Hewitt

Overview of Portfolio Rebalancing

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Rebalancing Overview

Why Rebalance?

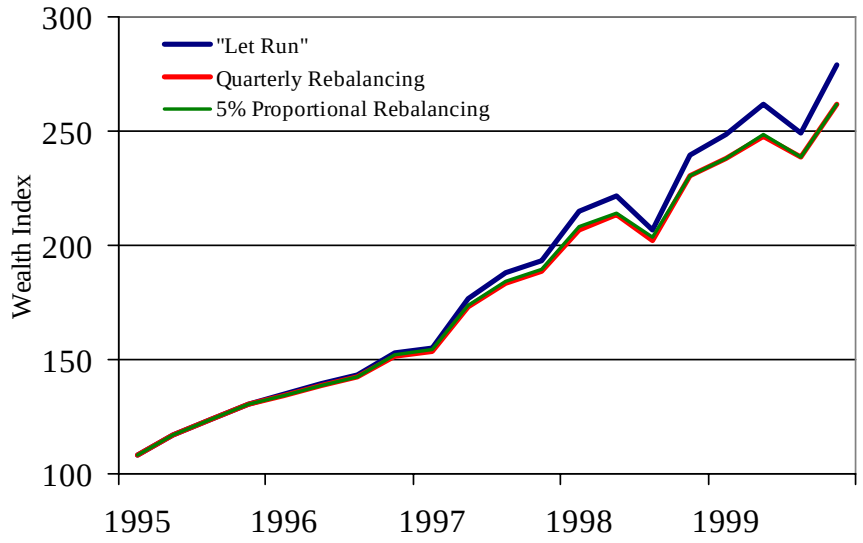
- **Rebalancing is a vital part of investment policy—there can be no asset allocation target without a stated commitment to preserve the target.**
- **A plan may incur unintended risk if no rebalancing policy exists.**
  - **This is true particularly for smaller allocations, which can balloon due to outsized returns (e.g., emerging markets).**
- **Rebalancing is passive timing—the process naturally buys low and sells high.**
  - **Derivatives-based rebalancing is not delta hedging—it is exactly the opposite.**
- **A clear policy avoids the risks of ad-hoc portfolio revisions**
- **Rebalancing is necessary to achieve the value-added benefits of diversification.**
- **If you do not actively rebalance your portfolio, the market will do it for you eventually.**

Rebalancing Overview

Why Rebalance?—Investment Policy

- **During the last five years, rebalancing has "cost" plan sponsors relative to a "Let Run" policy.**
- **The strong stock market increased the average equity exposure of a 65%/35% portfolio to 74% during the five years ended 1999.**
- **The time based and exposure based rebalancing rules resulted in similar results during the last five years.**
- **The "Let Run" portfolio outperformed both rebalancing rules by 1.6% per year.**
- **"Let Run" was riskier, but can you "eat" risk adjusted return?**
- **Why rebalance?**

Value of 65%/35% Portfolio

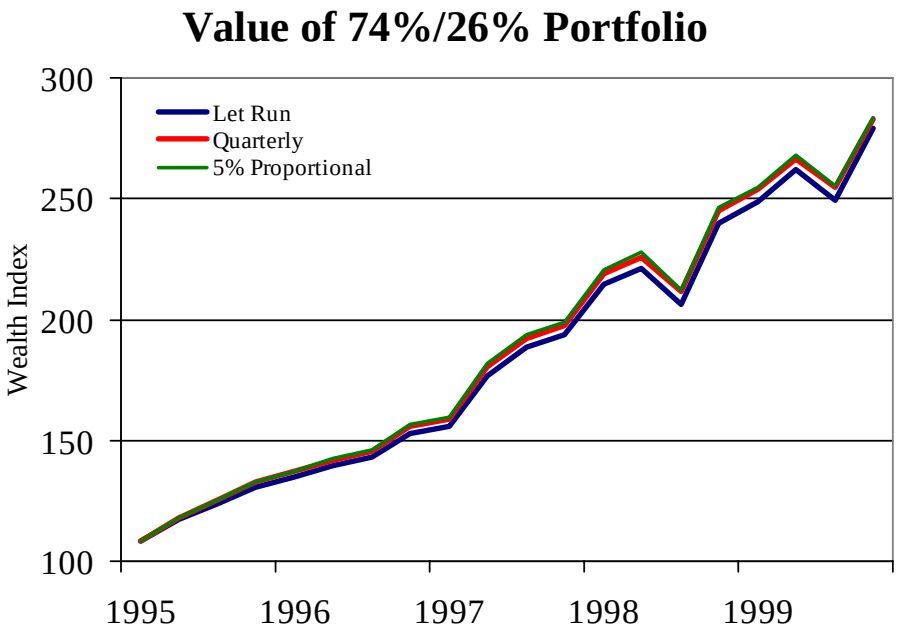


1995 to 1999	Return	Risk
Let Run (65%/35%)	22.8%	11.0%
Quarterly Rebal.	21.2%	9.4%
5% Proportional Rebal.	21.2%	9.3%

