

Income-diversification in banking sector of Pakistan: a 'Blessing' or 'Curse'?

Aisha Ismail¹, Rahila Hanif², Sadaf Choudhary³ and Nisar Ahmad⁴

Abstract

Changing trends in economy and customers' expectations are directing banks to search the new ways of income generation. Banks are now moving towards diversification of their revenues to reduce risk of their portfolios and to increase the profitability. In effort of diversifying the income generation activities, banks are indulging in non- interest income generation activities by reducing their reliance on traditional banking activities. Diversification of income generating activities (either interest based or non-interest based) can enhance the profitability by reducing overall risk involved in banking operation. Contrary to this, over reliance on income diversification can increase the risk and reduce the risk adjusted return of banks. Considering the importance of income diversification for developing financial markets, this study aims to fill the gap in existing literature of Pakistan by empirically exploring the relationship between income diversification and banking performance for the period of 2006-2013. The results of the study have shown positive impact of income diversification on performance of banks in Pakistan. The findings of the study are important for bankers to understand how income diversification affects the performance of banks. The findings are also helpful to the banks' management and regulators to understand the role of income diversification in value creation and risk-reduction for the stakeholders.

Key words: Income diversification, non-interest income, performance, diversification index

Introduction

Rapidly changing financial environment, increased competition, regulatory pressure (Capital requirements) and the volatility of interest based income in banking

^{1, 2, 3}Course Instructor, Accounting & Finance, Virtual University of Pakistan, Lahore, Pakistan. Contact aishaismail.gcu@gmail.com, rahilahnf@yahoo.com, sadaf.vu@gmail.com.

⁴Assistant Professor, Hailey College of Commerce, University of the Punjab, Lahore, Pakistan, nisar@hcc.edu.pk

system have pushed the banks to think about the non-traditional ways of income generation. To survive in the intense competition banks need diversification in their income sources. Banks operating in competitive environment are more stable as they diversify their portfolios that results into enhanced performance and risk adjusted returns for the banks (Amidu & Wolfe, 2013). Market and technological advancement in banking system has also increased the non-interest income activities of banks. In an effort to offer quality services and better relations with customers, banks are moving towards non-interest income (DeYoung & Rice, 2004).

Non-interest income is considered an important source of diversification for the banks (Huang & Chen, 2006). Being uncorrelated or least correlated, non-interest income reduced the volatility of overall income of banks (Chiorazzo, Milani, & Salvini, 2008). Furthermore, banks can increase shareholders' value by shifting their focus from traditional income sources to non-interest income sources (Gurbuz, Yanik, & Ayturk, 2013). Banks need an appropriate combination of interest and non-interest income to reduce risk in banking operations.

Although non-interest income is considered an important source of diversification but contrary to conventional view; DeYoung and Rolandb (2001) pointed out that non-interest income increases the volatility of profits for the banks. Low switching cost; high operating and financial leverage requirement for fee based activities make non-interest income sources more volatile than traditional interest based activities. Over-diversification of revenues increases the risk of default instead of improving profits (Delpachitra & Lester, 2013). Further, income diversification strategy require great care because extensive diversification of income sources can reduce the financial performance of banks (Sahoo & Mishra, 2012). Income diversification by indulging in non interest based activities can bring new risks for which specialized managerial expertise are required. If these risks are not properly managed they may adversely affect the performance (Sahoo & Mishra, 2012).

As income diversification may increase the bank profitability as well as its volatility. Therefore, banks should use diversification strategy carefully to have benefits of income diversification. For an effective income diversification strategy banks should not heavily rely on non-traditional ways of income generation (Huang & Chen, 2006). Moreover, banks must trade off the risk and return attached with new lines of business (Pennathur, Subrahmanyam, & Vishwasrao, 2012).

The literature on income diversification and its impact on performance of banking sector signify the importance of diversification for the banks to enhance their earnings, considering the fact this study aims to explore the effect of income

diversification on performance of banks in Pakistan and to explore how banks can improve their performance through diversification. The study aims to fill the gap in existing literature through exploring the role of non-interest income in enhancing the profitability of banks.

