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Bank Functional Diversification and Stock Market Response: Empirical Evidence from GCC Stock Market

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Abstract: This research investigates the influence of income diversification on stock market performance and associated risks within 81 GCC banks over the period from 2011 to 2020. The study classifies the banks into two categories: Conventional Banks (CBs) and Islamic Banks (IBs). It employs non-interest and non-financing income as metrics for assessing diversification. Utilizing dynamic panel econometric techniques, this study assesses key performance indicators, specifically Market-Equity to Book-Equity Value (MEBE) and Stock Return (SR), as well as risks such as Idiosyncratic Risk, Market Beta, and Total Risk. In CBs, income diversification exhibits a positive correlation with both MEBE and SR, suggesting improved market efficiency and investor confidence. However, this diversification also leads to an increase in idiosyncratic risk. Conversely, in IBs, income diversification is negatively associated with MEBE and SR, which may be attributed to deviations from traditional practices and varied risk exposure, without a significant impact on idiosyncratic risk. Additionally, both types of banks demonstrate a negative correlation between market beta risk and diversification, indicating reduced sensitivity to market fluctuations. The relationship between total risk and diversification is found to be non-significant for both bank types. The study underscores the multifaceted and diverse impacts of income diversification on the market performance and risk profiles of GCC banks. It emphasizes the necessity for banking models to implement tailored diversification strategies that align with the unique financial landscape of the GCC region. This insight is crucial for policymakers and banking professionals aiming to manage risks effectively in these dynamic markets.

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Introduction

This research examines the post-2007-2008 global financial crisis shift in the banking industry from traditional loan-based revenue to a broader range of non-interest income sources, such as fees and trading proceeds. While this transition has led to increased bank yields, it also raises concerns about its impact on returns and risks within the sector. The existing literature presents mixed findings on the effects of diversification on banking performance and risks. Studies such as those by Sanya & Wolfe (2011) and Lee et al. (2014b), focusing on Asian banks, suggest that diversification enhances profits and mitigates risks. Conversely, research by Stiroh & Rumble (2006) acknowledges the benefits of diversification for U.S. banks but also highlights increased exposure to business volatility due to reliance on non-interest income (Ammar & Boughrara, 2023). Similar mixed results are observed in European banks, as noted by Baele et al. (2007).

Notably, there is a gap in the literature concerning the influence of banking revenue diversification on stock markets, particularly using stock exchange data. Studies by Stiroh et al. (2006) and Sawada (2013) have explored this aspect for U.S., European, and Japanese banks, focusing on organizational forms and the performance of traditional banking services. However, the findings remain inconclusive. Comparative studies, such as Vo (2017) on Vietnamese banks and Younas et al. (2021) on Pakistani banks, despite employing similar methodologies, have yielded differing outcomes regarding the role of diversification in stock market performance and risks. This highlights the lack of consensus in the field, especially when considering both conventional and Islamic banks.

Stock market data, including measures of return and risk, are favoured in this domain due to their forward-looking nature and ability to predict performance and potential risks. Such data also allow for the dissection of total risk into systematic and specific components, providing critical insights to stakeholders in financial institutions.

This study provides a unique examination of the effects of diversification on the returns of both conventional and Islamic banks within the GCC stock markets. It investigates performance indicators such as share return and market value, as well as risk measures including idiosyncratic risk, systemic risk, and total risk. The research utilizes non-income-based metrics for conventional banks and non-financing revenue for Islamic banks to evaluate revenue diversification. Furthermore, in addition to analysing the impact of diversification on stock market performance and risk, this study considers various influencing factors such as bank size, cost-to-income ratio, impaired loan ratios, and loan growth.

The contributions of this paper are threefold: Firstly, it establishes a direct linkage between banking revenue diversification and its implications on stock market dynamics, employing market variables for performance and risk assessment. Secondly, it encompasses an examination of both conventional and Islamic banking systems. Lastly, the study focuses specifically on the GCC countries, offering a novel perspective on how functional banking diversification influences stock market performance and risks within this region.

Financial Deregulation in The Gcc

Over the last two decades, the financial services sector in the GCC has undergone significant transformations, influenced by advancements in technology and changes in regulations. Central banks in GCC nations have implemented substantial reforms, such as liberalizing financial service trade, facilitating the entry of foreign banks, and expanding investment opportunities. These changes, coupled with the surge in oil prices from 2005 to 2014, have bolstered the profitability of the banking sector. Non-interest income of GCC banks increased from 33% in 2002 to approximately 37-40% between 2005 and 2007 (AlKhouri & Arouri, 2019). The global financial crisis of 2007-2008 presented challenges, including credit, liquidity, and concentration risks. However, GCC banks, particularly Islamic ones, demonstrated resilience during this period. In response, GCC central banks implemented measures such as halting bank securities trading and providing capital injections to support the banking sector.

Following the crisis, international regulations such as Basel III imposed stricter requirements, prompting a shift in revenue composition. While banks in developed economies leaned towards net interest income, banks in emerging markets, including those in the GCC, increasingly diversified their income sources away from usurious activities.