Rebalancing Overview

Why Rebalance?—Investment Policy

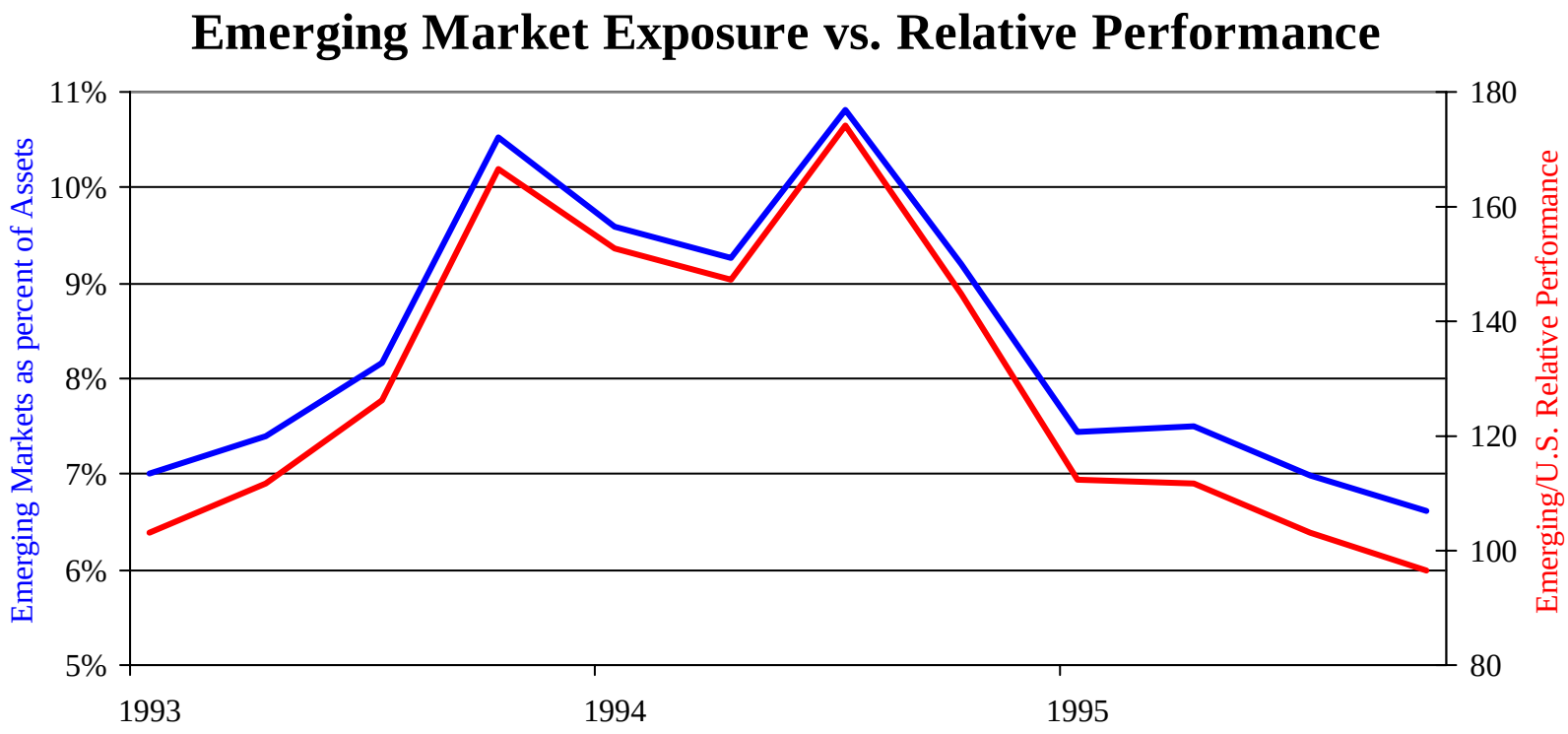
- **You can "eat" risk-adjusted return when it comes to rebalancing!**
- **Allowing the equity exposure of the 65%/35% portfolio to increase over time results in a portfolio that averages 74% equity.**
- **Comparing the "Let Run" with rebalanced portfolios is like comparing portfolios with different equity allocations—and contains the same "information."**
- **Rather than letting equity exposure "creep," it is preferable to adopt a higher equity exposure, and rebalance.**



