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Research paper

Enhanced portfolio performance evaluation using adjusted dynamic conditional Jensen's alpha: A time-sensitive risk approach

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Abstract:
This study presents an enhanced framework for portfolio performance evaluation by refining Jensens alpha to incorporate dynamic conditional beta. Traditional models rely on static beta assumptions, often overlooking the time-varying nature of portfolio risk and its influence on performance metrics. By integrating dynamic conditional beta, this research provides a more precise measure of risk-adjusted returns, offering deeper insights into investment performance. The methodology is applied to subsidiaries of the Golrang Industrial GroupKimiatek, Padideh, Ofoghe Kourosh, and Pakshoo-analyzing their financial performance under varying market conditions. The results demonstrate the superiority of adjusted dynamic conditional Jensens alpha, particularly during periods of heightened market volatility. This advancement equips investors and portfolio managers with more reliable performance assessment tools, supporting strategic decision-making and improving risk-return analysis. By addressing limitations in traditional evaluation models, this study contributes to the development of robust financial metrics and emphasizes the importance of incorporating time-sensitive risk factors for comprehensive portfolio analysis.

Keywords: Adjusted Dynamic Conditional Jensen's Alpha, Dynamic Conditional Beta Estimation, GARCH Modeling, Portfolio Performance Metrics, Financial Risk Assessment, Asset Pricing Models, Conditional Return Analysis
Classification: G11, G17, C58

1 Introduction

Accurately evaluating portfolio performance is critical for informed investment decisions and effective portfolio management. Jensen's alpha, a widely used metric for measuring risk-adjusted returns, has long been a cornerstone in financial performance analysis. However, its traditional formulation assumes a static beta, which

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fails to account for the dynamic nature of portfolio risk over time. This limitation can lead to imprecise performance evaluations, particularly in volatile market conditions, where risk factors fluctuate significantly. To address this gap, this study proposes a refined approach to portfolio performance evaluation by incorporating dynamic conditional beta into the calculation of Jensen's alpha. This enhanced framework captures the time-varying risk exposure of portfolios, providing a more accurate and comprehensive understanding of risk-adjusted returns. By adopting this methodology, investors and portfolio managers can better align their strategies with the complex realities of financial markets [2].

The research applies this advanced model to the financial performance of selected subsidiaries under the Golrang Industrial Group, including Kimiatek, Padideh, Ofoghe Kourosh, and Pakshoo. These case studies offer a practical context to evaluate the effectiveness of the adjusted dynamic conditional Jensen's alpha in real-world scenarios. The findings underscore the superiority of the proposed model in identifying performance patterns, particularly during periods of heightened market volatility, where traditional static beta assumptions often fall short.

Golrang Industrial Group (GIG) is a prominent conglomerate with extensive operations in numerous sectors, including hygiene and detergent, food industries, pharmaceuticals, cellulose industry, distribution and sales, cosmetics, automotive, oil and gas, petrochemical, mining, energy, construction, international trading services, printing and packaging, insurance, transportation, polymer and plastic manufacturing, education, information technology, and industrial kitchen equipment, among others. The complexity and diversity of GIG's portfolio necessitate robust methods for performance evaluation to inform strategic decision-making and investment optimization.

Traditional performance evaluation models, such as those based on Jensen's alpha, use static betas to measure portfolio performance relative to a benchmark index. However, static betas can introduce inaccuracies due to their inability to adapt to changing market conditions and risk profiles over time. This study addresses this limitation by introducing a dynamic conditional beta model, recalculating beta values for each data point to enhance the accuracy of Jensen's alpha.

This paper's primary objective is to apply this advanced model to the performance evaluation of GIG's subsidiaries, comparing the results against those obtained using conventional methods. We hypothesize that the dynamic conditional beta model will provide a more accurate and insightful analysis of GIG's portfolio performance.