The remaining paper is divided into four sections; section 2 includes literature on relationship between diversification and performance, section 3 explains the variables and methodology, section 4 discusses the results and section 5 concludes the study.

Literature Review

In this highly competitive financial environment, banks are now more concerned for earning volatility and the increasing risk of default. They are now in search of new means to generate revenue in addition to their conventional modes; called income diversification. Income diversification is a widely used concept by banks to reduce the volatility of their earnings. Considering the significance of income diversification for banking sector; the relationship between income diversification and performance has been empirically explored in many countries but mixed results have been reported.

DeYounga and Rolandb (2001) stated that earning volatility increases as banks shift their product mix from conventional income generating (banking operational activities) to fee based (non-operational) activities. As the share of fee based activities increases in revenue of banks, financial as well as operating leverage also increases that leads towards high earning volatility. The association of bank's personal and market characteristics and technological development with increasing non-interest income in banking sector of USA results indicated that increase in non-interest income results into improved performance, high earning volatility and worsen risk and return tradeoff for banks (DeYoung & Rice, 2004). Moreover, the study found that well managed banks are slowly shifting their traditional revenue generating activities towards non-interest income activities.

Stiroh (2004) stated that banks in US are getting benefits of diversification in the form of stable income and reduced risk through shifting their income generating activities from interest income to non-interest income. At aggregate level, non-interest income (specially trading income) is found to be more volatile than interest income and both are highly correlated; whereas, at bank level risk and returns are negatively correlated with increase in non-interest income. Stiroh and Rumble (2006) explored how the performance of financial holding companies of U.S is affected by

the shift in their income generating activities (traditional interest income) to trading, fee based and non-interest income. They reported higher volatility of non-interest income as darker side of income diversification; non- interest income is more volatile than interest income but not necessarily more profitable.

Chiorazzo et al. (2008) studied the impact of income diversification on performance of Italian banks and reported that risk adjusted return of banks increases with the increase in income diversification. They further stated that diversification significantly increase the risk adjusted return for the large bank. Income diversification increases the risk adjusted return for the large bank but the benefits of non-interest income reduces as the size become larger.

Acharya, Hasan, and Saunders (2006) investigated the impact of different level of diversification on risk and return of banks in Italy for the period 1993–99. They reported negative impact of industrial and scrotal loan diversification on performance of banks. Moreover, the banks working in less competitive environment proved to be inefficient in reaping the benefits of income diversification. Huang and Chen (2006) stated that the banks with either very high or very low percentage of non-interest income are more cost efficient than the banks that have moderate percentage of non-interest income.

Craigwell and Maxwell (2006) explored the determinants of non-interest income and its impact on financial performance of banks in Barbados for the period of 1985-2001. Their findings indicated that there is a positive impact of non-interest income on the performance, banks with more non-interest income have more profits but it also increases the volatility of operating earnings. Among the determinants of non-interest income, technological changes and deregulations in banking sector have increased the share of non-interest income for the banks. Sahoo and Mishra (2012) reported that the grater fluctuation in operating income of Indian banks is due to diversification. Pennathur et al. (2012) stated that ownership structure has no effect on banks' involvement in non-interest income activities. They suggested that banks in emerging markets like India can use non-interest income as source of income diversification and to increase the revenues.

Explaining the relationship among competition, stability and diversification, Amidu and Wolfe (2013) specified that banks in competitive environment are more stable because competition motivates them to diversify their portfolios within and across interest and non-interest income generating activities. Lee, Hsieh, and Yang (2014) examined the impact of diversification on 29 Asia Pacific countries. Diversification positively affects the bank performance in bank-based countries.

Delpachitra and Lester (2013) identified the effect of non-interest income and revenue diversification on performance of Australian banks and found that non-interest income and revenue diversification negatively affect the profitability. In addition to that, over reliance on non-interest income did not improve the profitability and the risk of default. Turkmen and Yigit (2012) reported the negative effects of sectoral and geographic diversification on performance measures of banks operating in Turkey. While Gurbuz et al. (2013) observed that income diversification improves the risk-adjusted performance of banks.