Literature and Hypothesis Development

Our theoretical framework incorporates a range of theoretical perspectives to develop a deep understanding of diversification strategies and their impact on performance and risk. Modern Portfolio Theory by Markowitz (1952) serves as the foundation, offering insights into portfolio diversification, risk management, and the risk-return relationship. Market Power Theory by Porter (1981) is also considered, focusing on how firms can use market power to gain a competitive edge and the role of diversification in this process. Resource-Based Theory by Montgomery & Wernerfelt (1988) is examined to understand how a firm's unique resources and capabilities can influence its diversification strategies and competitive position. Transaction Cost Theory by Rindfleisch (2020) is explored to gain insights into the economic drivers of diversification decisions and the impact of transaction costs. Agency Theory by Jensen (1986) provides a framework for analysing the relationship between a firm's owners and managers regarding diversification decisions. Finally, According to a prior theory that is focusing on how the learning process within firms as they diversify impacts performance and diversification strategies. Together, these perspectives aim to provide a comprehensive understanding of diversification strategies in the context of performance and risk. The theories collectively shed light on the various pathways that link diversification to performance metrics, enhancing the basis for our research hypotheses. A detailed explanation of the research framework, which guided the development of these hypotheses, is provided (refer to Figure 1). This framework lays the foundation for understanding the intricate relationships and influences that shape our study's focus and direction.
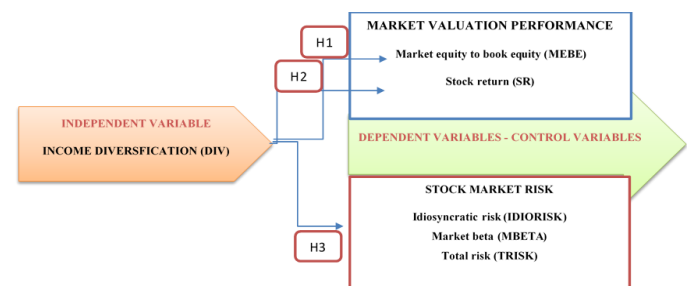

Figure 1: Conceptual Framework.

Diversification

Diversification within the banking sector represents a strategic approach for banks to broaden their revenue streams and extend their business outreach. It encompasses various forms such as asset diversification, geographical diversification, and income or functional diversification in response to global technological, political, and economic shifts. Asset diversification, as described by DeYoung & Rice (2006), involves diversifying the loan portfolio to cater to different sectors and industries, thereby assisting banks in mitigating sector-specific risks. Geographical diversification entails the expansion of a bank's operations into new territories through the establishment of branches in different regions or countries, as discussed by Meslier et al. (2014), serving as a means to extend the reach of financial services.

Income diversification, as noted by Schmid and Walter (2009), entails the extension of bank activities beyond traditional banking to encompass services such as banking securities, insurance, and brokerage. This strategic approach modernizes credit business and explores areas beyond reliance solely on net interest income, including brokerage, securitization, and retail services. Banks employ diversification strategies to enrich business activities and tap into various non-interest income sources, which significantly contribute to their total revenues, particularly in competitive environments. Elakkiya & Karthikeyan (2018) and Abedifar et al. (2018) underscore the importance of non-interest income, encompassing consulting services, money transfer services, third-party product sales, letters of credit and bank guarantees, insurance, loan service profits and fees, and income from non-performing loans. Unlike interest income, these strategies generate fees or profits for banks, including banking service fees such as consulting services, ATM fees, income from check sales, safe deposit fees, remittance fees, card fees, and fees from letters of credit and bank guarantees.

Trade revenue represents another significant income source involving the sale of financial instruments and assets, including net securitization income, net loan sales and rents, net real estate sales, and other net sales from financial assets. Trade revenue diversifies a bank's income sources, reducing reliance on interest income and enhancing profitability. Effective risk management is essential to ensure these activities do not pose excessive risks to the bank. These diversification strategies enable banks to seize market opportunities, manage assets effectively, and enhance overall profitability while prudently managing potential risks.

Stock Market and Income Diverisfication

The correlation between income diversification (DIV) in banks and stock market valuations and performance within the GCC countries is intricate and multi-faceted. Research conducted by Stiroh et al. (2006), Baele et al. (2007), Sawada (2013), and Vo (2017) has elucidated connections between bank diversification and stock market value. These studies underscore the forward-looking nature of equity prices, offering early insights into the performance and risks associated with different strategic decisions. Notably, an augmentation in non-interest income frequently corresponds with an increase in a bank's stock market value. However, in

emerging economies, responses to diversification can exhibit variability. For example, Vo (2017) identified a negative correlation in Vietnamese banks, indicating a preference for conventional banking practices.

Berger et al. (2010) uncovered that diversification may have an adverse impact on bank performance, particularly within the Chinese banking sector. Their findings challenge the conventional belief that diversification universally yields benefits. Conversely, Elsas et al. (2010) and Ammar & Boughrara (2019) documented a favourable effect of diversification on bank profitability, particularly concerning non-interest-based activities.

The intricate relationship between bank revenue DIV and stock market risk is further nuanced when considering various geographical contexts. Early-stage diversification, as explored by Templeton & Severiens (1992) and Yüksel et al. (2018) it is observed to stabilize market revenues and mitigate risks. Baele et al. (2007) and Elsas et al. (2010) corroborate this assertion with evidence from European banks.