This study not only highlights the limitations of conventional performance evaluation methods but also emphasizes the importance of integrating time-sensitive risk factors into financial metrics. By bridging these gaps, the proposed framework advances the field of portfolio analysis, empowering stakeholders with a more robust tool for strategic decision-making. The insights derived from this research contribute to the ongoing development of innovative financial performance metrics, fostering a deeper understanding of the interplay between risk and return in dynamic market environments.

This paper is organized as follows: Section 2 provides a review of the relevant literature and theoretical background. Section 3 outlines the methodology and data used for the study. Section 4 presents the empirical results and analysis, while Section 5 discusses the findings and their implications. Finally, Section 6 concludes with a summary of the studys contributions and potential areas for future research.

Beyond its theoretical contributions, this research offers practical implications for investors, portfolio managers, and financial analysts seeking to enhance their decision-making processes. By integrating a dynamic conditional beta into portfolio evaluation, this study provides a more responsive and adaptive performance assessment framework that aligns with the realities of modern financial markets. The findings can inform risk management strategies, portfolio optimization techniques, and investment policies, particularly for conglomerates with diverse operational sectors like Golrang Industrial Group. Furthermore, the proposed approach has the potential to be extended to other industries and financial institutions, paving the way for future advancements in asset pricing, risk assessment, and performance benchmarking.

2 Instructions for authors

Investment portfolio performance evaluation has long been a critical area of research within financial economics, aiming to quantify the risk-adjusted returns of portfolios relative to specific benchmarks. A cornerstone of this evaluation is Jensen's alpha, introduced by Michael Jensen in 1968, which measures the performance of a portfolio in relation to the expected market return. Despite its widespread adoption, Jensen's alpha has been critiqued for its reliance on static beta, which does not account for the dynamic risk environment that modern portfolios encounter [15].

Recent advancements in econometrics have significantly transformed performance evaluation methodologies. Engle [10] introduced autoregressive conditional heteroskedasticity (ARCH), a breakthrough that enabled the modeling of time-varying volatility. Bollerslev [8] extended this concept to generalized autoregressive conditional heteroskedasticity (GARCH), providing a more flexible framework to capture the volatility clustering seen in financial time series. These advancements have laid the groundwork for more sophisticated models that can better reflect the changing risk profiles of investment portfolios.

The incorporation of multiple risk factors into performance evaluation models has also been a crucial development. Fama and French [12] proposed a three-factor model that included market risk, size risk, and value risk, expanding beyond the traditional single-factor model. Carhart [9] further extended this model by adding a momentum factor, thus recognizing the importance of multiple dimensions of risk. These models have enhanced our understanding of how various factors contribute to portfolio performance.

Dynamic conditional beta models have emerged as a significant advancement in capturing the true performance of investment portfolios. Huang et al. [14] and Giglio et al. [13] have introduced methods to calculate time-varying betas, reflecting the dynamic risk environment more accurately. This approach aligns with the evolving complexity of financial markets, offering a more precise measure of portfolio performance.

Our study builds on this body of research by applying dynamic conditional beta models to the performance evaluation of GIG's subsidiaries. This approach aims to enhance the precision of Jensen's alpha, providing a more accurate measure of portfolio performance and contributing to the ongoing development of performance evaluation methodologies in financial economics.

The increasing complexity and sophistication of financial markets necessitate the adaptation of performance evaluation models. Bams et al. [4] highlighted the need for dynamic beta estimations that reflect evolving risk profiles. Their research demonstrated that static beta models could lead to significant misestimations of portfolio performance, especially in volatile markets. This underscores the importance of incorporating dynamic models in performance evaluation.

The limitations of traditional performance metrics have also driven the development of more dynamic models. While Sharpe ratios and Treynor ratios are useful, they do not account for time-varying risks. Studies by Amiri et al. [3] emphasize the enhanced explanatory power of performance metrics when dynamic conditional betas are used, particularly in the context of emerging markets where volatility and risk factors exhibit greater fluctuation. This approach allows for a more nuanced understanding of portfolio performance.

