

REFERENCES

- Abdou, H., Ali, K., & Lister, R. (2014). A comparative study of Takaful and conventional insurance: empirical evidence from the Malaysian market. *Insurance Markets and Companies: Analyses and Actuarial Computations*, 5(1), 22–34.
- Abu-Hussin, M. F., Muhamad, N. H. N., & Hussin, M. Y. M. (2014). Takaful (Islamic insurance) industry in Malaysia and the Arab Gulf States: Challenges and future direction. *Asian Social Science*, 10(21), 26–34. <https://doi.org/10.5539/ass.v10n21p26>
- Ahmad Mokhtar, H. S. (2015). *Surplus - Sharing Practices of Takāful Operators in Malaysia. II*.
- Akhter, W., & Khan, S. U. (2017). Determinants of Takāful and conventional insurance demand: A regional analysis. *Cogent Economics and Finance*, 5(1). <https://doi.org/10.1080/23322039.2017.1291150>
- Akpan, S. S., Mahat, F., Noordin, B. A., & Nassir, A. (2017). Contrasting the effect of risk- and non risk-based capital structure on insurers' performance in Nigeria. *Social Sciences*, 6(4). <https://doi.org/10.3390/socsci6040143>
- Al Maani, A., Alawad, A. S., & Karaki, B. S. A. (2021). Impact of liquidity and profitability ratios on the stock market value of Jordan insurance companies. *Academy of Accounting and Financial Studies Journal*, 25(2), 1–14.
- Alekseev, M. E., & Sichalieva, S. (2003). *Tabasaranskij jazyk*. 7(1), 139.
- Alias, N. Z., Hussein, N., & Mohamad, A. A. (2012). Malaysian insurance industry—A Marco Perspective. *Malaysia Rating Corporations (364803-V)*, ER/008/2012, 1–12.
- Alipour, M. (2012). The effect of intellectual capital on firm performance: An investigation of Iran insurance companies. *Measuring Business Excellence*, 16(1), 53–66. <https://doi.org/10.1108/13683041211204671>
- Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors Affecting the Financial Performance of Jordanian Insurance Companies Listed at Amman Stock Exchange. *Journal of Management Research*, 4(2), 266–289. <https://doi.org/10.5296/jmr.v4i2.1482>

- Altman, E. I. (1984). A Further Empirical Investigation of the Bankruptcy Cost Question. *The Journal of Finance*, 39(4), 1067–1089. <https://doi.org/10.1111/j.1540-6261.1984.tb03893.x>
- Antonio, M. S., Ali, M. M., & Akbar, N. (2013). A Comparative Analysis of the Efficiency of Takaful and Conventional Insurance in Malaysia. *The International Journal of Excellence in Islamic Banking and Finance*, 3(1), 1–13. <https://doi.org/10.12816/0001416>
- Asteriou, D., & Hall, S. G. (2019). Applied Econometrics. *Palgrave Macmillan* <https://doi.org/10.4324/9780429024429>
- Awuah, P. K., Kwaning, E. A., & Aidoo, M. K. A. (2015). Assessment of Financial Performance of Listed Insurance Companies in Ghana. *ADRRRI Journal of Arts and Social Sciences*, 13(9), 1–16.
- Bank Negara Malaysia. (2013). Risk-based capital framework for Takaful Operators. May.
- Beck, N. (2008). Time-series cross-section methods. In Box-Steffensmeier, J.M., Brady, H.E. & Collier, D. (editors) *The Oxford Handbook of Political Methodology*. Oxford University Press, Oxford.
- Blackwell III, J. L. (2005). Estimation and testing of fixed-effect panel-data systems. *Stata Journal*, 5(2), 202–207.
- Boadi, E. K., Antwi, S., & Lartey, V. C. (2013). Determinants of Profitability of Insurance Firms in Ghana. *International Journal of Business and Social Research*, 3(3), 43–50. <https://doi.org/10.18533/ijbsr.v3i3.231>
- Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36(2), 63–76. <https://doi.org/10.1108/00251749810204142>
- Bontis, N., William Chua Chong, K., & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, 1(1), 85–100. <https://doi.org/10.1108/14691930010324188>
- Burca, A.-M., & Batrinca, G. (2014). The Determinants of Financial Performance in the Romanian Insurance Market. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(1). <https://doi.org/10.6007/ijarafms/v4-i1/637>
- Chen, F. C., Liu, Z. J., & Kweh, Q. L. (2014). Intellectual capital and productivity of Malaysian general insurers. *Economic Modelling*, 36, 413–420. <https://doi.org/10.1016/j.econmod.2013.10.008>
- Cummins, J. D., Grace, M. F., & Phillips, R. D. (1999). Regulatory Solvency Prediction in Property-Liability Insurance: Risk-Based Capital, Audit Ratios, and Cash Flow