However, Stiroh et al. (2006), Raffestin (2014), and Lee et al. (2014a) draw attention to the potential drawbacks of revenue DIV, particularly evident in larger banks during financial crises when operational risks are heightened. Laeven & Levine (2007) and Younas et al. (2021) note a DIV discount, indicating a market preference for traditional banking activities over diversified ones. Studies such as Sawada (2013) and Edirisuriya et al. (2015) reveal the nuanced dynamics where the nature of non-interest income and continuous asset base diversification significantly influence risk profiles and market valuation. In the GCC, this scenario assumes unique dimensions. Maghyereh & Yamani (2022) find that in Islamic banking, DIV effectively reduces systemic risks more than in conventional banks. This underscores the importance of considering the banking system type when analysing the effects of DIV.

The insights from these studies emphasize that there is no universally applicable approach to revenue diversification in banks. Different regional financial environments, banking system classifications, and temporal contexts play pivotal roles in shaping the impact of DIV.

Although there is extensive global discourse on corporate diversification, there is a notable dearth of specific literature addressing bank diversification within the GCC context. This gap underscores the imperative for further research to elucidate the intricacies of revenue DIV in banks, especially within the evolving financial milieu of GCC countries. The study emphasizes the necessity for a holistic approach to assess DIV's ramifications on market performance and risks, considering regional idiosyncrasies and variations in banking systems. Consequently, based on the aforementioned considerations, the study posits the following hypotheses:

The First Main Hypothesis is Divided into Two Sub-Hypotheses

H1: Income DIV significantly influence GCC banks market valuation (MEBE)

Given the potential interest in examining the aforementioned hypotheses for both conventional and IBs, we propose the following two hypotheses:

H1.1: Income DIV significantly influence GCC CBs market valuation (MEBE)

H1.2: Income DIV significantly influence GCC IBs market

valuation (MEBE)

The Second Main Hypothesis is Divided into Two Sub-Hypotheses

H2: There is a significant linkage between banks income DIV and GCCs stock market performance (SR).
H2.1: There is a significant linkage between CBs income DIV and GCCs stock market performance (SR).
H2.1: There is a significant linkage between IBs income DIV and GCCs stock market performance (SR).

The Third Main Hypothesis is Divided into Two Sub-Hypotheses

H3: Income DIV significantly influences the GCC banks stock Market Risk (MR) where MR $\in$ {IDIORISK, MBETA, TRISK}.
Similarly, we acknowledge the conventional or Islamic nature of banks by deconstructing H3 into:
H3.1: Income DIV significantly influences the GCC CBs stock Market Risk (MR) where MR $\in$ {IDIORISK, MMBETA, TRISK}.
H3.2: Income DIV significantly influences the GCC IBs stock Market Risk (MR) where MR $\in$ {IDIORISK, MBETA, TRISK}.

Data and Samples

In this study, we meticulously collected data on both conventional and Islamic banks listed on the stock markets across the GCC countries. The analysis covers the period from 2011 to 2020. Our comprehensive sample comprises 81 banks from six GCC countries: the United Arab Emirates, Saudi Arabia, Qatar, Bahrain, Oman, and Kuwait. This selection represents 95% of the total banks listed in the stock markets of the GCC region. The bank-specific data was diligently sourced from the annual reports available on the official websites of these financial institutions. Additionally, we integrated monthly stock return data to gain a more dynamic understanding of market trends. To ensure data integrity and relevance, banks were excluded from our sample if they exhibited more than 20% missing trading data for any given year. Furthermore, in instances where banks underwent mergers, their data immediately post-merger was cautiously removed to mitigate any discrepancies in our analysis. For processing and analysing this extensive dataset, we employed Stata 16. The selection of this software underscores our dedication to delivering precise and dependable results, vital for comprehending the intricate dynamics of bank performance and stock market trends in the GCC region.

Methodology

The primary aim of this paper is to elucidate the influence of income DIV in both CBs & IBs on stock market performance in the GCC countries. Aligned with this research objective, the variables are categorized into:

1. *Dependent Variable (Stock Market Performance and Risk Measure)*
2. **Performance**: To assess performance, this study adopted measures proposed by both Sawada (2013) and Edirisuriya et al. (2015).
3. **MEBE**: As a ratio of the bank's market value to book value of equity.
4. **SR**: As the standard deviation of the bank's monthly inventory returns.

5. **Risks:** The research employed three methodologies to gauge risks.
6. Idiosyncratic risk (IDORISK)
7. Market risk (MRBETA)
8. Total risk (TORISK)
9. *Independent Variable: (Income Diversification)*

This study, adopting the methodologies of Vo (2017) and Younas et al. (2021), centres on income diversification, considering it as an independent variable. The primary focus is on revenue diversification. To quantify this, the study utilizes the Net Non-Interest Income (NNII) ratio. This ratio is critical for evaluating the extent and efficacy of revenue diversification within the research framework, as depicted by the following formula:

$$\text{NNII Ratio} = 1 - \left(\frac{Net\ Non-Interest\ Income}{Total\ Operation\ Income}\right)$$

Controls Variable

In this study, we integrate various control variables that could potentially impact bank valuation. Specifically, these encompass: SIZE, denoted by the logarithm of total assets; GDP, reflecting economic performance; INF, representing inflation rates; LTA, signifying the ratio of loans to total assets; and CIR, indicative of the cost-to-total income ratio; NPL, the ratio of non-performing loans to total loans. These variables are selected for their capacity to elucidate fluctuations in bank valuation beyond the primary emphasis on diversification.