Previous studies showed mixed results about the relationship between diversification and performance of banks and highlighted the importance of income diversification in improving the banks' profitability as well. Banks can use non-interest income as a source of diversification to reduce the earning volatility, attached with the core operations, and the risk of default. Considering the benefits of diversification; this study aims to investigate the impact of income diversification on performance of banks for the period of 2006-2013 in case of Pakistan. The study is contributing in existing literature by providing guidelines for the banks how they can improve profitability through income diversification especially in case of a developing country like Pakistan. The findings of the study will help the regulators to understand the volatility of income sources that can cause increase in risk of default for the banks.

Hypothesis of the study

Following are the hypothesis of study based on existing literature:

H₀₁: There is no relationship between income diversification and performance of banks

H_{A1}: There is relationship between income diversification and performance of banks

H₀₂: There is negative relationship between income diversification and performance of banks

H_{A2}: There is positive relationship between income diversification and performance of banks

Research Methodology

To find the impact of income diversification on performance of banks in Pakistan, panel data of 14 banks for the period of 2006-2013 is used. Annual reports of banks are used to collection data on variables from the official websites of banks.

Variables

Variable of the study includes performance measures as dependent variable, income diversification as independent variable, whereas bank size, degree of financial leverage of banks, growth rate and lending strategy as control variables.

Literature has supported Return on equity (ROE) and Return on asset (ROA) as performance measure of banks. Acharya et al. (2006), DeYoung and Rice (2004), Stiroh (2004), Lee et al. (2014), Pennathur et al. (2012), Karakaya and Er (2013) and Turkmen and Yigit (2012) have used ROE and ROA as performance measure. Some of these studies have used standard deviation of ROE and ROA and sharp ratio to calculate the volatility of returns, whereas Chiorazzo et al. (2008), Delpachitra and Lester (2013), Amidu and Wolfe (2013), Stiroh and Rumble (2006), Gurbuz et al. (2013) have used risk-adjusted ROE and ROA as measure of performance. This study has used ROE and ROA as performance measure.

Income diversification is measured through Herfindahl–Hirschman Index (HHI); it represents the sum of square of net interest income share and non-interest income share over net operating income. HHI covers the components of net operating income of banks i.e. net interest income and non-interest income, net interest income includes net revenue from lending activities whereas non-interest income includes, net commission fee, trading revenue and other non-interest income. Value of HHI varies between 0 and 1; value of 0.5 HHI represents complete diversification whereas value of 1 represents concentration i.e. lowest diversification level in a bank.

The use of HHI as measure of diversification is supported by the studies of Amidu and Wolfe (2013), Gurbuz et al. (2013) and Acharya et al. (2006). Diversification Index (DIVI) is another measure of income diversification; it is calculated by subtracting HHI from 1. Use of DIVI as diversification measure is supported by Chiorazzo et al. (2008), Stiroh (2004), Lee et al. (2014), (Turkmen & Yigit, 2012) and (Stiroh & Rumble, 2006) used DIVI as measure of income diversification in their studies. Value of DIVI ranges between 0-0.5; 0 indicates lowest level of diversification whereas 0.5 means full diversification. This study has used DIVI as measure of income diversification.

Natural log of total asset is used as proxy of bank size as bank size affects the banking performance and the diversification, well managed banks slowly move towards income diversification and they have more diversification opportunities as compared to small banks (Chiorazzo et al., 2008; DeYoung & Rice, 2004). Small banks move more quickly towards non-interest income as compare to large banks

(Stiroh, 2004).Gurbuz et al. (2013), Stiroh and Rumble (2006), Karakaya and Er (2013), Pennathur et al. (2012), Lee et al. (2014), Amidu and Wolfe (2013), Stiroh (2004) and (Craigwell & Maxwell, 2006) have used natural log of total asset as proxy of bank size. Ratio of loan to total asset that represents investment mix of bank is used as check the effect of lending strategy on performance of banks (Chiorazzo et al., 2008; DeYoung & Rice, 2004; Gurbuz et al., 2013; Karakaya & Er, 2013; Stiroh, 2004; Stiroh & Rumble, 2006). Equity ratio is used to measure the financial leverage of bank. Higher equity ratio indicates the low risk appetite of banks i.e. the defensive strategy to reduce the risk of default. Equity to total asset is used to measure the equity ratio (Acharya et al., 2006; Amidu & Wolfe, 2013; Chiorazzo et al., 2008; Delpachitra & Lester, 2013; Gurbuz et al., 2013; Karakaya & Er, 2013; Lee et al., 2014; Pennathur et al., 2012; Stiroh, 2004; Stiroh & Rumble, 2006).

