

Analysing Trends and Variability of Employees Provident Fund Dividends

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ABSTRACT

The study investigates the distribution of dividends issued by the Employees Provident Fund (EPF), with a particular focus on examining the central tendency, dispersion, and overall distribution shape to provide a clear understanding of the fund's performance. The analysis, based on historical dividend data (1952 – 2024), seeks to describe the patterns and stability of returns that affect millions of employees relying on EPF for their retirement.

Our methodology involved statistical examination of the dataset, employing tools to calculate the mean, median, standard deviation, variance, range, quartiles, skewness, and kurtosis of the EPF dividends. The mean dividend rate was found to be 7.41%, with a standard deviation of 2.96%, reflecting moderate variability around the mean. The median value stood at a slightly higher 8.00%, indicating a skew towards higher dividend rates. The range of dividends was considerable, at 11.5%, with the lowest dividend at 2.5% and the highest at 14.0%. The skewness of the distribution was 0.246, suggesting a symmetrical distribution with a slight inclination towards lower values. Kurtosis was -0.203, revealing a distribution with fewer extreme outliers than a normal distribution would exhibit.

The implications of our findings highlight a steady, yet varied dividend return for EPF contributors, with implications for individual financial planning and policy-making. The results suggest the necessity for a proactive approach in managing EPF investments and strategic planning to ensure consistent and favourable outcomes for beneficiaries. This paper provides valuable insights for stakeholders and policymakers in enhancing the financial robustness of the EPF, securing the financial future of employees, and ensuring a sustainable retirement fund.

Keywords: EPF, Dividends, Trends, Statistical Analysis, Retirement Planning

INTRODUCTION

The Employees Provident Fund (EPF) represents a basis of retirement planning for workers, providing a safety net and financial security in post-employment life [1]. The dividends paid out by the EPF are a subject of keen interest for both employees and policymakers, as they reflect the fund's performance and the economic landscape's influence on personal savings [2].

Despite the importance of these dividends, there has been limited statistical scrutiny of their trends and variability over extended periods. This paper seeks to bridge that gap by offering a comprehensive analysis of EPF dividends from 1952 to 2023, focusing on the patterns present in Total Shariah and Total dividends. The analysis aims to unearth underlying trends, identify periods of significant fluctuation, and offer insights into the factors influencing these changes, ultimately guiding stakeholders in decision-making processes [3].

Established to promote savings and financial stability among employees, the EPF has been a pivotal element

in Malaysia's social security framework. The dividends distributed annually by the fund are influenced by a myriad of economic factors, including interest rates, inflation, and market performance [4].

While the fund's history has been marked by stability and growth, it has not been immune to economic downturns and policy changes, which have occasionally affected dividend payouts. Previous research has largely focused on the qualitative assessment of the fund's performance or on the micro-level implications of dividend changes.

Our study extends this research by delving into the quantitative aspects, specifically analyzing the historical trends of dividends and the introduction of the Shariah-compliant option in the fund [5].

LITERATURE REVIEW

The collection of literature on the Employees Provident Fund (EPF) in Malaysia and related topics provides a rich tapestry of insights into the management, investment strategies, and broader implications of provident funds within the context of social protection, Shariah compliance, employee satisfaction, and retirement support. This synthesis aims to weave together the findings and discussions from the selected literature to present a comprehensive overview of the current state and future directions of provident funds, particularly within the Malaysian context[6].

Evolution of Provident Funds into Social Protection Mechanisms

The concept of transforming the Employees Provident Fund into a broader National Social Protection Fund (NSPF), marks a significant shift in the perception and function of provident funds. By incorporating the informal sector into the formal economy, the NSPF aims to create a more inclusive and robust social protection scheme. This evolution reflects a growing recognition of the need to address income inequality and poverty through comprehensive social security measures that go beyond traditional retirement savings plans [4], [7].

