Income Diversification and Financial Stability of Banks in Ghana

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Abstract

The conventional wisdom in the banking industry is that earnings from fee-based products are more stable than loan-based earnings, and that fee-based activities reduce bank risk via diversification. This paper considers the income diversification in the Ghanaian banking sector by analyzing the relationship between non-interest income and profitsof banks from the year 2002to 2011 and also considers the risk associated with bank income diversification. The study found that interest income remains the highest contributor to bank profits in Ghana. It was also found that revenue from non-interest sources play an augmenting role in times where there are short falls in interest revenue. This conclusion has implications for regulators interested in the stability of the banking sector, investors interested in the performance of individual banks or the entire banking/financial sector and bank borrowers who may depend on the health of specific banks for the stable provision of credit.

Keywords: Diversification, Non-interest income, Bank, Ghana

1. Introduction

Commercial banking has become a very important business which has contributed to the furtherance of economic activities around the world. In a country like Ghana with an emerging economy and banking sector, the banking industry has seen tremendous growth, both in size and competition. The banking business around the world plays a major role in the business of financial intermediation and has grown over the years, resulting in the diversity and complexity of its operations. Based on this development, banks have advanced from what used to be their normal line of business, which is, mobilizing deposits and making loans, to other financial non-interest earning intermediation services such as the provision of financial guarantees, derivative arrangements and the like. These activities are widespread in developed countries and have been widely reported in academic literature. According to Rogers (1998) for instance, in the aggregate, the percentage of intermediated assets held by banks in the US has fallen from 36% in 1965, to 22% in 1996 while fee income as a percentage of total bank income has risen from 7.6% to 17.2% over the same period. With the adoption of the new universal banking principle, commercial banks can compete on a wider range of market segments such as investment banking and market trading [Lepetit et al (2007)]. According to Stiroh (2000), many European banks have widened their product offerings to become universal banks during the 1990s. Goddard et al (2004) provided that banks are now able to participate in what were previously regarded as inaccessible domestic and foreign markets. It was documented that average diversification levels of the world's largest banks were almost one third higher in 2003 than they had been in 1996, and have declined only slightly since.

Commercial banks typically increased diversification by moving into fee-based businesses whilst banks with already strong fee-based revenues expanded into trading activities [Elsas et al (2010)].

An optimistic view is that this broader revenue stream diversifies the banking industry and thus contributes to increased stability [Stiroh (2006)].These notwithstanding, many in the banking industry continue to discount, underestimate, or simply misunderstand the manner in which increased non-interest income has affected the financial performance of banking companies [DeYoung and Rice (2004)].Ghana's banking sector as an emerging one is no exception to such evolutions in the banking business, thus the need to consider developments that pertain in her emerging banking sector, relative to the realities in the developed world. DeYoung and Rice (2004) posit that the increasing presence of non-interest income at commercial banks has been widely documented and discussed in the industry press and regulatory publications but only a few academic studies have investigated the impact of increased noninterest income on the financial performance of commercial banks. Having evolved since its liberalization in the 1980s, Ghana's financial sector and banking industry have seen many changes not only in the number of banks and financial institutions but also in the diversity of products and services they render. This study uncovers the realities of how income diversification by banks in Ghana has contributed to their financial stability. The rest of the paper is organized as follows: section 2 reviews some literature in the subject area, followed by a discussion of the variables and the methodology in section 3. The findings are discussed under section 4, followed by the conclusion in section 5.