Furthermore, Aielli's [1] study on the Pro-DCC model, an extension of Engles DCC model, offers a refined method for capturing the dynamic correlations between assets. This model allows for better adjustment of portfolio strategies in response to market changes, thereby improving the accuracy of risk-adjusted performance measurements. The flexibility of the DCC model to adjust to changing market conditions makes it particularly useful for modern portfolio management.

Dynamic conditional correlation (DCC) models have gained prominence due to their ability to model the time-varying correlations among multiple assets. Engle [11] introduced the DCC model, which has since been extensively used to capture the dynamic nature of financial markets. The flexibility of these models to adjust to changing market conditions makes them particularly useful for modern portfolio management, offering more accurate risk assessments and better portfolio optimization strategies.

The application of GARCH-DCC models in finance has shown that these models can better capture the conditional variances and covariances of asset returns. This is crucial for understanding the dynamic relationships between assets and for optimizing portfolio performance. Studies by Baur [7] and others have demonstrated that incorporating dynamic conditional correlations leads to more robust portfolio optimization strategies. This process enhances the accuracy of risk assessments and improves the reliability of performance evaluations.

Behavioral finance has also influenced the evolution of performance metrics. Studies by Barberis and Thaler [6] and others have shown that investor behavior significantly impacts market dynamics and risk profiles. Incorporating these behavioral factors into dynamic models provides a more comprehensive understanding of portfolio performance. This integration highlights the importance of considering psychological factors and market sentiment in performance evaluation.

The integration of dynamic conditional beta and conditional Treynor ratio during specific market conditions, such as exchange rate booms and recessions, further refines performance evaluations. This approach, as highlighted by Amiri et al. [3], allows for more accurate comparisons between export-oriented companies and others, providing deeper insights into their relative performance. This is particularly important in volatile markets where traditional static models may fall short.

Additionally, Tajdini, Mehrara, and Tehrani's work on the Hybrid Balanced Justified Treynor ratio offers a novel approach to measuring portfolio performance. This metric integrates dynamic conditional factors, enhancing the accuracy and reliability of performance evaluations. Their study underscores the necessity of evolving traditional metrics to better reflect modern market complexities.

Tajdini, Mehrara, and Tehrani's [17] introduction of the Double-sided Balanced Conditional Sharpe Ratio represents another significant advancement. This metric accounts for the dynamic and uncertain conditions of financial markets, offering a more robust measure of portfolio performance. It emphasizes the importance of adopting dynamic metrics to capture the true performance of investment portfolios.

In the context of Iran's currency crisis, Mehrara and Tajdini's [16] comparative analysis of the profitability of speculation in the foreign exchange market versus investment in the Tehran Stock Exchange using the conditional Sharpe ratio provides valuable insights. Their findings highlight the varying risk-return profiles of different investment strategies during periods of economic instability, further supporting the need for dynamic performance evaluation models.

A critical examination by Ball, Kothari, and Shanken [5] discusses the challenges in measuring portfolio performance, particularly in the context of contrarian investment strategies. Their research highlights the potential biases and misestimations that can arise from using traditional static models, underscoring the importance of adopting dynamic approaches to accurately assess performance.

In summary, the literature underscores the importance of dynamic models in capturing the true risk-adjusted performance of investment portfolios. The advancements in econometric models, particularly those incorporating dynamic betas and conditional correlations, offer significant improvements over traditional static models. These developments enable more accurate and insightful performance evaluations, which are crucial for informed investment decision-making in todays complex financial environment. Integrating behavioral finance factors and evolving traditional performance metrics to incorporate dynamic conditions further enriches the evaluation process, providing a comprehensive understanding of portfolio performance.

Our research aligns with and builds upon existing literature on portfolio performance evaluation by incorporating dynamic conditional beta models. Traditional models, such as Jensen's alpha, rely on static risk measures that fail to capture the time-varying nature of risk [15]. Studies by Engle [10] and Bollerslev [8] introduced GARCH-based models that accommodate volatility clustering, laying the groundwork for dynamic risk assessment.