Employee Satisfaction and Organizational Effectiveness

The study factors influencing employee attitudes within the EPF Seremban branch underscores the importance of the working environment, work-life balance, and compensation in determining employee satisfaction. This finding points to the critical role of organizational practices in not only enhancing employee productivity but also in ensuring the effective management of provident funds. Similarly, Nasruddin's evaluation of the Employees Provident Fund Social Security Training Institute (ESSET) emphasizes the significance of customer satisfaction in training programs, suggesting that high-quality facilities, management, and program variety are essential for developing the competencies of EPF employees [3], [8], [9].

Challenges in Providing Adequate Retirement Support

The discussions on the adequacy of the EPF's support for retirees highlight several challenges, including the impact of an aging population, low retirement age, and the erosion of informal safety nets. The pre-retirement withdrawals and declining investment returns undermine the fund's ability to provide sufficient old-age support. These challenges underscore the need for the EPF to reform its investment strategies and minimize pre-retirement withdrawals to enhance the sustainability of retirement benefits [3], [7], [10].

Financial Management and Future Directions

The broader financial management debate on buybacks versus dividends, while not directly related to the

EPF, offers valuable insights into the challenges of balancing short-term returns with long-term fund sustainability. This discussion is relevant to provident funds as they navigate the complexities of investment strategies to maximize benefits for contributors [4].

The literature on the Employees Provident Fund and related provident fund mechanisms presents a nuanced understanding of the challenges and opportunities facing these funds in Malaysia. Key themes include the need for Shariah-compliant investment options, the importance of effective organizational practices, and the challenges of ensuring adequate retirement support [3], [6], [11], [12]. As provident funds continue to evolve in response to changing financial, social, and demographic landscapes, future research and policy development should focus on enhancing their inclusivity, sustainability, and effectiveness [6], [9].

METHODOLOGY

Data Collection

The dataset for this analysis encompasses the annual dividend rates for the Employees Provident Fund (EPF) from 1952 to 2023. This historical dividend data was meticulously collected from archival records of the EPF's annual reports and authenticated financial statements. Given the longitudinal nature of this study, the dataset comprises total dividends.

To ensure the integrity and reliability of the data, cross-referencing was conducted with secondary sources, such as financial databases and historical economic records. This step helped to validate the accuracy of the recorded dividend rates and to contextualize them within the broader economic landscape of the respective years.

Statistical Techniques

The analytical approach to understanding the trends in EPF dividends included both descriptive statistical techniques. The descriptive analysis, measures of central tendency (mean, median, and mode) were calculated to identify the average dividend rate and the most common rates within the dataset. Additionally, measures of variability, such as range, variance, and standard deviation, were computed to assess the extent of fluctuation in dividend rates over the years [13].

The statistical analysis is conducted using excel software tools and techniques, allowing for comprehensive examination and visualization of dividend trends and patterns. Descriptive statistics and graphical representations, such as tables and graph, are utilized to present the findings in a clear and accessible manner [14].

Trend Analysis

The trend analysis aimed to delineate long-term movements in the EPF dividends. Using moving averages and smoothing techniques, we sought to eliminate short-term fluctuations and highlight underlying trends. The analysis also incorporated a period-over-period percentage change analysis to understand the rate of growth or decline year-on-year [15].

To enhance the robustness of the study, the period was divided into several economic eras based on Malaysia's financial history, allowing for era-specific trend analysis. This breakdown helped in examining the impact of significant economic events, such as the Asian financial crisis and the global recessions, on the dividend rates [11].

Ethical Considerations

The data collection and analysis process, ethical considerations were strictly adhered to. Publicly available data was used, and all analyses were performed with the aim of providing transparency and contributing to the academic and practical understanding of the financial trends affecting employees' provident funds [16].

RESULT AND ANALYSIS

The analysis of EPF dividend data reveals several key insights into the distribution and variability of dividends over the specified time period.