- Simulation. *The Journal of Risk and Insurance*, 66(3), 417. <https://doi.org/10.2307/253555>
- Das, S. C. (2017). *Status of Incurred Claim Ratio of Non Life Insurance Companies in India: An Appraisal* Dr S C Das, Associate Professor, Faculty of Commerce, BHU, Varanasi-5. October.
- Daoud, J. I. (2018). Multicollinearity and Regression Analysis. *Journal of Physics: Conference Series*, 949(1). <https://doi.org/10.1088/1742-6596/949/1/012009>
- Desta, T. (2016). Financial Performance of “the Best African Banks”: a Comparative Analysis Through Camel Rating. *Journal of Accounting and Management*, VI(1), 1–20.
- Dewi, T. T. C., & Mahfudz. (2017). Effect of change in surplus ratio, incurred loss ratio, liquidity ratio, premium growth ratio, size and risk based capital to predict the possibilities of financial distress: The case of Indonesian non-life insurance listed in Indonesia insurance directory. *Advanced Science Letters*, 23(8), 7285–7288. <https://doi.org/10.1166/asl.2017.9352>
- Feinman, J. M. (2015). The Regulation of Insurance Claim Practices. *UC Irvine Law Review*, 5(6), 1319–1353. <http://www.mass.gov/>
- Ferguson, W. L. (2006). Curriculum Design in Risk Management and Insurance Education. *Curriculum Design in Risk Management and Insurance Education*, 29(2), 158–178.
- Foong, S. Y., & Idris, R. (2012). Leverage, product diversity and performance of general insurers in Malaysia. *Journal of Risk Finance*, 13(4), 347–361. <https://doi.org/10.1108/15265941211254462>
- Guendouz, A. A., & Ouassaf, S. (2018). Determinants of Saudi Takaful Insurance Companies profitability. *Academy of Accounting and Financial Studies Journal*, 22(5), 11–31.
- Gujarati, D. N., & Porter, D. C. (2013). Single-equation regression models. In *Introductory Econometrics: A Practical Approach*.
- Hang Chan, K. (2009). Impact of intellectual capital on organizational performance: An empirical study of companies in the Hang Seng Index (Part 1). *The Learning Organization*, 16(1), 4–21. <https://doi.org/10.1108/09696470910927641>
- Hemrit, W. (2020). Determinants driving Takaful and cooperative insurance financial performance in Saudi Arabia. *Journal of Accounting and Organizational Change*, 16(1), 123–143. <https://doi.org/10.1108/JAOC-03-2019-0039>
- Hidayat, S. E., & Abdulla, A. M. (2015). A Comparative Analysis on the Financial Performance between Takaful and Conventional Insurance Companies in Bahrain

- during 2006 - 2011. *Journal of Islamic Economics Banking and Finance*, 11(2), 149–163. <https://doi.org/10.12816/0024921>
- Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, 7(3), 281–312. <https://doi.org/10.1177/1536867x0700700301>
- Hsiao, C. (2002). Analysis of Panel Data (Econometric Society Monographs). In Cambridge: Cambridge University Press.
- Husin, M. M. (2019). The dynamics of Malaysian takaful market: Challenges and future prospects. *Journal of Islamic Finance*, 8, 131-137.
- Ibrahim, N. I., Muhamat, A. A., Roslan, A., & Jaafar, M. N. (2020). Determinants of Composite Takaful Operators' Financial Performance. *Global Business and Management Research: An International Journal*, 12(4), 331–337.
- Ishtiaq, N., & Siddiqui, D. A. (2019). Factors Affecting Financial Performance of Life Insurance Sector in Pakistan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3400728>
- Ismail, W. Z. W., Yusof, M. F. M., & Ahmad, I. (2021). Capital Management for Takaful Business: Issues and Challenges. *Journal of Advanced ...*, 1(1), 8–19. <https://akademiabaru.com/submit/index.php/arbms/article/view/3581>
- Iswati, S., & Anshori, M. (2007). The Influence of Intellectual Capital to Financial Performance at Insurance Companies in Jakarta Stock Exchange (JSE). *Proceedings of the 13th Asia Pacific Management Conference*, 1393–1399.
- Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: An evaluation of the Australian financial sector. *Journal of Intellectual Capital*, 14(2), 264–285. <https://doi.org/10.1108/14691931311323887>
- Kader, H. A., Adams, M., & Hardwick, P. (2010). The cost efficiency of takaful insurance companies. *Geneva Papers on Risk and Insurance: Issues and Practice*, 35(1), 161–181. <https://doi.org/10.1057/gpp.2009.33>
- Kerstens, K., & Van De Woestyne, I. (2014). Comparing Malmquist and Hicks-Moorsteen productivity indices: Exploring the impact of unbalanced vs. balanced panel data. *European Journal of Operational Research*, 233(3), 749–758. <https://doi.org/10.1016/j.ejor.2013.09.009>
- Kim, H.-Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52. <https://doi.org/10.5395/rde.2013.38.1.52>
- Kuo, K. C., Lu, W. M., & Chang, G. T. Y. (2020). Intellectual Capital and Performance in the Semiconductor Industry. *Singapore Economic Review*, 65(5), 1323–1348. <https://doi.org/10.1142/S0217590819400022>