Regression Models

According to Edirisuriya et al. (2015), we estimate a general class of panel models using an unbalanced dataset. The regression model can be expressed as:

$$\dot{y}_{i,t} = \alpha + \beta_1 x_{i,t-1} + \sum_{j=2}^{6} \beta_j x_{i,j,t-1} + \sum_{k=7}^{9} \beta_k x_{i,k} + \sum_{l=10}^{22} \beta_l x_{i,l} + \varepsilon_{i,t}$$

In the regression analyses for each bank i in year t, dependent variables are: (1) $MEBE_{i,t}$ and monthly stock return ($SR_{i,t}$). Additionally, risk such as IDORISK, MABETA, and TORISK are examined, focusing on the standard deviation of monthly market beta and Idiosyncratic risk. The principal explanatory variable, x_i, t-1, represents income diversification (DIV) for bank i in the year preceding t (year t-1). Bank-specific control variables, x_i, j, t-1, for each bank i in year t-1, (J = 1,2,3...). Country-specific (x_i, k) and year-specific (x_i, l) dummy variables are also part of the model, controlling for country and time effects.

Empirical Results

Descriptive Statistics

Figure 2 depicts the evolution of income diversification and the distribution of non-interest income shares in banks within the GCC region. This Figure 2 showcases the yearly average ratios of non-interest income and revenue diversification for banks listed on the GCC stock markets. An evident trend observed is the upward trajectory of these metrics post-mid-2019, attributed to the repercussions of the COVID-19 pandemic. During this period, there was a decline in interest-based transactions, underscoring the importance of non-

interest income for the sustainability of banks.

Moreover, the Figure 2 disaggregates the average non-interest income into key components: fee income, investment income, exchange rate income, real estate income, and other categories. Examination of these components reveals their diverse contributions to the total non-interest income. Notably, fee income emerges as the most substantial contributor, whereas real estate income constitutes the smallest fraction of the overall non-interest income.
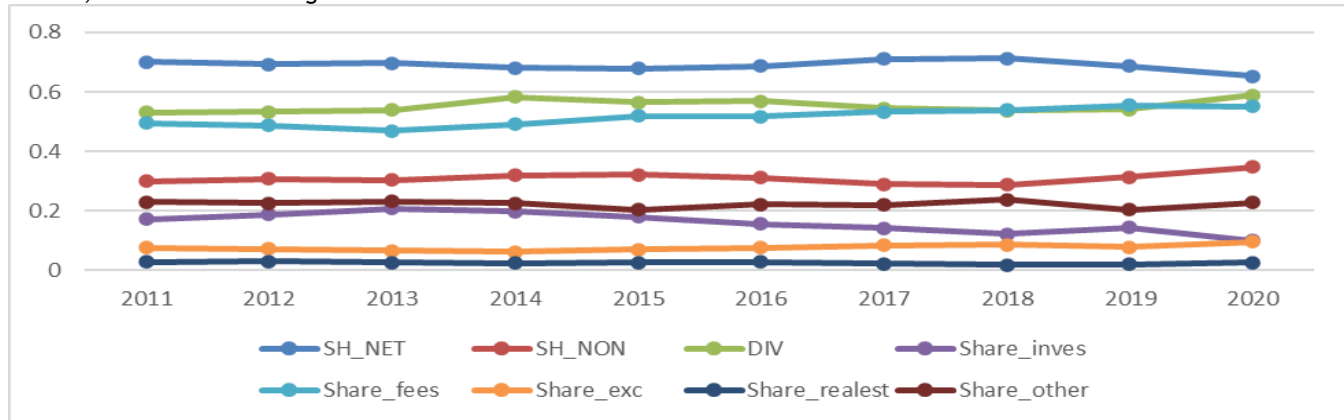

Figure 2: The Evolution of Income DIV and The Decomposition of Non-Interest Income Share of GCC Banks.

Tables 1 and Table 2 provide the descriptive statistics of a sample comprising 81 banks, distributed across two banking systems: 58 conventional banks and 23 Islamic banks, listed on eight stock exchanges in the GCC countries (TASI, Dubai, Abu Dhabi, Qatar, Bahrain, Oman, Kuwait). Notably, both tables reveal that the standard deviation of the Tobin-Q scale exceeds that of the MEBE scale. This discrepancy is likely attributable to the conservative financial leverage of banking entities, possibly stemming from the substantial capital required for the establishment and sustained operation of these institutions, characteristics evident within the study sample.

Table 1: Descriptive Statistic: GCC CBs.