2. Literature Review

According to DeYoung and Rice (2004), banks are increasingly exploiting nontraditional avenues of generating income, to the extent that in recent times, almost half of banks' incomes in the US are obtained from nontraditional activities and this reflects not only a diversification of banks into nontraditional activities, but also a shift in the way banks earn money. As margins and fees tended to tighten in many domestic banking markets during the 1980s and 1990s, many banks responded by implementing strategies of product diversification, merger and overseas expansion in an attempt to defend their profitability [Santomero and Eckles (2000); Hughes et al (2002); Goddard (2004)] and promote efficiency. While growth through product and geographic diversification reduce bank risk, efficiency tends to improve as a result of geographic diversification [Hughes et al (1999)]. Diversification of banking activities also includes venturing into off-balance sheet activities. Such activities, though not entirely new from a historical perspective, have expanded considerably in range and scope in recent years. According to Nachane and Gosh (2007), a popular reason for the dramatic growth of bank off-balance sheet activities has been that banks may have used them as a means of augmenting earnings to offset reduced spreads on traditional on-balance sheet lending business. While the basic functions of banks and other financial service companies have remained relatively constant over time, the specific products and services through which these functions are provided have changed. Economic forces have led to financial innovations that have increased competition in financial markets. Greater competition in turn has diminished the cost advantage banks had in acquiring funds and has undercut their position in loan markets. As a result, traditional banking has lost profitability, and banks have begun to diversify into new activities that may bring higher returns[Smith et al (2003)].

Since the mid-1980s, dramatic changes in regulation demand composition and technology have modified the structure and the boundaries of credit markets [Bhattacharya et al. (1998)]. All these changes have strengthened competition, especially in traditional lending activity, reduced intermediation margins and encouraged banks to diversify their sources of revenue and increase efficiency in production and distribution [Albertazzi and Gambacorta (2009)]. Technology has brought about a complete paradigm shift in the functioning of banks and delivery of banking Services [Ankrah (2012)]. Over the past two decades, the banking industry has been transformed by sweeping deregulation and rapid technological advances in information flows, communication infrastructure, and financial markets. Deregulation has fostered competition between banks and nonbanks in financial markets where such competition was nonexistent. In response to these competitive threats and opportunities, many banks embraced the new technologies that drastically altered their production and distribution strategies and resulted in large increases in non-interest income [DeYoung and Rice, (2004)]. Huang and Chen (2006) cited improvement in technology among three paths making banking grow (the other two include innovation of financial products and deregulation). This has caused the lines of demarcation between different types of bank (and other financial sector institutions) to become blurred, and has led to greater uniformity in the types of financial services and products available to customers.

In addition, technological developments have transformed the possibilities for economies of scale and scope Profitability is more likely to be enhanced by emulating industry best practice in terms of technology and management structure than by increasing size *per se* [Goddard et al, (2004)].

According to Demsetz and Strahan (1995), although Bank Holding Companies (BHCs) tend to become more diversified as they grow larger, this diversification does not necessarily translate into risk reduction because these firms also tend to shift into riskier activities and hold less equity. In other words, the risk-reducing potential of diversification at large BHCs is offset by their lower capital ratios, larger commercial and industrial loan portfolios, and greater use of derivatives[Smith et al (2003)].As banks move towards fee-earning activities, revenue volatility increases, as do both total leverage and earnings[De Young and Roland (1999)].Demirgüç-Kunt and Huizinga (1999) found that banks with relatively high non-interest earning assets are, in general, less profitable. A study by Klein and Saidenberg (1997) also found that diversified banks were less profitable on average. Recent studies suggest that increasing off-balance sheet activities do not necessarily yield straightforward diversification benefits for banks[Calmes and Theoret (2009)].While some studies have proved that bank's diversification into nontraditional activities did not yield adequate benefits relative to risk exposures [see Boyd et al (1980), Boyd and Graham (1986), Kwast (1989), Demsetz and Strahan (1997), Kwan (1998), Stiroh (2004), Stiroh and Rumble (2006)].Others studies found that the diversification of banking activities into nontraditional areas actually yielded benefits [see Gallo et al (1996), Smith et al (2003)]. According to Flamini et al (2009),bank profits are high in Sub-Saharan Africa (SSA) compared to other regions. They found that apart from credit risk, higher returns on assets are associated with larger bank size, private ownership as well as activity diversification. Various studies have been conducted to establish a link between bank product mixes (diversification) and profits [Sinkey and Nash (1993), Demsetz and Strahan (1995), Roland (1997), DeYoung and Roland (1999), Smith et al (2003), DeYoung and Rice (2004), Lepetit et al (2007), Calmes and Theoret (2009)]. The general assertion is that while bank profits are positively related to product diversity, they come with imminent "side effects" in the form of volatile revenue streams which may at worse lead to insolvency. Other firm-level studies [Boyd et al (1980), Eisenbeis et al (1984), Kwast (1989), Gallo et al (1996)] have found that diversification into non-traditional banking activities can reduce the riskiness of banks, although these gains tended to be limited in size, scope, or practice.Elsas et al (2010) found that diversification increases bank profitability and as a consequence also market valuations. Their main finding was that revenue diversification enhances bank profitability via higher margins from non-interest businesses and lower cost income ratios.

