.002	0.114	0.613	−0.006	0.168
2001	0.029	0.029	0.132	−0.001	0.154	0.561	0.004	0.185
2002	0.018	0.018	0.110	−0.001	0.110	0.567	−0.018	0.169
2003	0.006	0.006	0.026	−0.004	0.038	0.112	−0.010	0.043
2004	0.009	0.009	0.035	−0.010	0.043	0.110	0.003	0.034
2005	0.009	0.009	0.046	−0.007	0.030	0.092	0.001	0.029
2006	0.005	0.005	0.019	−0.004	0.028	0.111	−0.004	0.033
2007	0.004	0.004	0.023	−0.002	0.029	0.098	−0.007	0.036
2008	0.006	0.006	0.019	−0.006	0.024	0.083	−0.013	0.025
2009	0.005	0.005	0.023	−0.006	0.024	0.088	−0.012	0.029
2010	0.007	0.007	0.024	−0.005	0.033	0.096	−0.013	0.035
2011	0.016	0.016	0.115	−0.001	0.086	0.472	−0.013	0.144
Average DLLPs	**0.012**				**0.056**			

The results in Table 4 further indicate that foreign banks are less involved in managing their LLPs compared to all local banks including Islamic banks. However, Islamic banks have lower levels of DLLPs among the local banks. Interestingly, state-owned banks ranked second in DLLPs activities after privately owned banks. This may indicate that state-owned banks face less pressures, as their managers are politically appointed and their jobs depends on the political agenda rather than the performance of the banks. Table 4 and Fig. 2 also show that local conventional banks and Islamic banks have experienced higher levels of DLLPs than foreign banks.

5.2. Comparison between DLLPs of Islamic and conventional Banks

This section presents the results of parametric and non-parametric tests of difference, i.e. whether there is statistically significant difference in DLLPs across banks. Overall, the various tests reported that there is a significant difference between DLLPs for Islamic and conventional banks as documented in Table 5 panel A. Although in Panel A, the non-parametric tests show insignificant difference between DLLPs of Islamic banks compared to that of conventional banks, parametric tests indicate that there is a difference at 5% level of significance. Other tests for the comparison between Islamic banks and different types of conventional banks confirm that Islamic banks engage less in DLLPs than conventional banks. However, as reported in Table 5 Panel E, foreign banks show significantly (at 1% level of significance) lower levels of DLLPs compared to that of Islamic banks, presumably a reflection of best practices of their parent banks.

Farook, Hassan and Clinch (2014) showed similar evidence in which Islamic banks have lower loan loss provision compared to conventional banks. It is of importance for Islamic banks to behave more ethically compared to conventional banks and abide by *Shari'ah*, which is loaded with moral values that

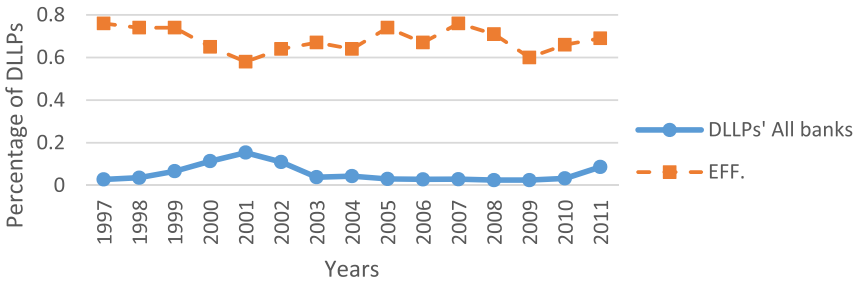

Fig. 1. DLLPs and efficiency trend.

prevent them from presenting a distorted picture of accounting figures. Islamic banks executives are supposed to demonstrate high values, which will not allow them to hide business practices that are not sync with *Shari'ah*. Therefore, with best business practices and high standards of morality, Islamic banks would refrain from manipulating their results through opportunistic earnings management. A possible explanation for Islamic banks indulgence DLLP for Islamic banks could be because the Islamic banks manage earnings as a response to profit distributions. In particular, when the overall revenue share allocated for investment depositors fail to meet their expectations, it is likely that shareholders' share of profits will be sacrificed for higher profit distributions to investment depositors. This in turn will lead to pressure on the Islamic bank

Table 4
DLLPs by ownership.