VARIABLE	NO	MEAN	MEDIAN	MIN	MAX	STD
DIV	580	0.5244046	0.5508533	0.0041005	0.9886528	0.2129651
SH_NON	580	0.2622023	0.2754266	0.0020503	0.4998264	0.1064826
SH_NET	580	0.7377977	0.7245734	0.5001736	0.9979497	0.1064826
Tobin-Q	580	1.799129	0.6505319	0.0476094	10.56042	2.6926
MEBE	580	1.740019	0.6505319	0.0476094	11.92791	2.546681
SR	580	0.2628956	0.2303687	0.0901933	0.673643	0.1407933
IDIORISK	580	0.5627336	0.1681649	0.0074407	3.048762	0.8711833
MBETA	580	0.5687975	0.526354	-0.6925296	1.974238	0.7088216
TRISK	580	1.131531	0.9440828	-0.6850889	4.813944	1.111445
SIZE	580	21.52393	21.64794	17.59776	25.73322	2.380713
ETA	580	0.2090152	0.1409622	0.0824769	0.6636015	0.163574
CIR	580	0.4590044	0.4265422	0.1054313	1.067459	0.2379071
NPL	580	0.0328094	0.0165393	0.0012917	0.1325887	0.0370523
INF	580	1.533945	1.848627	-2.093333	4.069966	1.692165
RGDP	580	2.098948	2.9	-6.6	6.24	3.209874

Table 2: Descriptive Statistic: GCC IBs.

VARIABLE	NO	MEAN	MEDIAN	MIN	MAX	STD
DIV	230	0.5487143	0.5643871	0.0268183	0.9943148	0.232173
SH_NON	230	0.2743572	0.2821935	0.0134092	0.4971574	0.1160865
SH_NET	230	0.7256428	0.7178065	0.5028426	0.9865908	0.1160865
Tobin-Q	230	1.958495	0.7358378	0.0476094	10.58064	2.890365
MEBE	230	1.77526	0.7358378	0.0476094	9.400818	2.426474
SR	230	0.2846748	0.2381904	0.0901933	0.673643	0.1667627
IDIORISK	230	0.4585079	0.156291	0.0074407	3.048762	0.6757229
MBETA	230	0.6394915	0.7021118	-0.6925296	1.974238	0.7357776
TRISK	230	1.097999	0.9721042	-0.6703057	4.590415	1.12325
SIZE	230	21.64681	21.85505	17.59776	25.73322	2.573112
ETA	230	0.1650021	0.1401177	0.0824769	0.6636015	0.0964011
CIR	230	0.4285927	0.4223193	0.1054313	1.067459	0.2006164
NPL	230	0.0291938	0.0120019	0.0012917	0.1325887	0.0351241
INF	230	1.519211	1.966826	-2.093333	4.069966	1.743315
RGDP	230	2.153957	2.9	-6.6	6.24	3.115236

Regression Analysis

Income DIV and Market Performance

Table 3 displays regression outcomes examining the association between income DIV as an independent variable and MEBE and SR as dependent variables for both conventional and Islamic banks in the GCC from 2011 to 2020. The findings underscore the importance of income diversification in influencing market performance by enhancing investment efficiency and return on capital.

MEBE Regression Analysis

Statistical significance between MEBE and DIV is observed at $p < 0.01$ and $p < 0.05$ across all GCC banks, encompassing both conventional and Islamic institutions. A positive correlation (0.496) between DIV and MEBE is evident in conventional banks and the overall banking sector. This suggests that augmenting revenue diversification positively impacts market efficiency and enhances investor confidence

in these banks. Conversely, Islamic banks exhibit a negative correlation (-0.396) between these variables, implying that heightened revenue diversification may lead to decreased market valuation, possibly due to perceived inefficiencies or a lack of specialization.

Hypotheses Evaluation

H1 (Overall Impact on GCC Banks): Accepted. The MEBE ratio exhibits notable positive associations in GCC banks, suggesting a favourable influence of DIV on market capitalization.

H1.1 (Impact on GCC Conventional Banks): Accepted. A statistically significant positive correlation is observed between income DIV and MEBE in conventional banks, thus confirming the hypothesis.

H1.2 (Impact on GCC Islamic Banks): Accepted with a negative effect. The findings demonstrate a significant negative correlation between income DIV and MEBE in Islamic banks, indicating a decline in market valuation associated with higher levels of diversification.