Growth rate of total assets; it is measured through percentage change in total assets. Lee et al. (2014), Chiorazzo et al. (2008), Gurbuz et al. (2013) and Stiroh (2004) have used annual growth rate of total assets as it represents the management's behavior towards risk taking. Banks with more risk appetite shows high growth rate of assets.

Table 1: Variables and their Measurement

Variable	Measurement
Return on asset (ROA)	Net Income/ Total assets
Income diversification (DIVI)	1-HHI HHI= (Net interest income/Non-operating income) ² - (Non- interest income/Non-operating income) ²
Size	Natural log of total assets
Equity ratio	Equity / Total assets
Loan ratio	Total loan/ Total assets
Growth (Annual Growth rate of assets)	%change in Total assets

Pooled Ordinary Least Square estimation technique is used to test the relationship between income diversification and performance of banks operating in Pakistan.

Results and their Explanation

Figure 1. explains the percentage share of non-interest income and net interest income in operating income of banks for the study period. There is an increasing trend in non-interest income in 2007 and 2009, 2010 which showed the highest percentage of non-interest income in operating income. It is an indication that

banks in Pakistan also focused to diversify their income sources in order to compete the banking industry.

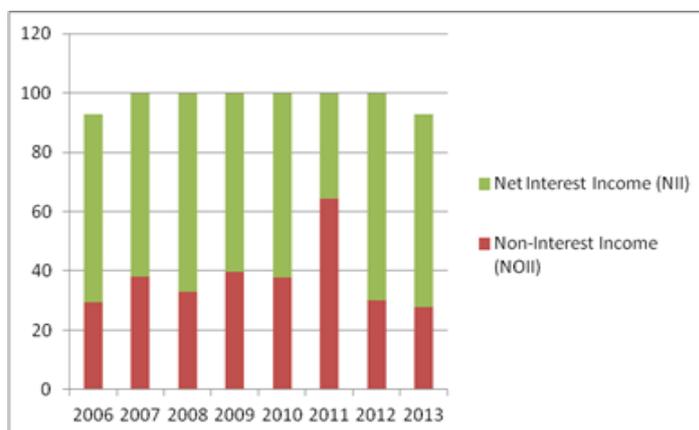


Figure 1: Percentage share of non-interest income and net interest income in operating income

Table 2. represents the descriptive statistic of variables; DIVI has minimum value of 0.020 and maximum value of 0.50 indicating complete concentration and full diversification respectively whereas mean value of 0.36 indicates that most of the banks in Pakistan are diversifying their income sources. Performance (ROA) shows mean value of 85.29% and maximum value of 3.7189 indicating that most of banks are efficiently utilizing their assets for income generation.

Growth rate of total asset (in table 2) has mean value of 0.023 with minimum and maximum value of -5.90 and 12.27 respectively. Mean value of growth rate indicates banks are risk averse as growth rate is low for the study period. Equity ratio indicated by EQTA which has mean value of 0.069152, maximum value of 0.186473 and minimum value is -0.030771. Mean value of equity ratio indicates that banks are risk averse and they have used defensive investment strategy. Bank size represented through LNTA shows the average bank size is 19.67832.

Table 2: Descriptive Statistics

	ROA	GR	EQTA	LNTA	TLTA	DIV
Mean	0.852988	0.023325	0.069152	19.67832	0.467042	0.368810
Maximum	3.718900	12.27125	0.186473	21.20115	0.708578	0.500000
Minimum	-7.105000	-5.904430	-0.030771	17.20706	0.298927	0.020000
Std. Dev.	1.808696	1.621401	0.035720	0.859586	0.091412	0.104136
Observations	84	84	84	84	84	84

Note: ROA is return on asset i.e. performance measure, DVI is the performance measure, GR indicates the growth rate of total assets, EQTA is the ratio of equity to total asset, LNTA is the proxy of loan ratio whereas TLTA is the ratio of total loan to total asset representing financial leverage of banks.