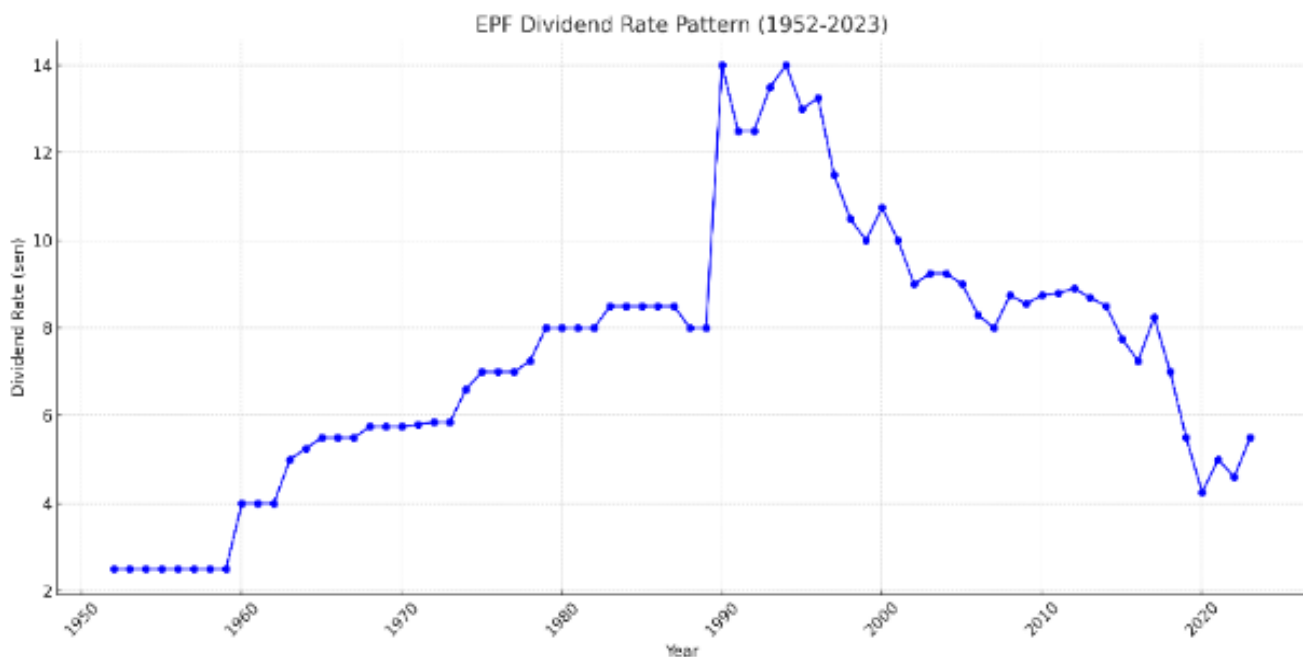


fig 1 EPF Dividend Rates Pattern (1952 to 2023)

The figure above showcasing the pattern of the Employees Provident Fund (EPF) dividend rates from 1952 to 2023 reveals several noteworthy trends and fluctuations over the years. Here are some key observations:

Stability in Early Years:

Initially, from 1952 to 1959, the dividend rate was extremely stable, consistently set at 2.5 sen. This period reflects a phase of steadiness where the rate remained unchanged.

Gradual Increases:

Starting from 1960, there was a gradual increase in the dividend rates, climbing from 4 sen in 1960 to a peak of 14 sen by 1994. This period marked a trend of growth, indicating an improving performance or possibly a more aggressive investment strategy by the EPF.

Significant Variability:

The late 1980s and 1990s exhibited significant variability in dividend rates, with a notable peak in 1990 at 14 sen, followed by fluctuations in the subsequent years. This period could reflect varying economic conditions, impacting the fund's performance and, consequently, the dividend rates.

Downtrend and Volatility (Late 1990s – 2000s):

Starting from the late 1990s, there was a noticeable downtrend with increased volatility. The Asian Financial Crisis in 1997 and global economic challenges could have influenced these changes. The dividend rate dipped to 10 sen in 1999 and saw slight recoveries and falls, illustrating the impact of economic conditions on investment returns.