- Kweh, Q. L., Ting, I. W. K., Hanh, L. T. M., & Zhang, C. (2019). Intellectual capital, governmental presence, and firm performance of publicly listed companies in Malaysia. *International Journal of Learning and Intellectual Capital*, 16(2), 193–211. <https://doi.org/10.1504/IJLIC.2019.098944>
- Lazam, N. M., Tafri, F. H., & Shahrudin, S. N. S. S. M. (2012). Impact of the risk based capital implementation: A case study on an insurance company in Malaysia. *ICSSBE 2012 - Proceedings, 2012 International Conference on Statistics in Science, Business and Engineering: "Empowering Decision Making with Statistical Sciences,"* 9–14. <https://doi.org/10.1109/ICSSBE.2012.6396516>
- Lee, H. S., Cheng, F. F., Har, W. M., Md Nassir, A., & Ab Razak, N. H. (2019). Efficiency, firm-specific and corporate governance factors of the Takaful insurance. *International Journal of Islamic and Middle Eastern Finance and Management*, 12(3), 368–387. <https://doi.org/10.1108/IMEFM-06-2018-0187>
- Lee, H. S., Cheng, F. F., Nassir, A. M., & Razak, N. H. A. (2019). Impacts of risk based capital regulation in Malaysian Islamic insurers (Takaful). *Asian Academy of Management Journal of Accounting and Finance*, 15(1), 27–59. <https://doi.org/10.21315/aamjaf2019.15.1.2>
- Li, D., Moshirian, F., Nguyen, P., & Wee, T. (2007). The Demand for Life Insurance in OECD Countries. *Journal of Risk and Insurance*, 74(3), 637–652.
- Lim, Q. M., Lee, H. S., & Har, W. M. (2021). Efficiency, productivity and competitiveness of the Malaysian insurance sector: an analysis of risk-based capital regulation. *Geneva Papers on Risk and Insurance: Issues and Practice*, 46(1), 146–172. <https://doi.org/10.1057/s41288-020-00173-8>
- Lumpur, K. (2019). The Dynamics of Malaysian Takaful Market: Challenges and Future Prospects. *Journal of Islamic Finance*, 8, 131–137.
- Mansor, F., & Bhatti, M. I. (2016). Evidence of Risk and Return Performance of Islamic Mutual Funds: The Case of Malaysia. *Advances in Islamic Finance, Marketing, and Management*, April, 81–101. <https://doi.org/10.1108/978-1-78635-899-820161006>
- Masa'deh, R., Tayeh, M., Al-Jarrah, I., & Tarhini, A. (2015). Accounting vs. Market-based Measures of Firm Performance Related to Information Technology Investments. *International Review of Social Sciences and Humanities*, 9(1), 129–145. http://www.irssh.com/yahoo_site_admin/assets/docs/12_IRSSH-1114-V9N1.115111327.pdf
- Mehari, D., & Aemiro, T. (2013). Firm Specific Factors That Determine Insurance Companies' Performance in Ethiopia. *European Scientific Journal*, 9(10), 1857–7881.
- Mohamad, N. N., Hassan, R., & Abdul Rahman, M. I. (2017). The implications of public company requirements under Islamic Financial Services Act (IFSA) 2013