Year	Bank model					
	All conventional	Islamic banks	State-owned banks	Foreign-owned banks	Domestic private	Local conventional
1997	0.013	0.01	0.022	0	0.01	0.015
1998	0.016	0.006	0.026	0.001	0.012	0.018
1999	0.026	0.012	0.018	0.001	0.037	0.029
2000	0.025	0.006	0.002	0.007	0.052	0.031
2001	0.035	0.009	0.024	0.006	0.062	0.046
2002	0.022	0.006	0.011	0.002	0.049	0.032
2003	0.008	0.001	0.008	0	0.018	0.013
2004	0.01	0.007	0.014	−0.001	0.019	0.017
2005	0.008	0.01	0.004	−0.001	0.021	0.014
2006	0.006	0.003	0.005	0.002	0.009	0.008
2007	0.005	0.002	0.008	0.001	0.006	0.006
2008	0.005	0.008	0.007	0.002	0.006	0.006
2009	0.004	0.008	0.006	0.001	0.006	0.006
2010	0.008	0.004	0.01	0.001	0.015	0.013
2011	0.019	0.01	0.013	0.005	0.03	0.023
Mean	0.014	0.007	0.012	0.002	0.023	0.018

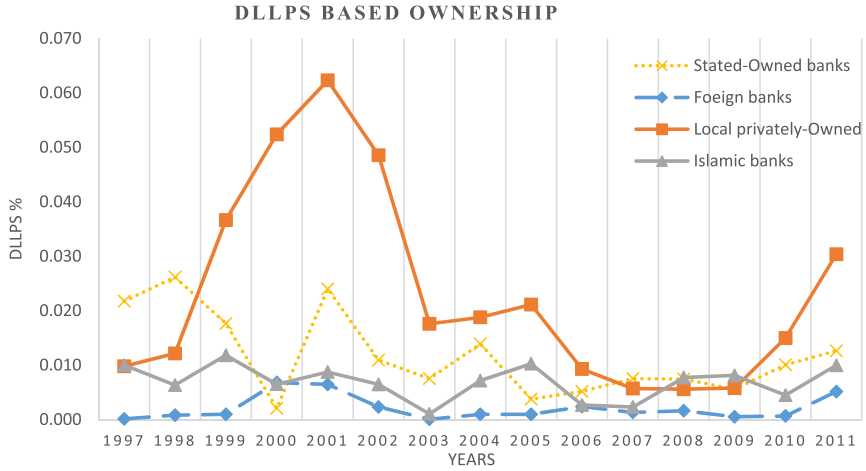

Fig. 2. DLLPs based on ownership.

Table 5
Test of difference.

Type of test	Parametric tests		Non-parametric tests	
Panel A: Test of Difference between DLLPs Islamic and Conventional Banks				
Individual tests	Analysis of Variance (ANOVA) test	T-test	Kilmogogrov–Smirnov (K–S) test	Mann–Whitney (Wilcoxon Rank-Sum) test
Hypotheses	Mean IBs–Mean CBs F (Prob > F)	Mean IBs = Mean CBs T (Prob > t)	Mean IBs = Mean CBs K–S (Prob > K–S)	Median IBs = Median CBs Median (Prob > t)
DLLPs	4.047 (0.03)*	2.102 (0.037)*	1.048 (0.222)	−1.353 (0176)
Panel B: Test of Difference between DLLPs of Islamic and Local Private Conventional Banks				
DLLPs	20.155 (0.000)*	4.489 (0.00)*	1.933 (0.001)*	−4.594 (0.000)*
Panel C: Test of difference between DLLPs of Islamic and Local Conventional Banks				
DLLPs	12.238 (0.001)*	3.305 (0.001)*	1.577 (0.014)*	−3.688 (0.000)*
Panel D: Test of Difference between DLLPs of Islamic and Conventional Government Linked Banks				
DLLPs	4.474 (0.037)*	2.115 (0.37)**	1.321 (0.06)***	−1.729 (0.08)***
Panel E: Test of Difference Comparison between DLLPs of Islamic and Foreign Banks				
DLLPs	9.392 (0.003)*	−3.06 (0.003)*	2.115 (0.00)*	−2.589 (0.01)*

Notes: *indicates significant difference at 1%; ** indicates significant difference at 5%, *** indicates significant difference at 10%. The number in parentheses is the p-values associated with relative test.

manager to avail its discretionary capabilities over finance loss provisions (by reducing the expense) and provide an acceptable return for shareholders.