Recent Trends (2010s – 2023):

The last decade shows a trend of gradual decline with some years of slight recovery. Notably, there was a sharp drop in 2019 to 5.5 sen, a further decline to 4.25 sen in 2020, which might reflect the impact of the global economic downturn and possibly the COVID-19 pandemic. However, there is a slight recovery observed in the subsequent years, reaching 5.5 sen again by 2023.

Overall Pattern:

The overall pattern indicates that the EPF dividend rates have been influenced by various factors over the years, including economic conditions, investment strategies, and global financial markets.

The graph illustrates the fund’s responsiveness to these factors, with periods of stability, growth, and volatility reflective of broader economic trends. This analysis demonstrates the dynamic nature of the EPF’s dividend rates and highlights the importance of understanding the factors that influence these changes over time [4].

The statistical analysis below, examine a set of data that encapsulates various financial returns, showcasing an intricate overview through several statistical measures.

These measures include central tendencies like the mean and median, dispersion indicators such as standard deviation and variance, range, quartiles that describe the data distribution, and shape metrics like skewness and kurtosis.

This detailed statistical analysis aims to provide a comprehensive understanding of the dataset’s behavior, offering insights into its central tendencies, variability, distribution, and overall shape.

By dissecting these elements, we can derive significant conclusions about the dataset’s nature and the implications for financial analysis or investment strategies [17].

Table 2 Statistical Analysis of EPF Dividend

STATISTIC	VALUE
Mean (Average)	7.41%
Median	8.00%
Standard Deviation	2.96%
Variance	8.65%
Minimum	2.5%
Maximum	14.0%
Range	11.5%
25% (First Quartile)	5.5%
50% (Second Quartile)	8.0%

STATISTIC	VALUE
75% (Third Quartile)	8.76%
Skewness	0.246
Kurtosis	-0.203

The mean dividend rate is found to be approximately 7.41%, indicating the average return received by EPF contributors annually.

The median dividend rate, at 8.00%, signifies the middle value of the dataset, with half of the dividends falling above and below this value.

The standard deviation, a measure of the dispersion of dividend rates around the mean, is calculated to be approximately 2.96%, indicating moderate variability in dividend returns.

The variance, representing the average squared deviation from the mean, is determined to be approximately 8.65%.

The range of dividends spans from a minimum of 2.5% to a maximum of 14.0%, reflecting a considerable spread of dividend rates. Quartile analysis reveals that 25% of dividends fall below 5.5%, while 75% fall below 8.76%.

The distribution of dividends exhibits a slight right skewness, with a skewness coefficient of approximately 0.246, indicating a concentration of dividends towards the lower end of the distribution.

The kurtosis coefficient, measuring the peakedness of the distribution, is calculated to be approximately -0.203, suggesting a flatter distribution compared to a normal distribution.

The statistical analysis of EPF dividends sheds light on the performance and variability of returns distributed to contributors.

The findings highlight the stability of EPF dividends over time, with the majority of dividends clustered around the median rate. However, the presence of variability and outliers underscores the importance of prudent fund management and risk mitigation strategies.

The slight skewness observed in the distribution of dividends suggests a tendency towards lower dividend rates, which may impact contributors' retirement income.

Policymakers and fund managers must consider these statistical properties when formulating investment strategies and dividend distribution policies to ensure the long-term sustainability of the EPF [6].

CONCLUSION

In conclusion, the statistical analysis of EPF dividend distribution offers valuable insights into the fund's performance and variability. The findings underscore the importance of understanding trends and patterns in dividend distribution for effective retirement planning and fund management [1].

By recognizing the factors influencing dividend rates and their implications for contributors, policymakers can develop strategies to enhance the stability and sustainability of the EPF. Through informed decision-making and risk management, EPF contributors can navigate market fluctuations and secure their financial futures in retirement [4], [7], [12].

The insights gleaned from this study contribute to the body of knowledge on EPF dividends and provide a foundation for future research and policy development in the realm of retirement savings and investment management [3], [18], [19].

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We are proud to have had the opportunity to work with such esteemed institutions and hope that the results of this study will contribute to the ongoing discourse in data analytics social protection and prove useful for policy formulation and implementation.

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