Loan ratio (in table 2) represented through TLTA has an average value of 46.7% indicating banks have 47% investment in loans that attains maximum value of 71% and minimum investment in loans by banks is 17.20%

Table 3 represents regression results with 84 observations. Coefficient of diversification represented through DIVI is positive and significant indicating the positive relationship between income diversification and performance of banks. These results are consistent with the findings of Gurbuz et al. (2013), Lee et al. (2014), DeYoung and Rice (2004), Craigwell and Maxwell (2006), Chiorazzo et al. (2008) and Stiroh (2004). It shows banks in Pakistan can improve their performance by diversifying their income between interest and non-interest income as 1% increase in diversification bring 5.65% increase in ROA.

According to regression results, the growth rate of total assets has negative and insignificant coefficient indicating that banks are not efficient in using assets to generate profits. It means that growth rate of total banks' assets is not affecting the performance. Bank size is positively related with the performance, it means larger banks have better performance as they have more diversification opportunities. The results are consistent with the findings of (Afzal & Mirz, 2012; DeYoung & Rice, 2004; Gurbuz et al., 2013)

Table 3: Regression Results

Dependent Variable: ROA

Cross-sections included: 14

Total panel (unbalanced) observations: 84

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-19.16942	3.473594	-5.518612	0.0000***
DIVI	5.654760	1.382003	4.091714	0.0001***
GR	-0.024946	0.088504	-0.281869	0.7788
EQTA	16.88918	4.115241	4.104057	0.0001***
LNTA	0.911706	0.166188	5.486008	0.0000***
R-squared	0.539762			

Note: ROA is return on asset i.e. performance measure, DIVI is the performance measure, GR indicates the growth rate of total assets, EQTA is the ratio of equity to total asset, LNTA is the proxy of loan ratio whereas LTA is the ratio of total loan to total asset representing financial leverage of banks. *** indicates 1% significant level.

As per table 3, equity ratio has positive and significant impact on performance of banks, indicating risk aversion behavior of banks, the findings are in-line with the results of (Chatti, Kablan, & Yousfi, 2010). Loan ratio has positive and significant relationship with performance of banks in Pakistan; banks with more

lending activities are more profitable. The findings are supported by the studies of Chiorazzo et al. (2008), Stiroh and Rumble (2006) and Gurbuz et al. (2013). On the basis of regression results we reject null hypothesis and concludes, there is positive relationship between income diversification and performance of banks in Pakistan.

Conclusion & Recommendations

The study has investigated the relationship between income diversification and performance of 14 banks operating in Pakistan for the period of 2006-2013 using regression analysis and found positive relationship between income diversification and performance of banks in Pakistan. The results indicate that banks can increase their performance with more diversification i.e. using interest and non-interest income as their income generating sources. The study has also tested the impact of bank size, growth rate of total assets, loan ratio and equity ratio on performance of banks. Among all control variables; growth rate is insignificant representing inefficient and underutilization of assets because of risk aversion behavior of banks. Bank size, loan ratio and equity ratio has positive impact on bank performance. Results indicated larger banks have more opportunities to increase their performance by diversifying their income as compare to small banks.

The study also shows that most of banks in Pakistan have not achieved maximum diversification and they can get benefits from income diversification strategies. Some banks are fully concentrated towards either interest income or non-interest income that is also not a good strategy. There should be a balance between all sources of income, as over-diversification give rise to volatility of the returns and risk of default. Diversification can be blessing for the banks of Pakistan if they use it wisely considering the right areas of diversification. Banks must consider their core competencies and expertise while deciding the areas of income diversification to have true benefits of diversification.

Further study can be conducted to test the segregated effect of non-interest income sources on the performance of banks. Data set for longer period and banks with ownership segregation can also be tested to have improved results.

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