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INCOME DIVERSIFICATION ON STABILITY IN BANKING INDUSTRY A SYSTEMATIC LITERATURE REVIEW

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Abstract:
This study aims to provide a deeper understanding of income diversification carried out by banks and provide guidelines for future researchers in conducting research related to the relationship between income diversification and bank stability. The method used in this research is the Systematic Literature Review (SLR), which identifies and assesses the findings of previous studies in order to guide further research in the future. There was 1 article from conference papers and 1 article from working papers. The remaining 28 articles came from well-known publishers. So 30 articles were obtained from well-known publishers and content following the topic of this literature review. The findings of this study indicate that the main motives for implementing the income diversification strategy are increased performance, reduced risk and competition between banks. This study also shows that there is a fairly wide research gap regarding the relationship between income diversification and bank stability. In addition, it was found that the Herfindahl Hirschman Index (HHI) is the most widely used measurement as a proxy for income diversification, and the generalized method of moment (GMM) is the most commonly applied statistical testing tool. The findings of this study are expected to provide a comprehensive picture of the implementation of the income diversification strategy and provide guidance for future research areas.

Keywords: Bank Stability, Bank Z-Score, Income Diversification, Risk, Systematic Literature Review.

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INTRODUCTION

Banking institutions are intermediary financial institutions that act as intermediaries from parties who have excess funds to parties who need funds. Thus, the bank has a nature in its business, namely as a party that needs as well as provides funds (demander and supplier). Banks benefit from interest income in carrying out this activity (DeYoung et al., 2018). Interest income is the main income of banks that have a high risk in their operations as a result of banks financing illiquid assets using their liquid liabilities (Berger & Bouwman, 2009). In other words, the lending provided to customers is long-term, while the funding obtained is short-term. The consequences arising from these conditions pose a liquidity risk, resulting in a decrease in the level of bank stability (Ghenimi et al., 2017). Diversification is one way to mitigate risk. Diversifying income into non-interest income can be seen as a hedge against risks arising from interest income activities (Asif & Akhter, 2019). Non-interest income is generally known as fee-based income and trading income activities that are believed to increase bank stability by reducing insolvency risk (Ramlall, 2018).

Some researchers agree and are optimistic that changes in the income structure of banking companies will increase bank stability (Stiroh, 2004). Meanwhile, other researchers argue that there is a negative correlation between income diversification by banks on stability or performance (DeYoung & Huang, 2021). However, as is usual in science, there are cons and conditions regarding the relationship between interrelated concepts. Several researchers have shown that income diversification carried out by banks can increase bank stability (Ashraf et al., 2016; Ghenimi et al., 2017; Hunjra et al., 2020; Moudud-Ul-Huq, 2019; Sissy et al., 2017; Wang & Lin, 2021). Meanwhile, other researchers show that there is no (irrelevant) effect of income diversification on bank stability (Abuzayed et al., 2018; Amoah et al., 2021; Ozili, 2018; Paltrinieri et al., 2020) even in some conditions, income diversification can reduce bank stability due to increased agency costs in banks (Edirisuriya et al., 2015; Stiroh, 2004; Tran et al., 2020).

The inconsistency of the findings on the effect of income diversification on bank stability may be due to differences in research models, measurement of concepts and the time and place of research (Abuzayed et al., 2018; Moudud-Ul-Huq, 2019; Paltrinieri et al., 2020). Therefore, a detailed and systematic literature review is needed to analyze the research gaps that occurred in previous studies. This is important so that the understanding of income diversification carried out by banks becomes more complex and comprehensive. This research was conducted to answer the following research questions, how is the relationship between income diversification and banking stability? This study uses a systematic literature review (SLR) by collecting and discussing findings from previous studies to answer this question. Thus, this study aims to provide a deeper understanding of income diversification carried out by banks and provide guidance for further researchers in conducting research related to the relationship between income diversification and bank stability.