1995 to 1999	Return	Risk
Let Run (65%/35%)	22.8%	11.0%
Quarterly Rebal.	23.1%	10.7%
5% Proportional Rebal.	23.2%	10.9%

Rebalancing Overview

Why Rebalance? — "Natural" Rebalancing



Rebalancing Overview

Why Rebalance? — "Natural" Rebalancing

- **The market often will "rebalance for you."**
  - **This is not true for total equity since stocks tend to appreciate over time.**
  - **However, within the equity allocation, the relative performance of various segments can shift quickly, "rebalancing" your portfolio.**
- **The preceding graph shows the results of allocating 7% of total equity to emerging markets at the end of 1993 (just before one of the greatest years for emerging markets in history!).**

Rebalancing Overview

Why Rebalance? — Making Practice from Theory

Diversification Example – No Rebalancing

Asset	Year 1	Year 2	Cumulative
Stocks	20.00%	-10.00%	8.00%
Bonds	-10.00%	20.00%	8.00%
50/50 Portfolio	5.00%	2.86%	8.00%

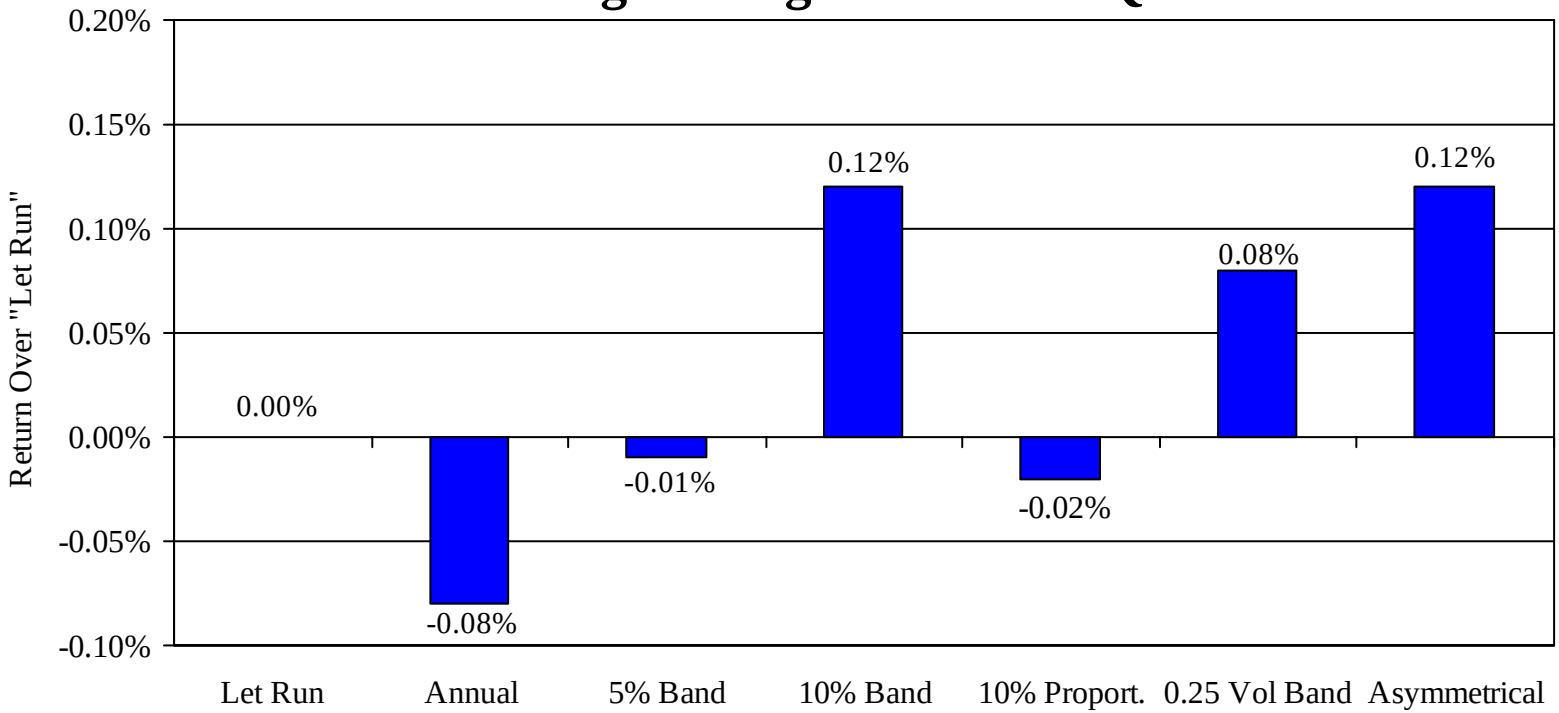
Diversification Example – With Rebalancing

Asset	Year 1	Year 2	Cumulative
Stocks	20.00%	-10.00%	8.00%
Bonds	-10.00%	20.00%	8.00%
50/50 Portfolio	5.00%	5.00%	10.25%

Note: The composition of the "No Rebalancing" portfolio is 57.1% stocks and 42.9% bonds at the end of year 1.