All in all, as long as the accounting practices are similar for Islamic and conventional banks, it seems that Islamic banks follow that same patterns and behaviours of conventional banks ignoring that fact that their underlying theoretical bases are completely different and hence their practices should be in line with their purpose of existence. The main purpose of Islamic finance and Islamic banking is to serve the needs of Muslims, who are abided by S*hari'ah* guidelines; therefore, any sort of activities that are not in line with *Shari'ah* laws is totally prohibited.

5.3. Panel regression results

The second part of the analysis is to regress the various determinants of DLLPs using pooled OLS as the baseline regression and compare it with random effects. Initially, Table 6 documents the descriptive statistics for all financial variables included in the first and second stage regression models. Table 7 shows the correlation matrix for the variables included in the second stage regression. The Pearson correlation matrix shows that the explanatory variables are not highly correlated with each other. A general rule of thumb is that if the correlation between two variables is between −0.70 and 0.70, there is likelihood of no problem of multicollinearity (Lind, Marchal, & Wathen, 2008).

Table 8 shows the regression estimation results for the determinants of DLLPs. The models are significant at 1% level and with an overall R^2 21.6%. The dependent variable is DLLP, which represents the discretionary component of loan/finance

Table 6
Descriptive statistics for the financial variables.

Variables	Mean	STD	Max	Min
TE (EFF.)	0.68	0.25	1.00	0.10
LLPs %TA	0.013	0.021	0.135	0.000
NDLLPs%TA	0.002	0.003	0.018	−0.011
DLLPs%TA	0.012	0.021	0.132	−0.010
NPL%TL	0.231	0.247	0.954	0.000
CHLOAN	0.231	0.823	8.595	−0.998
CHNPL%TL	0.042	0.136	0.721	−0.276
EBTP%TA	0.038	0.046	0.303	−0.022
SIZE	56,390,514.14	65,420,960.37	379,844,496.00	3,011,117.00
LD	0.584	0.640	3.345	0.005
CAP	0.106	0.108	0.736	0.008
GDP	3163.48	1851.49	13475.38	859.10

Table 7
Pearson correlation matrix.

	DLLPs	TE	CAP	SIZE	GDP	LD
DLLPs	1					
TE	0.089	1				
CAP	−0.028	0.057	1			
SIZE	−0.180	−0.093	−0.219	1		
GDP	−0.236	−0.017	0.209	0.53	1	
LD	0.184	0.231	0.142	0.138	−0.02	1

Table 8
DLLPs determinants based on pooled OLS and random effects.

Variable	Pooled OLS	Random effects
Ln(TE)	**0.004 (0.001)***	**0.004 (0.001)***
Ln(CAP)	**0.0012 (0.000)*****	0.001 (0.000)
Ln(SIZE)	**−0.002 (0.000)***	**−0.003 (0.001)***
Ln(LD/FD)	**0.006 (0.000)***	**0.006 (0.001)***
Ln(GDP)	**−0.005 (0.001)***	**−0.003 (0.001)***
Dummy Islamic	**−0.021 (0.003)***	**−0.019 (0.004)***
Dummy Auditor	**−0.003 (0.001)***	−0.001 (0.001)
Overall R^2	0.225	0.216
Within R^2		0.158
Between R^2		0.278

*Indicates significant level at 1%; ** indicates significant level at 5%; *** indicates significant level at 10%. The number in parentheses is the standard errors.

Note: TE Represents overall efficiency estimates based on DEWA; CAP is the ratio of equity to total assets, LD is a measure of loans to deposit as a proxy for external funds, Size is the total assets, GDP measures the economic soundness, Dummy Islamic is to differentiate between conventional and Islamic banks, dummy Auditor represents the type of auditor either big or non-big auditor.

loss provisions and it is estimated as the residual of the first stage regression. The results are presented in Table 8 based on pooled OLS and random effects, although the explanation of the results are based on random effects which is more robust compared to pooled OLS, as shown by the outcomes of LM test, which provides evidence on the superior power of the random effects model. Overall, the efficiency (TE) is significant and positively related to DLLPs at 1% level of significance. This positive association suggests that the greater the efficiency, the higher the DLLPs occurrence. This may indicate that efficiency is reflected in good performance which would motivate the managers of banks to reduce their overall earnings in order to smoothen their income. Conversely, when the relative performance is low, the bank managers would decrease their DLLPs. The result is consistent with Kanagretnam et al. (2007) which suggests that banks' main objective in increasing their DLLPs is to smoothen their income in order to reduce the variability of income. By reducing the variability of income, the perceived risk can be reduced.