Banking is the management of risk. Banks accept risk in order to earn profits. They must therefore balance the alternative strategies in terms of their risk/return characteristics with the goal of maximizing shareholder wealth. In doing so, banks recognize that there are different types of risk and that the impact of a particular investment strategy on shareholders depends on the impact of the total risk of the organization [Gup and Kolari (2005)]. Financial services diversification allows managers to offer a wider range of services and spread the risks of lending across a larger number of asset categories, reducing monitoring costs [Diamond (1984)]. Diversification which serves as a means adopted by banks and investment companies to reduce their exposure to risk seem to have taken a different dimension when it comes to the business of banking as Lepetit et al (2007) stressed that diversification does not necessarily imply lower risk, and may on the contrary increase bank risk.While off-balance sheet (OBS) activities generate fee income for the banks, they also potentially increase bank risk [(Koppenhaver and Stover 1991; Avery and Berger 1991)]which may affect their profitability in various ways. But Smith et al. (2003)also maintain that banks generally seek to reduce their risks by diversifying across various lines of business, although there is usually some degree of specialization.

3. Methodology

This section presents the framework that underlies our empirical analysis.For a diversified bank with many operations and activities, there are both conceptual and practical approaches to investigating the impact of diversification on financial performance and stability. Empirically, bank income diversification is illustrated by non-interest income. We adopt a practical approach by using fees, commissions and other income as a proxy for assessing the impact of income diversification on profit stability of banks in Ghana. The overall trend of these income streams obtained from income statement data were related to total industry profits to examine the relative trends. Subsequently, income statement, balance sheet[1] and some macroeconomic data were used to estimate the

[1] The Income Statement and Balance Sheet data was obtained from the Ghana Association of Bankers (GAB).

significance of non-interest revenue on bank profits margins. This was achieved by the estimation of the multiple regression model[2]below;

$$y_{it} = \sum_{k=1}^{K} \beta_k x_{itk} + u_{it}$$

Where y_{it} represents profit margin (the ratio of profit before tax to total assets) for bank ***i***and at time ***t***,x_{itk}represents the regressors***k***for bank ***i*** at time ***t*** and the macroeconomic variables for period***t***[3]**.** $\varepsilon_{it}$is the error term consisting of the bank specific, time specific and statistical errors. In essence, we seek to establish the magnitude and significance of non-interest revenue on the profit of banks in Ghana, controlling for the remaining explanatory variables.

A bank benefits from diversification given that it's income from interest and non-interest earning activities results in relatively stable overall financial performance/profits. In other words, minimum fluctuations in earning streams could be an indication of diversification returns. Following the approach of Smith et al (2003), and Williams and Prather (2010) where coefficient of variation (CV) was used to estimate volatility of both interest and non-interest revenue the risk-return implication of revenue diversification was also analyzed to establish the risk associated with income diversification of banks in Ghana.

4. Analysis and Discussion of Findings

From the income statement data obtained, it was observed that income diversification of banks in Ghana has been on the ascendency over the period under consideration. This is indicative of the increasing relevance and prominence of non-interest income in banking. As shown in figure 1 below, non-interest income increased steadily between 2001 and 2011 along with increasing overall bank profits.