Table 3: Regression Analysis for Income DIV and GCC Market Valuation

VARIABLES	CBs		IBs		GCC banks	
	SR	MEBE	SR	MEBE	SR	MEBE
DIV	0.225**	0.496***	-0.412***	-0.396**	0.0626*	1.067***
	(0.0938)	(0.470)	(0.150)	(0.158)	(0.0805)	(0.384)
SIZE	-0.0281**	-0.332***	-0.163***	-0.201***	-0.0810***	-0.366***
	(0.0300)	(0.0480)	(0.0403)	(0.0424)	(0.0246)	(0.0389)
CIR	-0.566**	1.616***	-1.154**	0.409	-0.793***	1.465***
	(0.275)	(0.441)	(0.471)	(0.495)	(0.238)	(0.380)
ETA	-0.101	-5.459***	-3.527***	-4.491***	-0.376	-4.530***
	(0.423)	(0.675)	(1.182)	(1.242)	(0.377)	(0.597)
NPL	0.105	-1.885**	0.877**	2.605	0.196	-0.864***
	(0.170)	(2.876)	(0.434)	(0.456)	(0.151)	(0.239)
LR1	-10.77***	1.507***	-5.161*	2.391	-9.158***	0.0229
	(1.801)	(0.270)	(2.887)	(3.035)	(1.534)	(2.440)
INF	0.0392	0.0321	0.121**	-0.0757	0.0724**	-0.0521
	(0.0428)	(0.0686)	(0.0605)	(0.0636)	(0.0357)	(0.0568)
RGDP	0.0784***	0.0329	-0.0120	0.0401	0.0426**	0.0119
	(0.0227)	(0.0363)	(0.0346)	(0.0364)	(0.0192)	(0.0306)
Constant	1.412*	9.207***	3.847***	2.729**	2.408***	9.738***
	(0.756)	(1.158)	(1.028)	(1.081)	(0.619)	(0.934)
Observations	580	580	230	230	810	810
R-squared	0.143	0.174	0.252	0.300	0.130	0.166
Sargan test	0.111	0.911	0.493	0.516	0.309	.174
AR2	0.327	0.483	0.396	0.681	0.484	0.751

The regression analysis investigates the relationship between income diversification (DIV) and GCC market valuation, with market performance measured by stock market return (SR) and Market-Equity to Book-Equity Value (MEBE). DIV is computed differently for Conventional Banks (CBs) and Islamic Banks (IBs), incorporating interest income and five activities within non-interest income. Control variables include bank size (SIZE), cost to income ratio (CIR), equity to total assets ratio (ETA), non-performing loans to total loans ratio (NPL), current assets to current liabilities ratio (LR), inflation (INF), and real GDP growth (RGDP). The validity of instrument selection is assessed using the Sargan test, while the Arellano-Bond test (AR (2)) examines second-order autocorrelation in first differences. Standard errors are reported in brackets, with statistical significance indicated by ***, **, and *, representing significance at the 1%, 5%, and 10% levels, respectively.

The findings presented in Table 4 affirm that income DIV significantly influences the market valuation of GCC banks, showcasing variations between conventional and Islamic banks. While DIV exerts a positive impact on the market valuation of conventional banks, as measured by MEBE, it demonstrates a negative effect on Islamic banks. These results underscore the disparate effects of income diversification across different bank types within the GCC region. Our findings align with Sawada (2013) research on

Japanese markets; however, they diverge from the outcomes observed in Yunus's (2021) study on Pakistani markets. This discrepancy is likely attributed to the volatile nature of the Pakistani stock market, as interpreted by the researcher based on his findings.

Control Variables

The regression analysis depicted in Table 3 delves into the association between MEBE and various control variables. It

was observed that a larger SIZE exerts a negative impact on MEBE across all GCC banks, including both CBs and IBs ($p < 0.01$: -0.332, -0.201, -0.366). This implies that an increase in size may diminish MV, potentially attributed to the complexities in management within larger banks. Conversely, a positive correlation was detected between CIR and MEBE, indicating that higher costs relative to income may augment MV in GCC banks ($p < 0.01$: 1.465, 1.616). Furthermore, a significant negative relationship was noted between ETA and MEBE ($p < 0.01$: -5.459, -4.491, -4.530), suggesting that an enhancement in financial stability results in a decline in MV. Moreover, NPL exhibited a noteworthy negative correlation with MEBE in CB and GCC banks ($p < 0.01$, $p < 0.05$: -1.885, -0.864), indicating that elevated NPLs diminish MV. In the case of IBs, although the relationship between these variables and MEBE was positive, it did not significantly differ from CBs, potentially owing to their distinctive lending strategies and business models. Lastly, LR significantly bolstered MEBE in CBs ($p < 0.01$: 1.507), suggesting that debt financing might be advantageous in certain scenarios, although excessive leverage could escalate financial risks.

SR Regression Analysis

Table 3 examines the impact of income diversification (DIV) on stock market performance (measured by stock return) for both CBs and IBs in the GCC region from 2011 to 2020. The results indicate significant differences between these two types of banks. For CBs and the broader GCC banking sector, a positive correlation is observed between DIV and stock returns, quantified at 0.225 and 0.0626, respectively. This suggests that CBs with diversified income streams, encompassing both interest and non-interest income, tend to achieve higher equity returns, allowing them to mitigate specific risks and stabilize profit generation. Conversely, Islamic banks exhibit a negative correlation (-0.412) between DIV and SR, indicating that a higher reliance on diversified, non-financing income sources may adversely impact SR in IBs. This association suggests potential exposure to varied risks or a deviation from core banking activities, which could be less profitable and riskier compared to conventional operations.

Hypotheses Evaluation

H2 (General Impact on GCC Banks): Accepted. It suggests a broad positive correlation between income diversification (DIV) and stock market performance across GCC banks, implying that revenue diversification typically boosts market value.

H2.1 (Impact on GCC CBs): Accepted, with a positive influence. The augmentation of revenue diversification in conventional banks aligns with elevated stock returns, indicating the advantageous effect of diversified income sources in these institutions.

H2.2 (Impact on GCC IBs): Accepted, with a negative effect. The negative correlation observed in Islamic banks implies that heightened reliance on diverse, non-financial income streams may adversely affect stock market performance, highlighting the distinctive challenges and risks associated with income diversification in these institutions.