METHODS

Considering that many studies have been conducted that examine the relationship between income diversification and bank stability and performance, the SLR method is deemed appropriate to analyze the findings of previous studies in order to be able to guide further research in the future. This study was conducted using five stages as implemented by Asif and Akhter (2019) as follows:

a. Determine the scope and objectives of a systematic literature review
b. Explain the relevant literature search strategy
c. Apply filtering criteria
d. Literature quality assessment
e. Data reporting and analysis

Scope and objectives of the systematic review. The specific objectives of this literature review are

- To find the main motivation of income diversification strategy in banking sector companies.
- Studying the effect of income diversification on the level of stability of companies in the banking sector.

Starting from writing a literature review as described above, this study tries to explore the results of empirical findings conducted by previous researchers about the effects of income diversification applied by banks in different contexts of time and place. **Search strategy.** The search for articles that became research material in this literature review was carried out in the following stages,

- Using Google Scholar as the main search engine to collect empirical research articles related to income diversification carried out by banks. The reason for using Google Scholar is because Google Scholar is a search engine for research articles that can be used for free, and Google Scholar is the largest database of research articles that ordinary users can use.
- The keywords used in the search engine are as follows, "income diversification", "revenue diversification", "banking diversification", "bank stability", "bank z-score", "non-traditional bank activity", "bank diversification strategy".
- The search was carried out from July 2021 to November 2021 and found 74 articles according to keywords.

Filtering criteria. The selection of articles used as study material in this literature review uses the following filtering criteria,

- Articles from reputable international journals
- The year of publication prioritizes the period from 2010 to 2021. There is only 1 article published in 2004 (Stiroh, 2004), but it is mandatory to use it considering that the article is the main reference in many kinds of research on income diversification.
- The diversification in this literature review is limited to income diversification, while other diversification, such as asset diversification and liability diversification are not selection criteria.
- The antecedent variable is income diversification, while the consequence variable is bank stability.
- In this literature review, the banks referred to are commercial (conventional) banks, Islamic Islamic banks (Islamic banks).
- All articles used in this literature review must be in English.
- 30 relevant articles were obtained and discussed in this literature review using the criteria described above.

Quality assessment. Assessment of article quality is carried out based on two conditions: the publishing source and the relevance of the article content. The articles used are mostly from publishers Elsevier, Wiley, Emerald, JSTOR, Springer and others. The dominance of articles came from Elsevier and Wiley, as shown in Table I. There was 1 article from conference papers and 1 article from working papers. The remaining 28 articles came from well-known publishers. So 30 articles were obtained from well-known publishers and content following the topic of this literature review. The relevance of the article content to this literature review was examined from the abstract of each article and continued by a study of the operational definitions of variables, research results and research conclusions.

Table I. Source and Number of Articles

Databases	Number of Articles
Elsevier	12
Emerald	6
J STOR	1
Springer	1
Others	2
Wiley	8
Total	30

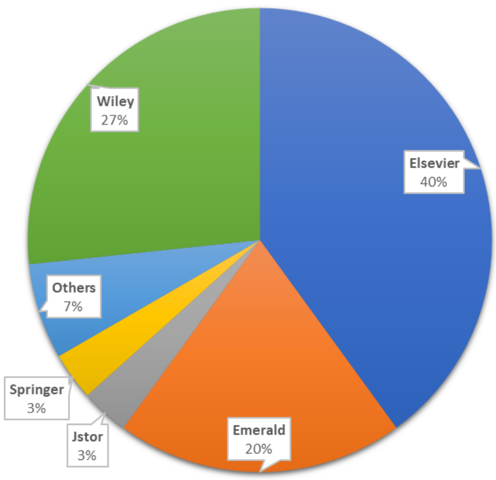

Figure 1. Percentage of Article Sources Used

Figure 1. above shows that 40% of articles come from publisher Elsevier, while Wiley is 27%, Emerald is 20%S, Springer and JSTOR are 3% each, and other sources are 7%.