Size may also be an indicator for the political sensitivity. The estimation test shows that bank size is negatively related to the DLLPs. In other words, DLLP is less pronounced at large banks. The findings are consistent with Cornett et al. (2009) in which they suggested that smaller banks engage more in DLLPs. Cornett et al. (2009) argued that larger banks are subject to intense monitoring and scrutiny. Although the regulators have the responsibility to maintain the soundness of the whole financial sector, they have greater tendency to scrutinize the large banks due to the impact of those banks on the overall economy should things go wrong. Due to that, larger banks would be less likely to behave opportunistically by reducing their discretion over LLPs.

LD/FD or loan/finance to deposits is related positively to DLLPs at 1% level of significance. It is used as a measure of the need for external finance as banks finance their loans/finance portfolio using customer deposits. The findings of this study are in line with the result of Kanagaretnam, Krishnan and Lobo, (2009) and Kwak, Lee, and Eldridge (2009) where a greater need for external finance would encourage bankers to smoothen earnings. This is because the cost of financing is a function of bank risks. The managers have more incentive to indulge in discretionary LLPs in order to smoothen earnings and reduce volatility so as to attract more funds. Additionally, in the specific case of Yemen, it is possible that Yemeni banks "manage" their earnings in order to attract more deposits as Yemenis are reluctant to deposit their money in banks. Therefore, one of the ways to attract them is by managing the earnings in such a way as to show good performance, signalling stable returns to the customers.

GDP is an indicator of the soundness of the economic conditions. In line with expectations, GDP is significantly and negatively related to DLLP. This is consistent with the findings reported by Bikker & Metzemakers (2005) and Fonseca & González (2008) who found that during times of economic boom, DLLP was lower compared to the period of economic difficulties. In other words, provisions increase when the economic growth is weak. The reason for is that the business cycle affects the ability of the firms and other borrowers to service their debt which subsequently influences the credit risk exposure of banks. A decline in GDP growth would mean an increase in actual as well as expected credit losses which require an increase in provisioning. In such cases, managers would reduce their DLLPs during good times and increase it during difficult times.

The dummy variables "Islamic", and "Auditor", suggest a negative relationship with DLLP. However, the dummy auditor is not significant. Consistent with previous results reported in Table 5, the Islamic banks experienced lower DLLP compared to the conventional banks.

Although we expect that Islamic banks refrain from using DLLP due to *Shari'ah* parameters, the results show both Islamic and conventional banks follow same practice, though the magnitude is different. As efficiency and performance are used as yardsticks in evaluating managers, bank managers at both Islamic and conventional banks would have motivation to indulge in discretion over LLP in order to temper the low performance of banks by decreasing LLP.

5.4. Further test: do the determinants of DLLPs differ across banking models?

Further check is conducted to ascertain and understand how DLLP may react to the determinants differently for each banking model. As discussed previously, the LM test favours random effects over pooled and the Hausman test asserts the appropriateness of fixed effects over random effects. Thus, the results in this section are reported using fixed effects.

The results of Table 9 show consistent results across all models. The results further support the previous findings reported in 8. Efficiency is positively related to DLLP, indicating that banks with higher level of efficiency tend to post higher DLLP. Interestingly, the inclusion of the Islamic bank dummy interacting with efficiency, shows that DLLP is negatively related to efficiency in Islamic banks, although this is not statistically significant. It is also found that there is a significantly negative relationship between bank size and their DLLPs. The larger the size of the banks, the lower the DLLP activities. Similar to the results reported in Table 8, it can be argued that larger banks are more likely to be subjected to the scrutiny which leads them to behave less opportunistically by reducing their LLPs discretion. Conversely, the size of Islamic banks seems to affect their DLLPs positively at 1% level of significance. A plausible reason could be that the larger Islamic banks are more profitable than the smaller ones, and therefore, there is higher tendency or greater space to shift some profits from one period to another.

Loans to deposits or Finance to deposits (LD/FD) is significantly and positively related to DLLP at 5% significance level. It could be argued that banks tend have higher non-performing loans and, therefore, they may behave opportunistically to reduce their LLP so as to reduce the perceived risks in order to attract the depositors and external finance. This is evident from the fact that most conventional banks have higher non-performing loans that require higher LLP. Interestingly, Islamic banks' FD ratio is negatively related to DLLP at 10% level of

Table 9
DLLP determinants based on fixed effects.