- on Takaful Operators in Malaysia. *Middle East J. of Management*, 4(4), 295. <https://doi.org/10.1504/mejm.2017.10008294>
- Mohammad, H. S., & Bujang, I. (2019). Performance of Malaysian financial firms: An intellectual capital perspective using MVAIC model. *Asian Economic and Financial Review*, 9(7), 752–765. <https://doi.org/10.18488/journal.aefr.2019.97.752.765>
- Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., & Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of Cardiac Anaesthesia*, 22(1), 67–72. https://doi.org/10.4103/aca.ACA_157_18
- Muhaizam, I. (2013). Determinants of financial performance: The case of General Takaful and insurance companies in Malaysia. *International Review of Business Research Papers Issue*, 9(6), 111–130.
- Muhamat, A. A., Jaafar, M. N., & Alwi, S. F. S. (2017). General Takaful claims: An experience of Takaful operator in Malaysia. *Journal of Emerging Economies and Islamic Research*, 5(4), 18. <https://doi.org/10.24191/jeeir.v5i4.8833>
- Muhamat, A. A., Jaafar, M. N., Karim, N. A., Roslan, A., & Basri, M. F. (2020). The Malaysian Fund Managers Perspective on the Viability of Takaful Operators Investment. *Al-Uqud: Journal of Islamic Economics*, 4(2), 250. <https://doi.org/10.26740/al-uqud.v4n2.p250-267>
- Nasir, H. (2019). *the Influence of Intellectual Capital Towards Financial Performance*. October.
- Nasution, Z., Adiba, E. M., & Abdulrahim, M. O. (2019). Comparison Analysis of Risk-Based Capital (Rbc) Performance and Its Effect on Islamic Insurance Profitability in Indonesia and Malaysia. *Al-Uqud: Journal of Islamic Economics*, 3(2), 149. <https://doi.org/10.26740/al-uqud.v3n2.p149-160>
- National Association of Insurance Commissioners. (2019) *Risk-based capital*. https://content.naic.org/cipr_topics/topic_riskbased_capital.htm.
- Nor, N. B. M., & Kamil, N. M. (2014). Factors Influencing the Choice of Takaful over Conventional Insurance: The Case of Malaysia. *Journal of Islamic Finance*, 3(2), 1–14. <https://doi.org/10.12816/0025101>
- Omar, A., Abduh, M., & Mohd Tarmizi, R. (2012). The Performance of Insurance Industry in Malaysia: Islamic vis-à-vis Conventional Insurance. *Journal of Islamic Banking and Finance*, 29(No.4). <https://www.researchgate.net/publication/267642331>
- Omar, M., & Javaria, K. (2019). Implementation of Enterprise Risk Management Practices in Organizations: An Empirical Analysis of Takaful Industry Financial Performance. *Journal of Islamic Financial Studies*, 1(1). <http://journals.uob.edu.bh/handle/123456789/3563>

- Pervan, M. (2012). *How Well Insurance Companies in Macedonia Perform? I*, 457–463.
- Pointer, L. V., & Khoi, P. D. (2019). Predictors of return on assets and return on equity for banking and insurance companies on Vietnam stock exchange. *Entrepreneurial Business and Economics Review*, 7(4), 185–198. <https://doi.org/10.15678/EBER.2019.070411>
- Pulic, A. (2000). VAIC™ – An Accounting Tool for Intellectual Capital Management. *International Journal Technology Management*, 20(5/6/7/8), 702–714.
- Rehman, W. U. (2013). Intellectual capital performance and its impact on financial returns of companies: An empirical study from insurance sector of Pakistan. *African Journal of Business Management*, 5(20), 8041–8049. <https://doi.org/10.5897/AJBM10.1088>
- Remli, N., Muda, M., & Rosman, R. (2018). Firms' Characteristics: A Preliminary Study of Family Takaful Demand in Malaysia. *International Journal of Accounting, Finance and Business*, 3(September), 01–14.
- Rusmita, S. A., Sukmaningrum, P. S., & Amani, Z. A. (2018). *Early Warning System for Sharia Insurance Companies in Indonesia and Malaysia at 2013-2015 periode. January*, 135–140. <https://doi.org/10.5220/0007078201350140>
- Saif-alyousfi, A. Y. H., Saha, A., & Md-rus, R. (2017). Profitability of Saudi Commercial Banks: A Comparative Evaluation between Domestic and Foreign Banks using CAMEL Parameters. *International Journal of Economics and Financial Issues*, 7(2), 477–484.
- Schmidheiny, K. (2020). *Panel Data: Fixed and Random Effects - Short Guides to Microeconomometrics*. 0, 1–15. <https://www.schmidheiny.name/teaching/panel2up.pdf>
- Shamsudin, L. I., Yew, R., & Yian, M. (2013). Exploring the Relationship between Intellectual Capital and Performance of Commercial Banks in Malaysia. *Rev. Integr. Bus. Econ. Res*, 2(2), 326–372.
- Ståhle, P., Ståhle, S., & Aho, S. (2011). Value added intellectual coefficient (VAIC): A critical analysis. *Journal of Intellectual Capital*, 12(4), 531–551. <https://doi.org/10.1108/14691931111181715>
- Syah Aji, R. H., & Kurniasih, K. (2015). The Intellectual Capital Effect on Financial Performances at Islamic Insurance. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah*, 7(2), 181–196. <https://doi.org/10.15408/aiq.v7i2.1696>
- Tadese, H. W., Abiy, G. K., & Mengistu, D. D. (2020). *Factors affecting the profitability of insurance companies in Ethiopia. Journal of International Trade, Logistics and Law*, Vol. 6, Num. 2, 2020, 106-118. 6, 106–118.