Data reporting and analysis. In Table 2. Column 3 shows the location of the banking sample studied and the range of years of observation. As it is well known that the place and time of research affect the research results, it is therefore important to know when and where research is conducted. In column 4, it is shown how to measure income diversification variables. In general, the income diversification variable is determined using a proxy for the ratio of non-interest income to total operating income and a proxy for measuring diversified securities using the modified Herfindahl Hirschman index method. Column 5 shows the effect of income diversification on bank stability. Bank stability is generally measured using the bank's Z-Score proxy. And column 6 shows a brief explanation of the study's main findings.

RESULT AND DISCUSSION

From the results of a review of 30 articles obtained, it was found that the research was carried out from 1988 to 2019. However, in general, the research period was from 2010 to 2019. Figure 2. shows which country the sample was taken from. Banks in the United States and Asia are mostly used as samples in researching the effect of income diversification on bank stability.

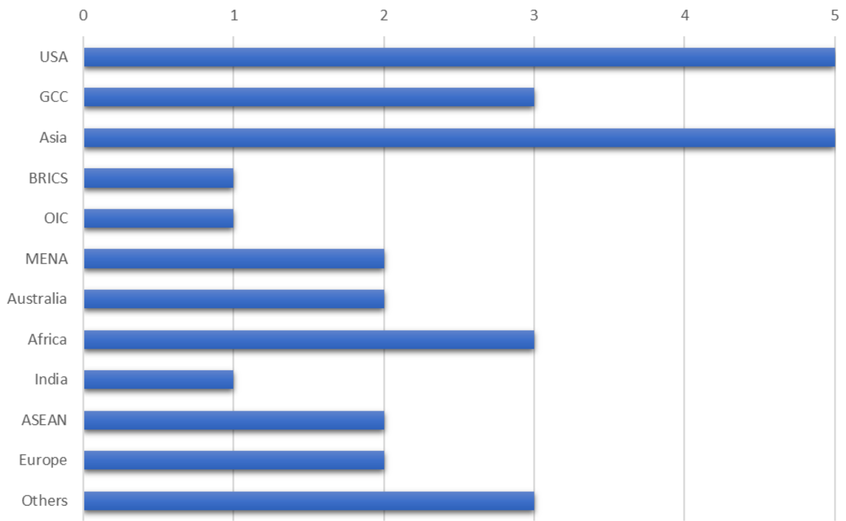

Figure 2. Research Sample Countries in Literature Review

Some researchers use banking samples in developed countries and various banks in countries worldwide. Thus, this sample is classified as miscellaneous classification. At the same time, the other samples are classified by region.

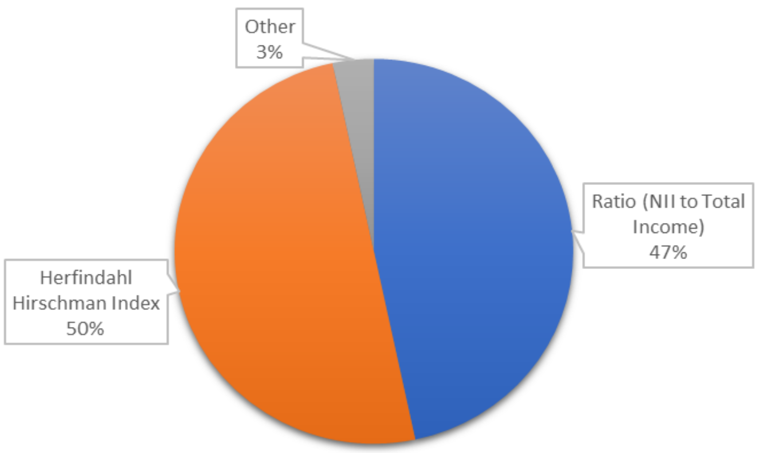

Figure 3. Income Diversification Measurement

In Figure 3. it can be seen that the most widely used proxy for income diversification in the articles used is the Herfindahl Hirschman Index (HHI), which is 50%, while the ratio of non-interest income (NII) to total income (TI) is used at 47%. Some researchers argue that the use of HHI can provide a clearer diversification effect than the use of the ratio method (NII/TI) and that there is a nonlinear relationship with NII (Delpachitra & Lester, 2013; Wang & Lin, 2021).