Recent advancements, such as the Fama-French multifactor model [12] and Carharts momentum factor [9], improved performance evaluation by considering multiple risk dimensions. However, these models still lack the ability to adapt to changing market conditions dynamically. Research by Huang et al. [14] and Giglio et al. [13] introduced dynamic beta estimation methods, showing that risk is time-dependent and should be modeled accordingly.

Our findings support and extend prior research by demonstrating that dynamic conditional beta models provide a more accurate measure of portfolio performance, particularly in volatile markets. This aligns with the work of Bams et al. [4], who emphasized the shortcomings of static beta in performance evaluation. Furthermore, studies by Amiri et al. [3] and Aielli [1] highlight the effectiveness of dynamic models, particularly the Pro-DCC model, in improving performance measurement accuracy.

By applying dynamic conditional beta to the subsidiaries of Golrang Industrial Group, our research confirms that companies with superior performance under traditional static measures also perform well under dynamic measures, but with greater precision in risk assessment. This reinforces the need for financial practitioners to adopt dynamic models for more accurate portfolio evaluation and investment decision-making.

In comparison to existing research, our study contributes by empirically validating the advantages of dynamic beta models in real-world portfolio analysis, particularly in emerging markets. It also suggests the potential integration of machine learning techniques for further refinement, a direction not yet fully explored in previous literature.

3 Methodology

In this article, the dynamic conditional beta and conditional Treynor ratio during the periods of exchange rate boom (01.09.2022 to 29.12.2022) and recession (30.12.2022 to 30.09.2023) were applied to compare the performance of export-oriented companies with other companies.

3.1 Dynamic Conditional Correlation (DCC)

The DCC model, introduced by Engle [11] and further developed into the Pro-DCC model [1], allows conditional variances and covariances to react differently to positive and negative innovations of the same magnitude. This model is widely used in finance for modeling changing correlations among assets over time. The DCC provides a joint density function with tail dependence greater than normal, which is explored both by simulation and empirically.

In this article, five companies within the Golrang Group were compared using daily Jensen's alpha. Unlike the Treynor ratio, Jensen's alpha provides a precise numerical measure of profit or loss relative to the market index. Furthermore, dynamic conditional Jensen's alpha offers greater accuracy than the ordinary regression (OLS) Jensen's alpha, which is often statistically insignificant. These findings, along with the advantages of using dynamic conditional alpha, have been incorporated into the article.

Originally, the GARCH model was used to calculate asset conditional variance. To determine dynamic conditional correlation coefficients between assets, standardized returns are divided by standard conditional deviations using the following equation:

$$p_{ij,t+1} = \frac{q_{ij,t+1}}{\sqrt{q_{ii,t}q_{jj,t+1}}} \tag{1}$$

This equation ensures that the dynamic conditional correlation is obtained by normalizing the covariance qij,t+1 by the square root of the product of the conditional variances.

The DCC model's correlation matrix provides real-time changes in asset relationships, which helps in computing conditional beta. In this article, the vmodified Jensen's alpha will be based on these dynamically changing beta values rather than a static assumption, making performance evaluation more realistic and effective.

The exponential technique or the GARCH model can be used to determine the dynamic conditional covariance, $q_{(ij,t+1)}$:

$$q_{ii,t} = (1-\lambda)\left(z_{(i,t-1)}z_{(i,t-1)}\right) + \lambda q_{ii,t-1} \tag{2}$$

$$q_{jj,t} = (1-\lambda)\left(z_{(j,t-1)}z_{(j,t-1)}\right) + \lambda q_{jj,t-1} \tag{3}$$

$$q_{ij,t} = (1-\lambda)\left(z_{(i,t-1)}z_{(j,t-1)}\right) + \lambda q_{ij,t-1} \tag{4}$$

