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# Application of the Treynor Ratio to Companies Listed on the Mexican Stock Exchange (BMV)


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## Abstract

*This research utilizes a multi-dimensional framework—incorporating theoretical, documentary, experimental, and descriptive approaches—to evaluate the risk-adjusted performance of the 35 constituent assets of the Índice de Precios y Cotizaciones (IPC) on the Mexican Stock Exchange (BMV). By applying the Treynor Ratio, this study provides a quantitative methodology to measure excess profitability relative to the prevailing risk-free rate. The primary objective is to identify issuers that successfully maximized returns per unit of systematic risk, thereby facilitating the construction of an optimal investment portfolio grounded in financial efficiency and rigorous empirical evidence.*



**Keywords:** *Treynor Ratio, Stock Market, Financial Portfolios, Risk.*


## 1. Introduction: Quantitative Frameworks vs. Behavioral Biases

In the sophisticated environment of modern capital markets, effective decision-making must transition from speculative impulses to robust quantitative risk-adjusted frameworks. A fundamental distinction exists between the "audacious investor"—who frequently conflates high volatility with high returns without analytical substantiation—and the "informed investor," who leverages technical metrics to navigate market cycles.

Pure speculation often stems from behavioral biases that lack logical standing in professional portfolio management. If risk alone guaranteed superior results, optimal portfolios would consist exclusively of highly volatile, unhedged assets. In practice, however, risk and results often exhibit an inverse correlation when a disciplined strategy is absent. Success on the BMV is reserved for those who utilize high-quality data and predictive strategies to generate alpha without exposure to unnecessary idiosyncratic risks. This study employs the Treynor Ratio to distill raw market data into strategic investment insights.




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## 2. Research Objectives

The development of a robust financial model requires clearly defined objectives to guide the transformation of IPC price data into actionable institutional-grade recommendations.

- **General Objective:**
  - To quantitatively analyze the performance of the Mexican equity market through the calculation and interpretation of the Treynor Ratio for IPC-constituent stocks, identifying an optimal portfolio configuration.
- **Specific Objectives:**
  - Calculate the Treynor Ratio for the 35 companies listed on the IPC.
  - Identify issuers with the highest ratios to construct an efficient investment frontier.
  - Formulate specific strategic recommendations for capital allocation based on risk-adjusted efficiency.

## 3. Theoretical Framework: The Evolution of Portfolio Theory

The cornerstone of modern asset management is the Capital Asset Pricing Model (CAPM), a framework that revolutionized the relationship between risk and the required rate of return. Jack Lawrence Treynor, a distinguished economist and mentor to figures such as Fischer Black, was a central architect of this evolution.

In the 1960s, Treynor posited that the appropriate discount rate for future cash flows must be derived from market-determined rates for assets with comparable risk profiles. This insight led to the development of the Treynor Ratio and, later, the Treynor-Black model in the 1970s. While the Treynor-Black model focuses on the optimization of active versus passive management, the Treynor Ratio itself remains a primary metric for distinguishing the portion of an asset's return that serves as fair compensation for systematic market exposure.

## 4. Technical Definition: The Treynor Ratio and Risk Dynamics

For a sophisticated portfolio manager, it is critical to distinguish between non-systematic risk (idiosyncratic risk that can be eliminated through diversification) and systematic risk (market risk, or Beta, which cannot be diversified away). Unlike the Sharpe Ratio, which uses total risk (standard deviation) and is more suited for non-diversified portfolios, the Treynor Ratio is the superior metric for diversified investors because it isolates the return per unit of market sensitivity.

The Treynor Ratio (T) measures the excess return per unit of systematic risk, represented by Beta (\beta). A higher ratio signifies superior portfolio management, as it indicates the manager has secured higher returns for each unit of market risk assumed.

**The formula is defined as:**

T = {R_p - R_f} / {\beta_p}

**Variables:**

- R_p: Expected return of the portfolio or asset.
- R_f: Risk-free rate. In the Mexican context for 2025, the **28-day CETES (Certificados de la Tesorería) yielded 8.35%**.
- \beta_p: Portfolio Beta (sensitivity to market movements).

*Note: In the high-interest-rate environment of 2025 (8.35%), the "bar" for equities to generate alpha was significantly elevated, making the Treynor Ratio a particularly stringent filter for asset selection.*

## 5. Methodology and Research Design

This study employs a descriptive, cross-sectional design, utilizing 2025 year-end data to analyze the primary drivers of the Mexican equity market.

| Feature | Description | Strategic Rationale |
|---|---|---|
| **Level** | Descriptive | Precise analysis of the 35 IPC constituent companies. |
| **Purpose** | Basic/Pure Research | Establishing a baseline for excess return over the risk-free rate. |
| **Sampling** | Discretionary | Inclusion of the 35 representative companies of the BMV. |
| **Variables** | Non-experimental | Ex-post analysis of existing market data and historical returns. |
| **Extension** | Transversal | 2025 year-end data (capturing performance during inflationary recovery). |

## 6. Operational Procedure

To ensure precision in measuring risk-adjusted profitability, a three-step standardized procedure was implemented:

1. **Benchmark Identification:** The 28-day CETES rate was set at 8.35%, representing the hurdle rate for all analyzed equities.
2. **Calculation and Ranking:** The Treynor Ratio was calculated for each of the 35 issuers. Assets were ranked from highest to lowest to identify those providing the most efficient compensation for market risk.
3. **Selection and Cutoff:** A qualitative and quantitative cutoff point was established to isolate assets viable for a diversified optimal portfolio.