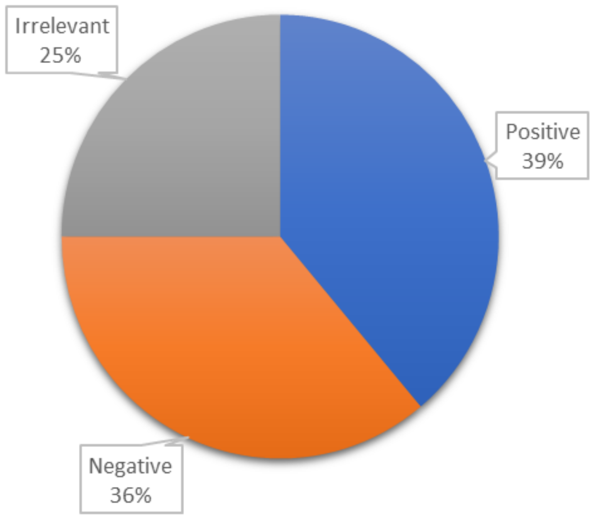

Figure 4. Effect of Income Diversification on Bank Stability

Meanwhile, the effect of income diversification strategy on bank stability shows close results between positive and negative effects, namely 39% and 36%, respectively. Meanwhile, the result stating that income diversification has no significant effect on bank stability is 25%, as shown in Figure 4. The contradictory findings of these studies open up greater opportunities for further researchers to analyze the effect of diversification strategies carried out by banks. As described above, the influence of the place and time of testing and the measurement method used may be factors that make the results of previous studies contradict each other.

Table 2. provides a summary of relevant studies that conducted empirical research on the relationship between income diversification and bank stability and at the same time became the basis for the study of this literature review. Based on the studies conducted, it can be concluded that these studies discuss the main results of their research using different theoretical perspectives.

Table 2. Research on the Effect of Income Diversification on Bank Stability

No	Author (year)	Country (year)	Diversification Measurement	Impact on Stability	Major Finding
1	(Styroh, 2004)	United States (1984-2001)	NII/TI	negative	Doubts about the ability of non-interest income to provide stable revenue instead of reducing risk
2	(Abuzayed et al., 2018)	GCC (1999-2014)	Herfindahl Hirschman Index	negative	Income and asset diversification do not increase bank stability, but conventional banks tend to be riskier than Islamic banks.
3	(Hunjra et al., 2020)	10 Asian Countries (2010-2016)	NII/TI	Positive	Good corporate governance accompanied by a diversification strategy can minimize banking risk.
4	(Moudud-Ul-Huq, 2019)	BRICS and ASEAN-5 (2007-2015)	NII/TI	positive / negative	Banks in BRICS countries benefit more from the diversification strategy than banks in ASEAN-5 countries.

5	(Wang & Lin, 2021)	14 Asia Pacific Countries (2011-2016)	Herfindahl Hirschman Index	Positive/ Irrelevant	Banks with a high level *of income diversification* have a lower level of risk. Diversified banks are more likely to benefit from reduced risk in emerging economies. Meanwhile, for banks in developed countries, *income diversification* has no effect
6	(Amoah et al., 2021)	Ghana (2008-2014)	Herfindahl Hirschman Index	Irrelevant	Income diversification carried out by credit union companies in Ghana does not affect stability.
7	(Tran et al., 2020)	United States of America (1986-2013)	Herfindahl Hirschman Index	negative	Income diversification by US banks has negative implications, especially the investment and trading components.
8	(Paltrinieri et al., 2020)	OIC (2007-2016)	Herfindahl Hirschman Index	Irrelevant	The diversification carried out by Islamic banks has a smaller effect than on conventional banks in terms of performance. The proportion of *non-interest income* contributes positively to profitability. However, *income diversification* does not significantly affect the risk adjustment of Islamic banking profitability. Income diversification does not affect bank stability, both Islamic and conventional. NII is volatile.
9	(Lee et al., 2020)	96 Developed countries (2006-2013)	Herfindahl Hirschman Index	negative	Testing on uncorrelated samples causes a negative effect between income diversification and systematic risk. However, negative effects can occur if there is no high asset correlation between banks.
10	(Ammar & Boughrara, 2019)	MENA (1988-2015)	Herfindahl Hirschman Index	Irrelevant	The findings of this study indicate that *market share* and financial intermediation are determinants of bank income diversification. Bank stability does not affect the diversification strategy.
11	(Ashraf et al., 2016)	GCC (2000-2011)	Herfindahl Hirschman Index	Positive	Banks that diversify income appear to be more stable than banks that do not diversify
12	(Edirisuriya et al., 2015)	Australia (2000-2012)	NII/TI	negative	There is no evidence that the diversification carried out by banks in Australia has an effect on their performance. Banks in Australia put more emphasis on improving *their risk-return* profile as a result of diversification activities. *Income diversification* has a negative effect on zscore.