The MLE approach may be used to discover the coefficients by following the target function:

$$L_c = -\frac{1}{2}\sum^{T} \left(\ln\left(1 - p^2_{(12,t)}\right)\right) + \frac{\left(z^2_{(1,t)} + z^2_{(2,t)} - 2p_{(12,t)}z_{(1,t)}z_{(2,t)}\right)}{\left(1 - p^2_{(12,t)}\right)} \tag{5}$$

The dynamic conditional correlation coefficient is derived using the following equation:

$$p_{(12,t)} = \frac{q_{(12,t)}}{\sqrt{q_{(11,t)}q_{(22,t)}}} \quad (6)$$

The GARCH-DCC framework is based on the following factorization of the conditional covariance matrix $\sum \quad = D_t R_t D_t$, where D_t is an $n \times n$ diagonal matrix of conditional volatilities (standard deviations) and R_t is the $n \times n$ conditional correlation matrix.

$$\beta_{it} = \rho_{(i,m,t)} \frac{\sigma_{it}}{\sigma_{mt}} \quad (7)$$

Where $\rho_{(i,m,t)}$ is the dynamic conditional correlation, σ_{it} is the conditional standard deviation of different indices, and σ_{mt} is the conditional standard deviation of TEPIX. The GRAPCH process was used to measure conditional standard deviation.

Jensen's Alpha

Based on Jensen's Alpha:

$$\propto_{it} = R_P - [Rf + (Rm - Rf)\beta_{it}] \quad (8)$$

Where R_P is the portfolio return, Rf is the risk-free rate, and Rm is the expected market return.

$$\text{Adjusted Dynamic Conditional Jensen's Alpha} = \frac{\text{Average } \alpha_{it}}{\sigma_{it}} \quad (9)$$

4 Results

Considering the objective of this research, which is to compare asset or company valuations using Jensen's alpha, the data from five companies, one of the largest private industrial conglomerates in Iran, showed that the Jensen's alpha for none of the examined companies was significant. Therefore, for comparing these companies, only the traditional Treynor ratio was used. The results, as shown in Table 1, indicated that the best performance belonged to Ofogh Kourosh Company, followed by Kimiatek. The worst performance was attributed to Pakshoo Company, followed by Kourosh Food Company.

As shown in Table 2, based on the dynamic conditional Jensen's alpha, the best performance was attributed to Ofogh Kourosh Company, followed by Padideh

Table 1: Performance Metrics

Company Name	Average Return	SD	MAX	MIN	BETA	Treynor Ratio
Kimiatek	0.0011	0.013	0.47	-0.057	0.51	0.00098
Padideh	0.0015	0.023	0.067	-0.072	1.39	0.00065
Ofoghe Kourosh	0.0023	0.011	0.048	-0.051	0.31	0.0055
Kourosh Food	0.0002	0.02	0.048	-0.0699	1.01	-0.0004
Pakshoo	0.00009	0.011	0.048	-0.0398	0.41	-0.00124