Variable	Model 1	Model 2	Model 3	Model 4
Ln(TE)	**0.005 (0.001)***	**0.005 (0.001)***	**0.005 (0.001)***	**0.005 (0.001)***
Ln(CAP)	0.000 (0.000)	0.001 (0.001)	0.001 (0.001)	0.000 (0.000)
Ln(SIZE)	**−0.005 (0.001)***	**−0.008 (0.002)***	**−0.006 (0.001)***	**−0.005 (0.001)***
Ln(GDP)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)
Ln(LD)	**0.004 (0.002)***	**0.002 (0.001)*****	**0.004 (0.002)****	**0.004 (0.002)****
IB*Ln(TE)	−0.001 (0.002)	–	–	–
IB* ln(SIZE)	–	**0.008 (0.002)***	–	–
IB*ln(CAP)	–	–	**−0.005 (0.002)****	–
IB* ln(LD)	–	–	–	**−0.004 (0.002)*****
Overall R^2	0.079	0.0093	0.027	0.076
Within R^2	0.161	0.196	0.168	0.162
Between R^2	0.019	0.041	0.000	0.017

*Indicates significant level at 1%; ** indicates significant level at 5%; *** indicates significant level at 10%. The number in parentheses is the standard errors.
Note: TE Represents overall efficiency estimates based on DEWA; CAP is the ratio of equity to total assets, LD is a measure of loans to deposit as a proxy for external funds, Size is the total assets, GDP measures the economic soundness, Dummy Islamic is to differentiate between conventional and Islamic banks, dummy Auditor represents the type of auditor either big or non-big auditor.

significance. It could be argued that, when FD ratio is high, it could be indicator of high quality of finance, and thus banks tend to exercise DLLP with low magnitude.

Finally, the results of all models in Table 9 show that capitalisation (CAP) has no impact on DLLP. However, after controlling for Islamic banks, CAP seems to have a negative relationship with the DLLP of Islamic banks. This could be explained by the fact that, in the banking sector, equity capital is heavily regulated. Therefore, when banks experience low levels of capital, relative to the regulatory standards required to be considered well-capitalised, managers have incentives to avoid writing off bad loans and to realise more securities gains in order to prop up capital levels (Cornett et al., 2009). In a sum, the results of fixed effects reported in Table 9 are largely consistent with the results of random effects reported in Table 8 with minimal variation.

Overall, Islamic banks utilize the DLLPs as a way of managing their earnings in similar way with conventional banks. Although the magnitude of accruals may differ between Islamic and conventional banks, both models resort to earnings manipulation for various incentives including the attractiveness of deposits and reducing political sensitivity. More importantly, the behaviour of incentives for both models are shaped differently which may reflect the different structure of both banking models.

6. Conclusion

The study aims to investigate the DLLPs and its relationship with efficiency, taking into consideration other micro and macroeconomic determinants in a comparative manner between Islamic and conventional banks in Yemen. Using two-stage approach for a sample of 16 banks with unbalanced data over the period of 1996–2011, the results indicate that both banking models use the discretion over the LLP in order to manage their earnings for various factors. In contrast to our expectation, Islamic banks also resort to earnings management in a similar vein with conventional banks, and ignoring their ethical identity prescribed in *Shari'ah* law. However, the overall results show that Islamic banks have lower DLLP compared conventional banks with exception to foreign banks which report significantly lower DLLP compared to Islamic banks.

With respect to the impact of efficiency of DLLPs, the results show that overall efficiency results show positive impact on DLLP, but the results are not consistent for Islamic and conventional banks. Other control variables used in this study also show different impact on DLLPs. Size and LD (FD) show different behaviour for conventional and Islamic banks in its relationship with DLLP. Similarly for capitalization, while its negatively related to Islamic banks DLLPs, it has no impact on DLLP of conventional banks.

Our results provide insightful benefits to regulators, auditors and investors and the public at large. It shows for the public that demand an ethical banking and hence this study helps the public to make appropriate decision. For the regulators, it can be a very useful to warn them to make effective policy constraining the intensive use the discretion over LLP to manage their earnings and distort the information transparency of banking sector. Furthermore, auditor can pay more attention to the policy of LLP estimation utilized by banks when they review, audit and express their opinion on the soundness of financial statements.

Despite of it's the considerable effort exerted in conducting the study in order to ensure that the objectives of the study were met and research questions were answered, one of the limitation of the study is the small sample size, where it focuses on one country with limited banks. Future research could further on comparing the Islamic banks in Yemen with other in Gulf Cooperation Countries (GCC) in term of their DLLP.

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