- Tanveer, Z. (2017). *Determinants of financial performance of takaful and insurance companies; evidence from Pakistan* Zoya Tanveer.
- Tarsono, O., Ardhetta, P. A., & Amriyani, R. (2020). *The Influence of Net Premium Growth, Claim Ratio and Risk-Based Capital on the Financial Performance of Life Insurance Companies*. 127(Aicar 2019), 65–68. <https://doi.org/10.2991/aebmr.k.200309.015>
- Ullah, K., & Bagh, T. (2019). *Finance and Management Scholar at Riphah International University Islamabad, Pakistan, Faculty of Management Sciences*. 10(5), 29–41. <https://doi.org/10.7176/RJFA>
- Wan Yusoff, W. F., & Jantan, M. (2005). Intellectual Capital and Firm Performance: The Moderating Effects of Environment and Strategy. *The International Journal of Knowledge, Culture, and Change Management: Annual Review*, 3(1), 0–0. <https://doi.org/10.18848/1447-9524/cgp/v03/59123>
- Wooldridge, J. M. (2002). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press.
- Yakob, R., Yusop, Z., Radam, A., & Ismail, N. (2012). Camel rating approach to assess the insurance operators' financial strength. *Jurnal Ekonomi Malaysia*, 46(2), 3–15.
- Yazid, A. S., Arifin, J., Hussin, M. R., & Wan Daud, W. N. (2012). Determinants of Family Takaful (Islamic Life Insurance) Demand: A Conceptual Framework for a Malaysian Study. *International Journal of Business and Management*, 7(6). <https://doi.org/10.5539/ijbm.v7n6p115>
- Zain, M. (2017). *Factors influence financial performance of the Takaful industry in Malaysia*.
- Zulfikar, R. (2018). *Estimation Model and Selection Method of Panel Data Regression: An Overview Of Common Effect, Fixed Effect, And Random Effect Model*. June 2018. <https://doi.org/10.31227/osf.io/9qe2b>

APPENDICES

APPENDIX A: CHOW TEST ANALYSIS

ROA MODEL FOR FAMILY TAKAFUL

. xtreg roa cr vaic rbc, fe

Fixed-effects (within) regression
Group variable: company

Number of obs = 55
Number of groups = 11

R-sq:

within = 0.2115
between = 0.0205
overall = 0.0000

Obs per group:

min = 5
avg = 5.0
max = 5

corr(u_i, Xb) = -0.4173

F(3,41) = 3.67
Prob > F = 0.0198

	roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
	cr	-.1346325	.059696	-2.26	0.030	-.255191	-.014074
	vaic	-.0028462	.00252	-1.13	0.265	-.0079353	.002243
	rbc	-.0110918	.0078958	-1.40	0.168	-.0270377	.004854
	_cons	.1290076	.0398142	3.24	0.002	.0486012	.2094141
	sigma_u	.10407378					
	sigma_e	.04834326					
	rho	.82252463	(fraction of variance due to u_i)				

F test that all u_i=0: F(10, 41) = 14.96 Prob > F = 0.0000

ROE MODEL FOR FAMILY TAKAFUL

. xtreg roe cr vaic rbc, fe

Fixed-effects (within) regression
Group variable: company

Number of obs = 55
Number of groups = 11

R-sq:

within = 0.1327
between = 0.0191
overall = 0.0006

Obs per group:

min = 5
avg = 5.0
max = 5

corr(u_i, Xb) = -0.3590

F(3,41) = 2.09
Prob > F = 0.1162

	roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
	cr	-.1492436	.0977665	-1.53	0.135	-.346687	.0481998
	vaic	-.002927	.004127	-0.71	0.482	-.0112618	.0054077
	rbc	-.0192916	.0129312	-1.49	0.143	-.0454068	.0068235
	_cons	.1662617	.0652053	2.55	0.015	.0345769	.2979466
	sigma_u	.16745242					
	sigma_e	.07917369					
	rho	.81729249	(fraction of variance due to u_i)				

F test that all u_i=0: F(10, 41) = 15.11 Prob > F = 0.0000