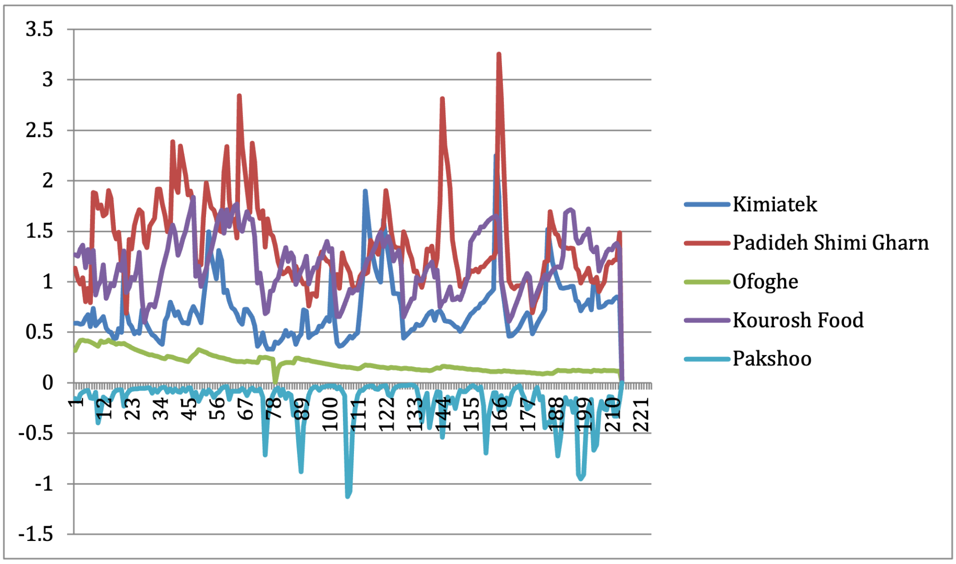

Figure 1: demonstrates the dynamic conditional beta of the five companies within the Golrang Industrial Group calculated using Equation 7.

Gharn Company, while the worst performance was related to Pakshoo Company. Additionally, based on the adjusted dynamic conditional Jensen's alpha, the best performance belonged to Padideh Gharn Company, followed by Ofogh Kourosh Company, and the worst performance was attributed to Pakshoo Company. The difference between the two ratios, dynamic conditional Jensen's alpha and adjusted dynamic conditional Jensen's alpha, as indicated for Padideh Shimi Gharn and Ofogh Kourosh companies below, is due to the standard deviation of their profitability or loss.

Table 2: Dynamic Conditional Jensen's Alpha

Company Name	Average Return	Average of Return	Average of Dynamic BETA	Average of Dynamic Jensen's Alpha	SD of Dynamic Jensen's Alpha	Adjusted Dynamic Jensen's Alpha
Kimiatek	0.0011	0.00085	0.71	0.00077	0.018	0.043
Padideh	0.0015	0.0004	0.38	0.0011	1.012	0.092
Ofoghe Kourosh	0.0023	-0.00005	0.54	0.0018	0.021	0.086
Kourosh Food	0.0002	0.0023	0.17	0.00004	0.0168	0.0028
Pakshoo	0.00009	-0.00009	0.047	-0.0019	0.025	-0.074

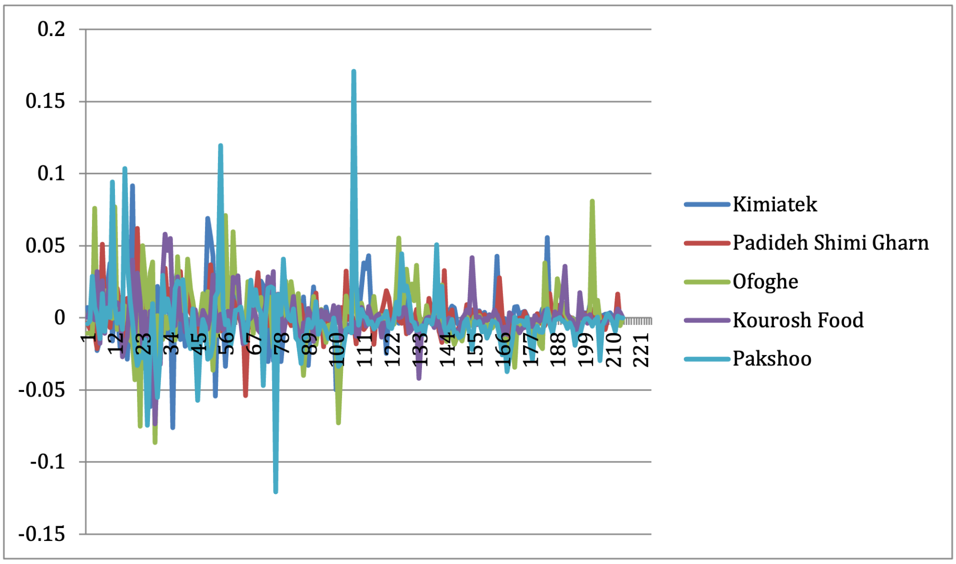

Figure 2: shows the conditional dynamic alphas for five companies of Golrang Industrial Group.