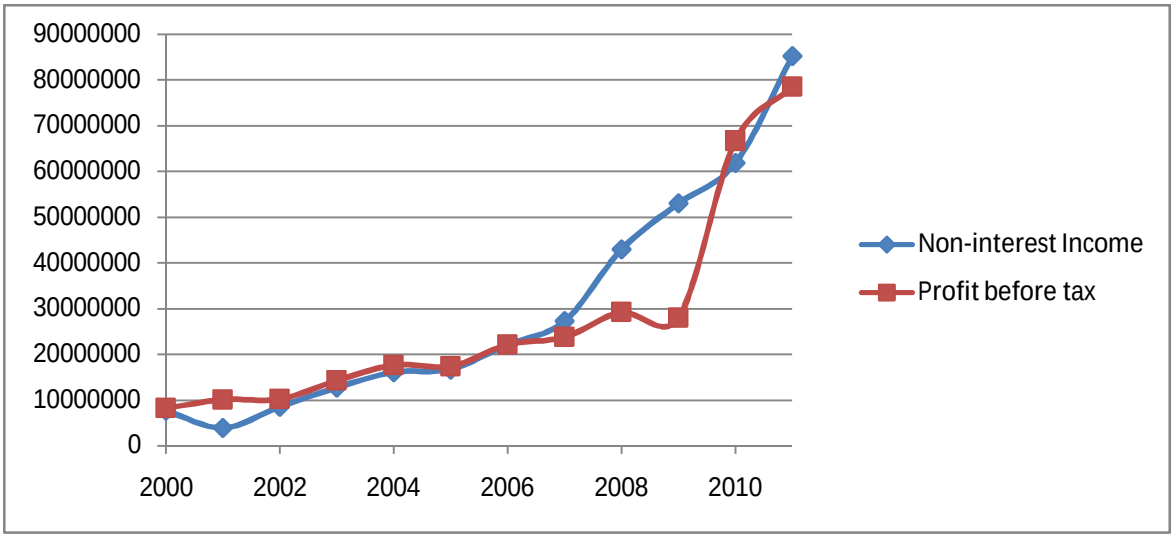

Figure 1: Relative Trend of Industry Non-Interest Income and Profit before Tax

The increases in non-interest income appear to be more steady and consistent relative to overall bank profits[4]. According to Williams and Prather (2010), the conventional view of fee income in banking is that banks offset lost margin income (interest income) via increased fee income. The question here however is; to what extent are these non-interest incomes relevant for the financial performance and stability of banks in Ghana?

[2] The regression was run using data from 2002-2011 as data on the annual average Bank of Ghana Prime Rate was available from 2002.

[3] The regressors are; non-interest income; (commission and fees + other income)/total assets, bank size; natural log of total assets, gross loans; gross loans/total assets, loan loss provision; LLP/TA, the annual average central bank prime rate and annual inflation rate.

[4] The inflection of the profit before tax curve between 2008 and 2009 was due to heavy losses posted by the industry's third largest bank at the time of the study.

Figure 2 shows the relative trend of percentage changes in non-interest income and overall bank profit in the Ghanaian banking sector. We examined the relative changes as a means of determining whether non-interest income plays an augmenting role when there are shortfalls in interest income, towards overall profit stability.