13	(Sissy et al., 2017)	Africa (2002-2013)	Herfindahl Hirschman Index	Positive	Banking companies in Africa experienced improved performance and decreased risk of bankruptcy due to diversification activities carried out both *cross-border* and operationally.
14	(Yang et al., 2020)	United States of America (2000-2013)	Herfindahl Hirschman Index	negative	Increasing income diversification will increase systemic risk, especially in medium and large-scale banks.
15	(Ozili, 2018)	48 African countries (1996-2015)	NII/TI	Irrelevant	In both pre-crisis and post-crisis conditions, non-interest income has no implications for the level of bank stability
16	(Ghenimi et al., 2017)	MENA (2006-2013)	NII/TI	Positive	Income diversity positively affects bank stability as the effect of good risk management.
17	(Abbas & Ali, 2021)	United States of America (2002-2019)	Herfindahl Hirschman Index	positive / negative	In general, income diversification by banks has a negative effect on bank stability. However, for banks that have sufficient capital, income diversification has a positive effect on stability.
18	(Ali et al., 2021)	14 countries in the world (2005-2016)	One minus net interest income subtracts other operating income per total operating income	positive / Irrelevant	Income diversification has no effect on small banks, both conventional and Islamic banks, but on large banks the diversification strategy has a positive effect.
19	(Gupta & Kashiramka, 2020)	India (2007-2019)	NII/TI	Negative	Income diversification has a negative effect on bank stability.
20	(Liu et al., 2020)	United States of America (1986-2013)	NII/TI	Positive	The diversification strategy positively affects bank stability, especially by creating unique conditions for banks.
21	(Hsieh et al., 2013)	22 Asian countries (1995-2009)	NII/TI	Positive	This research shows that bank stability can be improved through an income diversification strategy. Increasing the degree of globalization reduces bank stability, but bank stability can be increased through asset diversity.
22	(Meslier et al., 2014)	Philippines (1999-2005)	NII/TI	Positive	For domestic and foreign banks in the Philippines, the income diversification strategy increases bank stability by reducing risk.
23	(Batten & Vo, 2016)	Vietnamese (2006-2014)	NII/TI	negative	The strategy of diversifying income into non-interest income increases banking risk
24	(Wei et al., 2017)	Asia Pacific Region (2000-2015)	Herfindahl Hirschman Index	positive/ Irrelevant	There is no relevance to the effect of income diversification on bank stability in developed countries, but there is a positive influence on developing countries.

25	(Engle et al., 2014)	38 countries in the world (1996-2010)	NII/TI	Irrelevant/ negative	In low concentration banks, the diversification strategy has a negative effect on stability. Meanwhile, in highly concentrated banks, there is no diversification effect on stability
26	(Tan & Anchor, 2017)	China (2003-2013)	NII/TI	Positive	Non-interest income also has implications for reducing insolvency risk, thereby increasing bank stability
27	(AlKhouri & Arouri, 2019)	GCC (2003-2015)	Herfindahl Hirschman Index	negative	Income diversification has negative implications for bank stability in GCC countries
28	(Köhler, 2014)	Germany (2002-2012)	NII/TI	Positive	Banks with a core business of savings and loans (retail) benefit from their income diversification strategy.
29	(Saghi-Zedek, 2016)	17 European countries (2002-2010)	Herfindahl Hirschman Index	negative	When bank ownership only consists of family or government ownership, diversification activities have a negative impact on stability.
30	(Delpachitra & Lester, 2013)	Australia (2000-2009)	Herfindahl Hirschman Index	Irrelevant	The income diversification strategy of Australian banks reduces the bank's performance and has no impact on the risk.