## 7. Empirical Results: Comparative Performance Analysis

The following table presents the performance metrics for the 35 companies analyzed. Note that while 2025 was a year of significant volatility, certain issuers demonstrated remarkable resilience.

| Instrument | Action Return | Risk-Free (Rf) | Beta (\beta) | Treynor Ratio (T) |
|---|---|---|---|---|
| **BIMBO** | **55.08%** | **8.35%** | **0.111** | **4.21** |


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| | | | | |
|---|---|---|---|---|
| **INBURSA** | **94.29%** | **8.35%** | **0.639** | **1.34** |
| **ARCA** | **16.20%** | **8.35%** | **0.284** | **0.28** |
| **GCARSO** | **29.94%** | **8.35%** | **0.773** | **0.28** |
| **BAJIO** | **33.36%** | **8.35%** | **0.936** | **0.27** |
| **GRUMA** | **16.54%** | **8.35%** | **0.357** | **0.23** |
| **AMX** | **15.29%** | **8.35%** | **0.326** | **0.21** |
| **WALMART** | **9.37%** | **8.35%** | **0.169** | **0.06** |
| **COCA COLA F** | **9.98%** | **8.35%** | **0.785** | **0.02** |
| *ASUR* | *7.10%* | *8.35%* | *0.861* | *-0.01* |
| *OMA* | *7.35%* | *8.35%* | *0.946* | *-0.01* |
| *ALSEA* | *1.11%* | *8.35%* | *1.34* | *-0.05* |
| *VESTA* | *1.69%* | *8.35%* | *0.616* | *-0.11* |
| *LIVERPOOL* | *-2.47%* | *8.35%* | *0.865* | *-0.13* |
| *ALFA* | *-7.39%* | *8.35%* | *1.19* | *-0.13* |
| *REGIONAL* | *-11.69%* | *8.35%* | *1.26* | *-0.16* |
| *QUALITAS* | *-12.20%* | *8.35%* | *1.23* | *-0.17* |
| *TELESITES* | *0.86%* | *8.35%* | *0.37* | *-0.20* |
| *BMV* | *-7.06%* | *8.35%* | *0.776* | *-0.20* |
| *BANORTE* | *-13.06%* | *8.35%* | *0.99* | *-0.22* |
| *BECLE* | *-7.33%* | *8.35%* | *0.654* | *-0.24* |
| *PINFRA* | *-2.09%* | *8.35%* | *0.439* | *-0.24* |
| *GENOMMA* | *-5.02%* | *8.35%* | *0.457* | *-0.29* |
| *ORBIA* | *-18.65%* | *8.35%* | *0.849* | *-0.32* |
| *VUELA* | *-56.23%* | *8.35%* | *1.87* | *-0.35* |
| *CHIHUAHUA* | *-21.80%* | *8.35%* | *0.758* | *-0.40* |
| *GAP* | *-67.23%* | *8.35%* | *1.73* | *-0.44* |
| *PEÑOLES* | *-26.47%* | *8.35%* | *0.793* | *-0.44* |
| *CEMEX* | *-48.40%* | *8.35%* | *1.12* | *-0.51* |
| *TELEVISA* | *-41.17%* | *8.35%* | *0.853* | *-0.58* |
| *FEMSAUBD* | *-28.21%* | *8.35%* | *0.491* | *-0.74* |
| *KIMBERLY* | *-9.28%* | *8.35%* | *0.182* | *-0.97* |
| *MEGACABLE* | *-33.15%* | *8.35%* | *0.43* | *-0.97* |
| *GRUPO MEX* | *-9.52%* | *8.35%* | *0.135* | *-1.32* |
| **ELEKTRA** | **-27.15%** | **8.35%** | **-0.009** | ***38.57*** |

*Note: Data reflects 2025 year-end closing figures. Minor discrepancies between textual narrative and table figures in primary sources have been resolved in favor of the data presented in the comprehensive results table.*

## 8. Strategic Asset Selection: Optimal Portfolio Components

The identification of a "Top Tier" (positive ratios) reveals a clear sector concentration that informs a sophisticated asset selection strategy. The most viable instruments for an optimal portfolio are characterized by low systematic risk (Beta) and robust average returns.

**Sector Insights:**

- **Consumer Staples Dominance:** Companies such as **Bimbo (4.21)**, **Arca Continental (0.28)**, **Gruma (0.23)**, and **Walmart (0.06)** demonstrate defensive characteristics. Their low betas suggest they are less sensitive to macroeconomic shocks, while their high Treynor Ratios indicate they effectively outperformed the 8.35% CETES hurdle.
- **Financial Resilience: Inbursa (1.34)** and **Bajio (0.27)** represent strong performers within the financial sector. Inbursa, in particular, achieved a remarkable 94.29% return, significantly compensating investors for its 0.639 market sensitivity.

By combining these assets, an investor can effectively eliminate idiosyncratic risk, leaving only a manageable level of systematic exposure.

## 9. Risk Mitigation: Negative and Unreliable Ratios

Identifying "red flags" is as vital to capital preservation as selecting winners. This study classifies a significant portion of the IPC as high-risk or non-viable for the rational investor under 2025 conditions.

- **Negative Ratios:** Major names such as **Grupo México (-1.32)**, **FEMSA (-0.74)**, **Cemex (-0.51)**, and **Televisa (-0.58)** failed to meet the risk-free benchmark. In these cases, the return was insufficient to justify the market risk assumed, representing a net destruction of risk-adjusted value.

**The Elektra Anomaly:** While Elektra shows a mathematical ratio of 38.57, this is a mathematical artifact resulting from its negative beta (-0.009). A negative beta implies the stock moves inversely to the BMV; when used as the denominator in the Treynor formula, it creates an artificially high positive number that does not reflect superior risk management. Consequently, this value is deemed unreliable for institutional-grade decision-making.

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