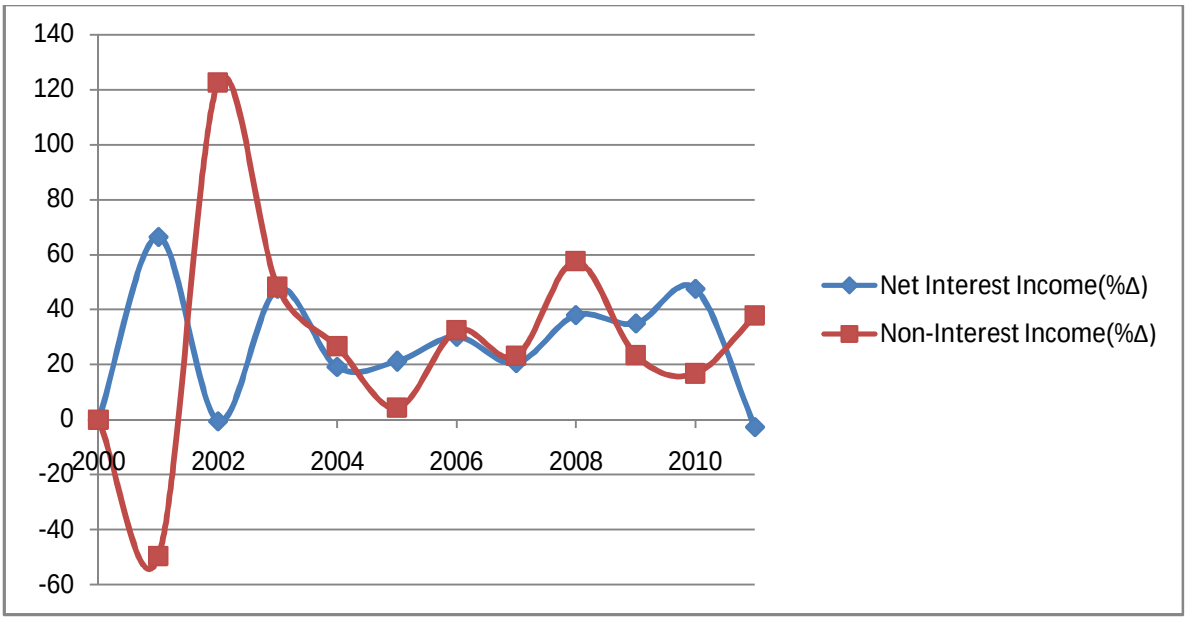

Figure 2: Trend of Relative Changes in Interest and Non-Interest Income

The trends show that non-interest income plays an augmenting role towards financial performance and stability. Throughout the observation period, changes in both income components appear to be generally in opposite directions. The non-interest income curve is either above or below the interest income curve for every given year. This could be interpreted to mean that banks resort to non-interest income to augment shortfalls in interest income and concentrate less on non-interest income where impressive interest income are anticipated.

Table 1: Correlations Matrix of the Dependent and Explanatory Variables

Variables	PM	S	π	LLP	INF	PmR	GL
Profit Margin (PM)	1						
Bank Size (S)	0.186*	1					
Non int. Income (π)	0.329*	-0.112	1				
Loan Loss Prov. (LLP)	0.010	0.068	-0.131	1			
Inflation (INF)	0.053	-0.239*	0.113	-0.051	1		
GoG Prime Rate (PmR)	0.122	-0.362*	0.272*	-0.041	-0.700*	1	
Gross Loans (GL)	0.240*	0.894*	-0.107	-0.012	0.248*	-0.446*	1

* Significant @ 5%

Table 1 shows that high correlations existed between prime rate and inflation and between gross loans and bank size. To eliminate the possible impact of multicollinearity, three regression models were estimated. The first estimation included all the parameters, the second excluded inflation and the third was without bank size and inflation. The regression results are presented in table 2 below.