Conclusion

In this study, we have introduced an advanced methodology for evaluating the performance of investment portfolios by incorporating dynamic conditional beta models. Our research, focused on the subsidiaries of the Golrang Industrial Group, demonstrates that traditional static models of performance evaluation, such as those based on Jensen's alpha, may not sufficiently capture the dynamic risk environment of modern financial markets.

Our findings indicate that the adjusted dynamic conditional Jensen's alpha provides a more accurate measure of portfolio performance, especially during periods of market volatility. By utilizing a dynamic conditional beta, we can better account for the time-varying nature of risk, offering a more precise risk-adjusted performance metric. This methodological enhancement is particularly beneficial for portfolio managers and investors seeking to optimize their investment strategies in response to changing market conditions.

Moreover, the application of dynamic conditional beta models revealed significant insights into the performance of GIG's subsidiaries. The results showed that companies such as Ofogh Kourosh and Padideh Gharn exhibited superior performance based on both the dynamic conditional Jensen's alpha and the adjusted dynamic conditional Jensen's alpha. These findings underscore the importance of adopting dynamic models for more accurate performance evaluation and decision-making.

The implications of this study extend beyond the evaluation of GIG's subsidiaries. The enhanced accuracy of performance metrics provided by dynamic models can be applied to a wide range of portfolios and investment strategies. This approach enables a more nuanced understanding of portfolio performance, facilitating better risk management and strategic planning.

Furthermore, our research contributes to the ongoing development of performance evaluation methodologies in financial economics. By integrating dynamic conditional betas and advanced econometric models, we provide a framework that addresses the limitations of traditional static models. This advancement supports the need for continuous innovation in performance metrics to keep pace with the evolving complexities of financial markets.

The use of dynamic conditional correlation models also plays a crucial role in improving the accuracy of portfolio performance evaluations. By capturing the time-varying correlations between assets, these models provide a more comprehensive view of the risk environment, allowing for more informed investment decisions. So, this study highlights the significance of dynamic models in enhancing the precision of performance evaluations. The adoption of such models represents a critical step forward in the field of financial economics, offering valuable tools for investors and portfolio managers to navigate the complexities of modern financial markets effectively.

As mentioned before, this study introduced an advanced methodology for evaluating investment portfolio performance using dynamic conditional beta models. Our findings demonstrate that traditional static models, such as those based on Jensen's alpha, may not fully capture the dynamic risk environment of modern financial markets. By incorporating dynamic conditional beta, we provide a more accurate measure of risk-adjusted performance, particularly during market volatility. The application of these models to Golrang Industrial Group's subsidiaries revealed significant insights, highlighting the superior performance of companies like Ofogh Kourosh and Padideh Gharn. These results underscore the importance of dynamic models for precise performance evaluation and informed decision-making.

Beyond GIG, our framework offers broader applicability to various portfolios and investment strategies, improving risk management and strategic planning. This research contributes to the ongoing evolution of financial performance evaluation, advocating for continuous innovation in risk-adjusted metrics. Future studies could integrate machine learning to enhance predictive capabilities and extend this approach to global markets for further validation.

The research has significant implications for both academia and industry. For academics, it advances portfolio performance evaluation by incorporating dynamic conditional beta, addressing limitations in traditional static models. It provides a foundation for future studies exploring time-varying risk metrics and their applications in financial modeling. For practitioners, including investors and portfolio managers, this approach enhances risk assessment and decision-making, particularly during volatile market conditions. By offering a more accurate measure of risk-adjusted returns, the model supports strategic investment planning and portfolio optimization, ultimately improving financial performance and risk management practices.