NII/TA is the ratio of non-interest income to total income

The motive for the bank's income diversification strategy can be viewed from the background of the theories used in the study as a means of justifying the findings of empirical research. The results of a review of the sample articles in this review show modern portfolio theory. In other words, risk reduction is not the main motive for implementing the income diversification strategy (20 percent). However, the theory of financial intermediation is the most widely used tool to justify research findings (33 percent). Table 3. shows the use of theory in the articles studied. This shows that the main motive for banks to implement a diversification strategy is to reduce the level of insolvency risk and improve bank performance and performance.

Table 3. Theory Justification

Theory	Frequency
Modern portfolio theory	6
Agency theory	3
Competition stability hypothesis	6
Market power theory	5
Theory of financial intermediation	10
Total	30

Deregulation is one of the main factors for banks to diversify their income. Deregulation resulted in increased competition between banks in the lending and funding market (Delpachitra & Lester, 2013). In a review of 30 articles, it was found that the competition stability hypothesis was used in 6 articles or 20 percent of the total articles. This shows that competition is one of the motives behind the implementation of income diversification.

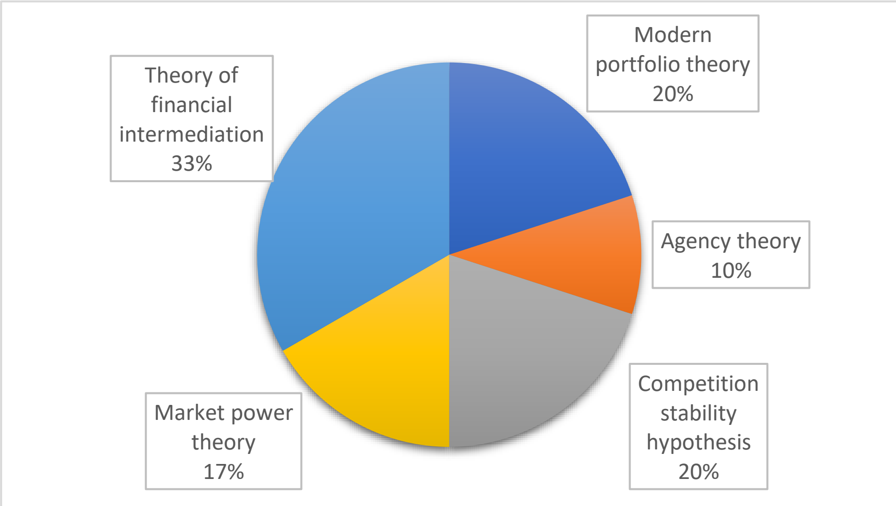

Figure 5. Using Theory as a Motive for a Diversification Strategy

Thus, it can be concluded that some of the main motives of banks in implementing a diversification strategy are as follows,

1. Improved bank performance
2. Risk reduction
3. Competition
4. Value creation through benefit and cost-efficiency
5. Overcoming agency problems

The generalized moment (GMM) method is the most widely used statistical technique in empirical research (54 percent). The fixed effect method (FEM) was used in 8 articles (27 percent) and the ordinary least square (OLS) in 3 articles (10 percent). As shown in Table 4. below,

Table 3. Theory Justification

Statistical Method	Frequency
Ordinary least squares (OLS)	3
Fixed effects (FEM)	8
Random effect (REM)	1
Generalized least squares (GLS)	1
Generalized method of moments (GMM)	16
Dynamic nonlinear panel data model	1
Total	30