Table 2: Regression Results[5](*t* Statistics in Parenthesis)

	Model 1	**Model 2**	**Model 3**
(Constant)	-0.227	-0.218	-0.162
	(-4.001)	(-3.916)	(-4.833)
Bank Size	-0.201	-0.183	
	(-1.370)	(-1.264)	
Non-interest Income	0.311*	0.318*	0.322*
	(4.630)	(4.780)	(4.828)
LoanLoss Provision	0.078	0.079	0.064
	(1.195)	(1.212)	(1.003)
Inflation	-0.077		
	(-0.848)		
GoG Prime Rate	0.269*	0.210*	0.199*
	(2.639)	(2.839)	(2.713)
Gross Loans	0.554*	0.532*	0.364*
	(3.617)	(3.526)	(5.112)
R Square	**0.227**	**0.225**	**0.218**
Adjusted R Square	**0.203**	**0.204**	**0.202**

*Significant at 5%

The regression result shows a positive and significant relationship between non-interest income and profit margin in all three equations. This suggests that the increases income diversification over the period under study actually contributed towards financial performance and that revenue from nontraditional activities is very relevant in ensuring profit stability of banks in Ghana. The results also show that in Ghana, bank's profit margins are independent of size and provisions for loan losses and inflation.

Table 3: Risk-Return Analysis of Interest Income, Non-Interest Income and Profit before Tax

	Net Interest Income (NII)	**Non-Interest Income (NII*)**	**Profit Before Tax (PBT)**	**Total Assets (TA)**	**NII/TA**	**NII*/TA**	**PBT/TA**
Mean	544,549,856	297,956,067	271,356,695	7,183,107,034	8.28%	4.48%	4.79%
SD	440,778,992	244,028,781	214,687,591	6,259,618,206	1.25%	0.93%	1.63%
Min	91,468,100	38,313,539	81,963,800	1,121,744,900	6.63%	2.87%	2.07%
Max	1,395,126,470	851,867,404	784,690,963	20,506,754,978	11.40%	6.78%	7.55%
CV	80.94%	81.90%	79.12%	87.14%	15.04%	20.83%	34.01%
n	*226*	*226*	*226*	*226*	*226*	*226*	*226*

The outcome from the risk-return analysis (Table 1) showed a higher coefficient of variation (CV) for non-interest income both in absolute terms and when expressed as a ratio of total assets, relative to net interest income. This indicates that non-interest income, which in this study consists of commission and fees as well as other income, is more volatile, relative to revenue from interest income. This finding does not support conventional wisdom and is inconsistent with the position held of Smith et al (2003) who found from European evidence that non-interest income reduces bank risk. It is however consistent with findings in the US (DeYoung and Roland, 2001; Stiroh, 2004) where it was found that fee income was more volatile than margin income.

[5] A Fixed Effect Model was used due to the limited sample of 20 banks and data points (98) used for the estimation.

It is also consistent with evidence from Australia,where Williams and Prather (2010) also found a higher coefficient of variation (CV) for non-interest income, relative to interest income.

5. Conclusion

Financial stabilization and deregulation have had important implications on the income statements of banks. There has been a shift from net interest income to non-interest income not dependent on traditional financial intermediation. The decline in interest margins has changed the traditional role of banks and has forced them to search for new sources of revenue. Structural changes such as industry deregulation, new information technologies and financial innovation have also increased the importance of fee income [Albertazzi and Gambacorta (2009)].Financial sector regulators have a keen interest in the banking industry due to the costs associated with insolvency, systemic risk, and potential disruptions in the allocation of credit. Similarly, borrowers, and investors remain concerned about the diversification of banking operations which are expected to yield mutual benefits.

This paper considered income diversification by banks in Ghana and its impact on overall financial performance and profit stability. We found that non-interest revenue is becoming increasingly relevant and contributes to bank profit stability. The increasing reliance of banks in Ghana on nontraditional income however comes with volatility in their earnings. Banking sector supervisors and regulators not only be aware of the role a particular bank plays in each line of business, but must understand the risk management strategy of the whole banking organization in order to evaluate the risk exposures of a particular bank [Stevens (2000)] giving the current levels of income diversification and its concomitant revenue volatility. Considering the diversity and complexity of banking operations in recent times, the Central Bank ought to continuously strengthen its controls by closely monitoring and assessing the increasing levels of risks assumed by banking companies and require the requisite capitals to protect the interest of all stakeholders in the industry.

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