This study has certain limitations, including its focus on Golrang Industrial Group subsidiaries, which may restrict the generalizability of findings to other industries and markets. Additionally, the reliance on dynamic conditional beta models assumes market stability, which may not fully capture extreme financial conditions. Future research could expand by applying these models to diverse industries, integrating machine learning for enhanced predictive accuracy, and incorporating behavioral finance factors to assess investor sentiments impact on performance evaluation. Furthermore, comparing dynamic models with alternative performance metrics, such as hybrid factor-based models, could provide deeper insights into portfolio assessment methodologies.

Bibliography

[1] G. Aielli, *An application of dynamic conditional correlation models in portfolio selection*, Appl. Econom. **45** (2013), no. 3, 375–383.

[2] M. A. Ali, M. Aqil, S. H. Alam Kazmi, and S. I. Zaman, *Evaluation of risk adjusted performance of mutual funds in an emerging market*, Internat. J. Finance Econom. **28** (2023), no. 2, 1436–1449.

[3] A. Amiri, R. Zare, and M. Mozayeni, *Dynamic conditional beta and the explanatory power of conditional Treynor ratio: Evidence from Iran*, Iranian Econom. Rev. **24** (2020), no. 1, 139–154.

[4] D. Bams and S. Kessler, *Static versus dynamic models for the performance evaluation of mutual funds*, J. Banking Finance **81** (2017), 188–204.

[5] R. Ball, S. P. Kothari, and J. Shanken, *Problems in measuring portfolio performance: An application to contrarian investment strategies*, J. Financial Econom. **38** (1995), no. 1, 79–107.

[6] N. Barberis and R. Thaler, *A survey of behavioral finance*, in *Handbook of the Economics of Finance*, vol. 1, North-Holland, 2003, pp. 1053–1128.

[7] D. G. Baur, *Testing for structural breaks in correlations: Are financial asset returns really getting more extreme?*, J. Banking Finance **30** (2006), no. 12, 3311–3333.

[8] T. Bollerslev, *Generalized autoregressive conditional heteroskedasticity*, J. Econometrics **31** (1986), no. 3, 307–327.

[9] M. M. Carhart, *On persistence in mutual fund performance*, J. Finance **52** (1997), no. 1, 57–82.

[10] R. F. Engle, *Autoregressive conditional heteroskedasticity with estimates of the variance of United Kingdom inflation*, Econometrica **50** (1982), no. 4, 987–1007.

[11] R. F. Engle, *Dynamic conditional correlation: A simple class of multivariate generalized autoregressive conditional heteroskedasticity models*, J. Bus. Econom. Statist. **20** (2002), no. 3, 339–350.

[12] E. F. Fama and K. R. French, *Common risk factors in the returns on stocks and bonds*, J. Financial Econom. **33** (1993), no. 1, 3–56.

[13] S. Giglio, B. Kelly, and S. Pruitt, *Systematic risk and the price of volatility*, Rev. Financial Stud. **32** (2019), no. 10, 3728–3777.

[14] D. Huang, F. Jiang, and J. Tu, *Conditional multi-factor models with volatility and jumps*, J. Econometrics **193** (2016), no. 2, 387–401.

[15] M. C. Jensen, *The performance of mutual funds in the period 1945–1964*, J. Finance **23** (1968), no. 2, 389–416.

[16] M. Mehrara and S. Tajdini, *Comparison of profitability of speculation in the foreign exchange market and investment in Tehran Stock Exchange during Iran's currency crisis using conditional Sharpe ratio*, 2020.

[17] S. Tajdini, M. Mehrara, and R. Tehrani, *Double-sided balanced conditional Sharpe ratio*, Cogent Econom. Finance **7** (2019), no. 1, 1630931.

[18] S. Tajdini, M. Mehrara, and R. Tehrani, *Hybrid balanced justified Treynor ratio*, Managerial Finance (Year), vol. Volume, no. Issue, pp. Page range.

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