While income diversification generally demonstrates a positive correlation with stock market performance in the GCC banking sector, especially evident in conventional banks, it has adverse effects on Islamic banks. This underscores the nuanced implications of diversification strategies across various banking models in the region.

Income DIV and Bank Market Risk

Table 4 presents a regression model testing hypothesis (H3), examining the relationship between income diversification and stock market risk in GCC banks, encompassing both conventional and Islamic banks, from 2011 to 2020. The analysis includes idiosyncratic risk, market beta, and total risk as dependent variables, with income diversification as the independent variable. Control variables such as SIZE, CIR, ETA, NPL, LR, INF, and GDP are also incorporated.

1. **CBs:** A significant positive regression ($p < 0.05$: 0.258, 0.0768) between IDIORISK and income DIV was observed. This implies that diversifying income sources increases IDIORISK in these banks, consistent with findings from studies by Baele et al. (2007) and Filson & Olfati (2014), but contradicting Sawada (2013). This suggests that engaging in a variety of income-generating activities exposes banks to a wider range of idiosyncratic risk.

2. **IBs:** In contrast to conventional banks, Islamic banks displayed no significant correlation between individual risk and income diversification. This implies that diversifying income sources does not significantly impact individual risk levels in Islamic banks.

Hypotheses Evaluation

H3 (General Impact on GCC Banks): Partially accepted. The relationship between income DIV and market risk in GCC banks is mixed. There's a significant positive impact on IDIORISK in CBs and a negative correlation with market beta across both bank types. However, there was no significant impact observed on TORISK.

H3.1 (Impact on GCC Conventional Banks): Partially accepted. A significant positive relationship with IDIORISK and a negative correlation with MBETA were observed, indicating mixed effects of diversification on market risk in CBs.

H3.2 (Effect on GCC Islamic Banks): Partially accepted. While there's no significant impact on IDIORISK, a negative relationship with MBETA was observed, indicating lower market risk with increased diversification in IBs.

In conclusion, the study elucidates the intricate influence of income DIV on market risk in GCC banks. While DIV appears to elevate IDIORISK in CBs, it mitigates market risk in both conventional and Islamic banks. Nonetheless, there is no significant correlation observed with total risk. This complexity underscores diverse effects of income diversification on market risk, contingent upon bank type and specific risk metrics. The outcomes resonate with the findings of Maghyereh et al. (2022) regarding Islamic banks but diverge from Sawada (2013) conclusions in the context of conventional banks.

Control Variables

IDIORISK and CONTRAL Variables: SIZE: In IBs and across the GCC banking sector as a whole, a negative correlation was observed ($p < 0.01$: -0.111, -0.0554) between SIZE and IDIORISK, indicating that larger banks exhibit reduced IDIORISK. However, this trend was not significant in CBs. Regarding the CIR, a positive and significant connection was found in GCC IBs ($p < 0.1$: 0.363), suggesting that higher operational costs relative to income increase IDIORISK. This relationship was not significant in CBs or the overall GCC banking sector. In terms of ETA, a negative and significant

link was observed in both CBs and IBs across GCC banks, indicating that higher equity-to-asset ratios are associated with lower IDIORISK. In IBs, there was a positive and significant relationship (p < 0.01: 0.572) between LR and IDIORISK, suggesting that higher leverage increases IDIORISK, although this relationship was not significant in other bank types. Regarding INF, the overall GCC banking sector exhibited a positive and significant correlation (p < 0.05: 0.0413) between INF and IDIORISK, although no significant finding was observed in IBs and CBs individually. Lastly, a negative and significant relationship was observed in the overall GCC banking sector between real GDP and IDIORISK (p < 0.05: -0.0260), with no significance observed in individual bank types.

Table 4: Regression Analysis for Income DIV and GCC Market Risk.