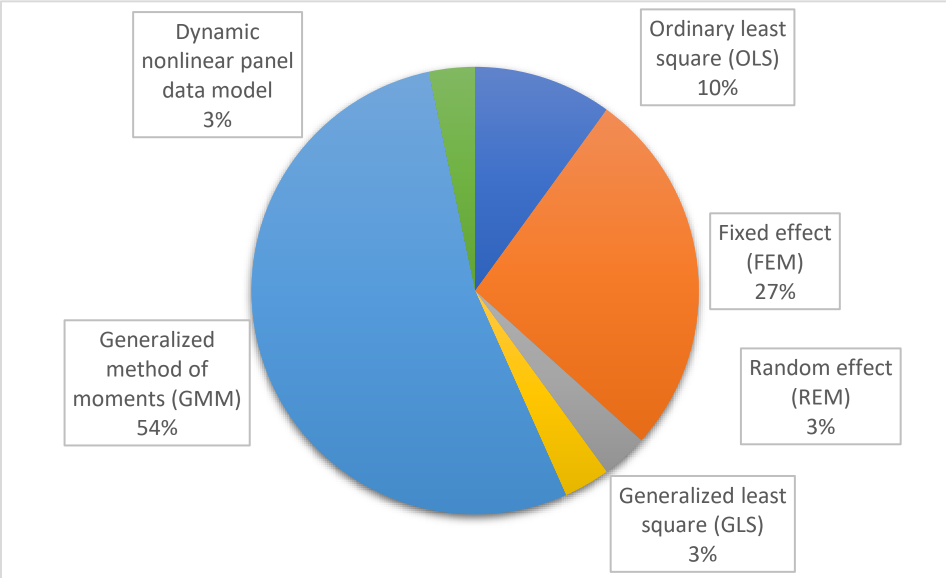

Figure 6. Use of Statistical Methods in Empirical Research Articles

1. The analysis carried out on the articles above provides several important conclusions such as,
2. There is a positive relationship between income diversification and bank stability.
3. There is a negative relationship between income diversification and bank stability.
4. Some conditions are irrelevant / not significant between the two relationships.
5. Non-interest income has implications for reducing insolvency risk
6. Bank ownership influences the relationship of a diversification strategy to bank stability.
7. There is an influence of external factors such as macroeconomic conditions on the bank's ability to diversify income.
8. Conventional banks tend to have a higher risk than Islamic banks in their income diversification strategy.
9. In a monetary crisis, the income diversification effect is more capable of reducing risk than under normal conditions.
10. The main motivation for banks in carrying out a diversification strategy for their income is dominated by the desire to improve their performance and reduce the risk arising from interest income activities (risk reduction) through reducing insolvency risk.
11. Competition between banks emerged as one of the effects of the bank deregulation process, so it became the cause of banks' implementation of diversification strategies.

CONCLUSION

This systematic literature review aims to find the main motivation behind the income diversification strategy carried out by banks, as well as to analyze the effect of income diversification on bank stability. Performance improvement, risk reduction and competition are the main motives for implementing income diversification by banks. Several studies have shown that income diversification convincingly reduces insolvency risk and increases bank stability. Theoretically, diversification is indeed one way to minimize risk, but in the banking sector, it was found that the effect of diversification does not necessarily become an element of risk reduction. Several empirical research findings show that the income diversification strategy has no relevance to the level of risk and bank stability. Some even indicate that a negative effect may arise from this diversification activity as a result of increasing agency costs in banks.

Income on bank stability. The study conducted on this systematic literature review informs that there is a research gap about the real relationship between income diversification and bank stability, which in this case is proxied by bank z-score. This study finds that bank size, type of bank (conventional or Islamic) or dual banking system, banks in developed or developing countries, economic conditions, and banking concentration in an area have implications for the effect of diversification strategy. The Herfindahl Hirschman Index (HHI) is the most widely used non-interest income measurement proxy. Meanwhile, in terms of methods, the generalized method of the moment is the most widely used tool for testing hypotheses.

Future researchers should consider testing the effect of income diversification on bank stability by considering its effect on bank liquidity. Comparative studies between regions or countries will provide a more comprehensive understanding of the relationship between income diversification and bank stability. Furthermore, future researchers can select a sample of articles based on the number of citations.

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