VARIABLES	CBS			IBS			GCC BANKS		
	IDIORISK	MBETA	TRISK	IDIORISK	MBETA	TRISK	IDIORISK	MBETA	TRISK
DIV	0.258**	-0.308**	-0.0180	-0.00773	-0.159**	0.0179	0.0768**	-0.464**	-0.0105
	(0.172)	(0.140)	(0.0408)	(0.177)	(0.220)	(0.0589)	(0.0446)	(0.202)	(0.0335)
SIZE	-0.0258	-0.00294	-0.00390	-0.111***	-0.0243	-0.0233***	-0.0554***		-0.0103***
	(0.0176)	(0.0143)	(0.00416)	(0.0174)	(0.0217)	(0.00580)	(0.0136)		(0.00339)
CIR	-0.227	0.0763	-0.0269	0.363*	-0.105	0.0319	-0.128	-0.301	-0.0208
	(0.162)	(0.131)	(0.0382)	(0.211)	(0.263)	(0.0704)	(0.132)	(0.198)	(0.0331)
ETA	-1.048***	-0.166	-0.222***	-1.565***	-0.795	-0.418**	-0.916***	0.00632	-0.226***
	(0.247)	(0.200)	(0.0585)	(0.514)	(0.642)	(0.172)	(0.209)	(0.311)	(0.0520)
LR1	-0.0325	-0.0869	-0.0239	0.572***	-0.0646	0.0846	0.0453	-0.119	-0.0129
	(0.0992)	(0.0803)	(0.0234)	(0.192)	(0.239)	(0.0639)	(0.0835)	(0.127)	(0.0209)
NPL	0.633	-3.363***	-0.587**	-0.215	-2.417	-0.618	0.0715	-5.269***	-0.647***
	(1.055)	(0.854)	(0.249)	(1.288)	(1.607)	(0.430)	(0.850)	(1.263)	(0.213)
INF	0.0332	0.0146	0.00848	0.0337	0.0596*	0.0178**	0.0413**	0.0656**	0.0127**
	(0.0251)	(0.0204)	(0.00594)	(0.0269)	(0.0336)	(0.00899)	(0.0197)	(0.0306)	(0.00495)
RGDP	-0.0213	-0.0332***	-0.0105***	-0.0223	-0.0435**	-0.0137***	-0.0260**	-0.0672***	-0.0122***
	(0.0133)	(0.0108)	(0.00315)	(0.0155)	(0.0193)	(0.00517)	(0.0106)	(0.0165)	(0.00267)
Constant	1.299***	1.001***	1.808***	2.674***	1.361***	2.133***	1.990***	0.543***	1.928***
	(0.425)	(0.344)	(0.100)	(0.416)	(0.519)	(0.139)	(0.343)	(0.177)	(0.0815)
Observations	580	580	580	230	230	230	810	810	810
R-squared	0.151	0.161	0.171	0.386	0.162	0.283	0.158	0.151	0.183
Sargan test	0.840	0.276	0.276	0.828	0.261	.139	0.969	0.198	0.298
AR2	0.138	0.300	0.001	0.292	0.218	0.599	0.760	0.080	0.116

The dependent variable comprises Stock Market Risk, denoted as IDIORISK (SIR), MBETA (MB), or TRISK. The independent variable is DIV, representing Income Diversification (DIV), calculated as 1 - ((interest income - non-interest income) / total income)), which includes interest income and five activities within non-interest income. Control variables encompass Bank Size (SIZE) presented as the logarithm of total assets, Cost-to-Income Ratio (CIR), Equity-to-Total Assets Ratio (ETA), Non-Performing Loans to Total Loans (NPL), Current Assets to Current Liabilities Ratio (LR), Inflation (INF), and Real GDP (RGDP). Instrument validity is assessed using the Sargan test, examining the null hypothesis that the instruments used are uncorrelated with the residuals. The Arellano-Bond test (AR (2)) is employed to evaluate second-order autocorrelation in first differences. Standard errors are reported in brackets, while statistical significance is denoted by ***, **, and *, indicating significance at the 1%, 5%, and 10% levels, respectively.

MBETA and CONTROAL Variables: NPL exhibit a significant negative correlation with MBETA in both CBs and the overall GCC banking sector (p < 0.5: -0.587, p < 0.1: -0.647), indicating that higher NPLs are associated with decreased market risk. However, this relationship is not significant in IBs. INF demonstrates a positive significant relationship with MBETA in IBs and the overall GCC banking sector (p < 0.1: 0.0596, p < 0.05: 0.0656), but it is not significant in CBs. RGDP shows a negative correlation with MBETA, suggesting that higher RGDP is linked to lower market risk.

TRISK and CONTROAL Variables: NPL display a significant negative correlation with TRISK in CBs and the overall GCC banking sector (p < 0.5: -0.587, p < 0.1: -0.647), indicating that higher NPLs are associated with decreased total market risk. However, this relationship is not significant in IBs. RGDP exhibits a significant negative correlation with TRISK in the GCC stock market (p < 0.5: -0.587, p < 0.1: -0.647), suggesting that higher GDP growth rates are linked to lower total market risk.

Table 5: Summery of Finding.

Hypothesis	Path	RESULT		
		CBs	IBs	GCC Banks
H1	DIV * MEBE	Supported	Supported	Supported
H2	DIV * SR	Supported	Supported	Supported
H3	DIV * MR	Partially supported	Partially supported	Partially supported

Conclusion

This study investigates the impact of income diversification on stock market performance, focusing on non-interest revenue sources across 81 banks in the GCC from 2011 to 2020. Using MEBE and SR for performance and various risk measures for risks, the study identifies significant

differences between Conventional and Islamic Banks. Conventional Banks show a positive relationship between diversification and MEBE and SR, indicating enhanced market efficiency and higher equity returns. However, they also exhibit a positive correlation between diversification and idiosyncratic risk, suggesting increased exposure to specific non-systemic risks. In contrast, Islamic Banks display a negative correlation between diversification and MEBE and SR, possibly due to perceived inefficiencies or a departure from traditional practices. Interestingly, Islamic Banks show no significant relationship between diversification and idiosyncratic risk, indicating unique resilience in risk management. Both bank types show a negative correlation between market beta risk and diversification, suggesting reduced market sensitivity with increased diversification. However, no significant correlation is found between total risk and diversification in either bank type, highlighting the multifaceted nature of banking sector risk. Overall, the study underscores the need for tailored diversification strategies for different banking models in the GCC region.

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