When to Rebalance

Rebalancing Strategies 1973 to 2Q 1999



	Let Run	Annual	5% Band	10% Band	10% Proport.	0.25 Vol Band	Asymmetrical
Annualized Return	12.20%	12.12%	12.19%	12.32%	12.18%	12.28%	12.32%
Standard Deviation	12.94%	12.36%	12.34%	12.30%	12.30%	12.22%	12.26%
Average Equity	70.1%	65.7%	66.0%	66.8%	65.4%	65.2%	65.4%
# of Rebalancings	0	26	14	5	36	16	24

When to Rebalance

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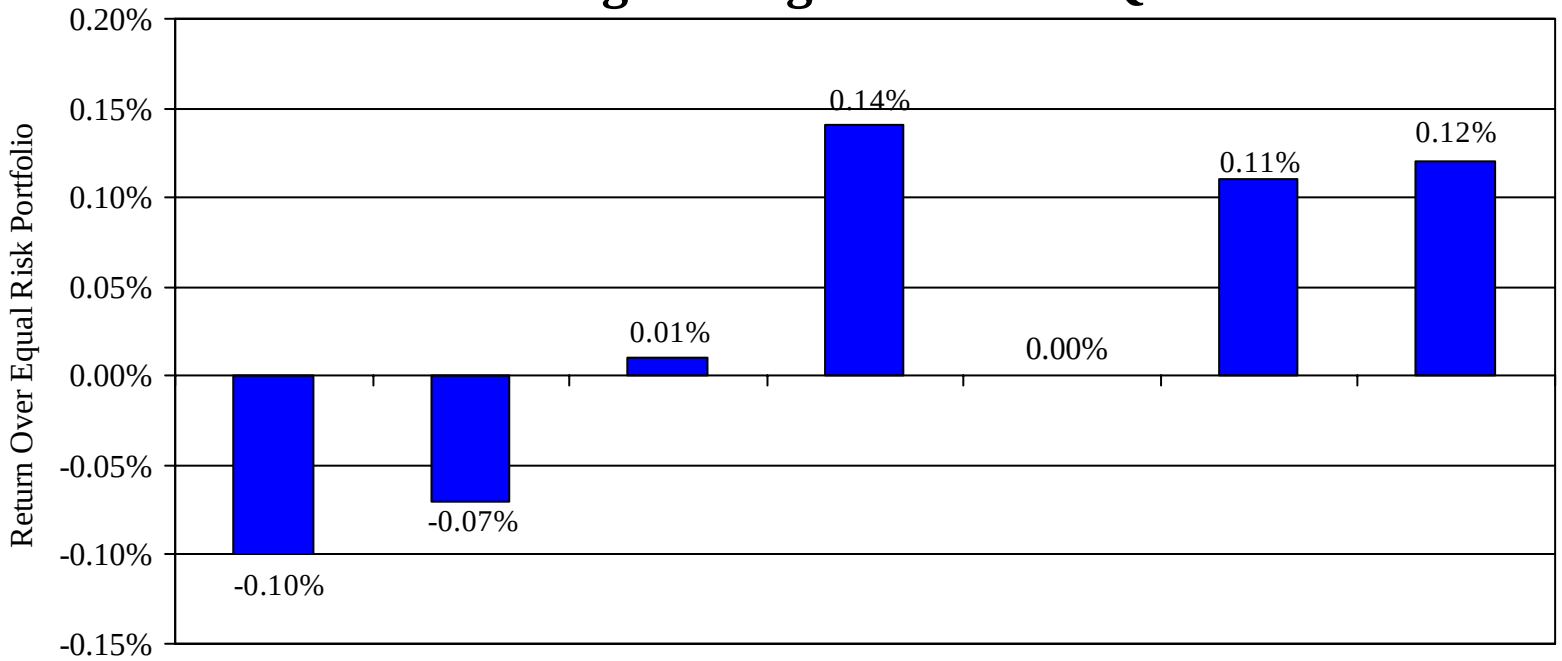

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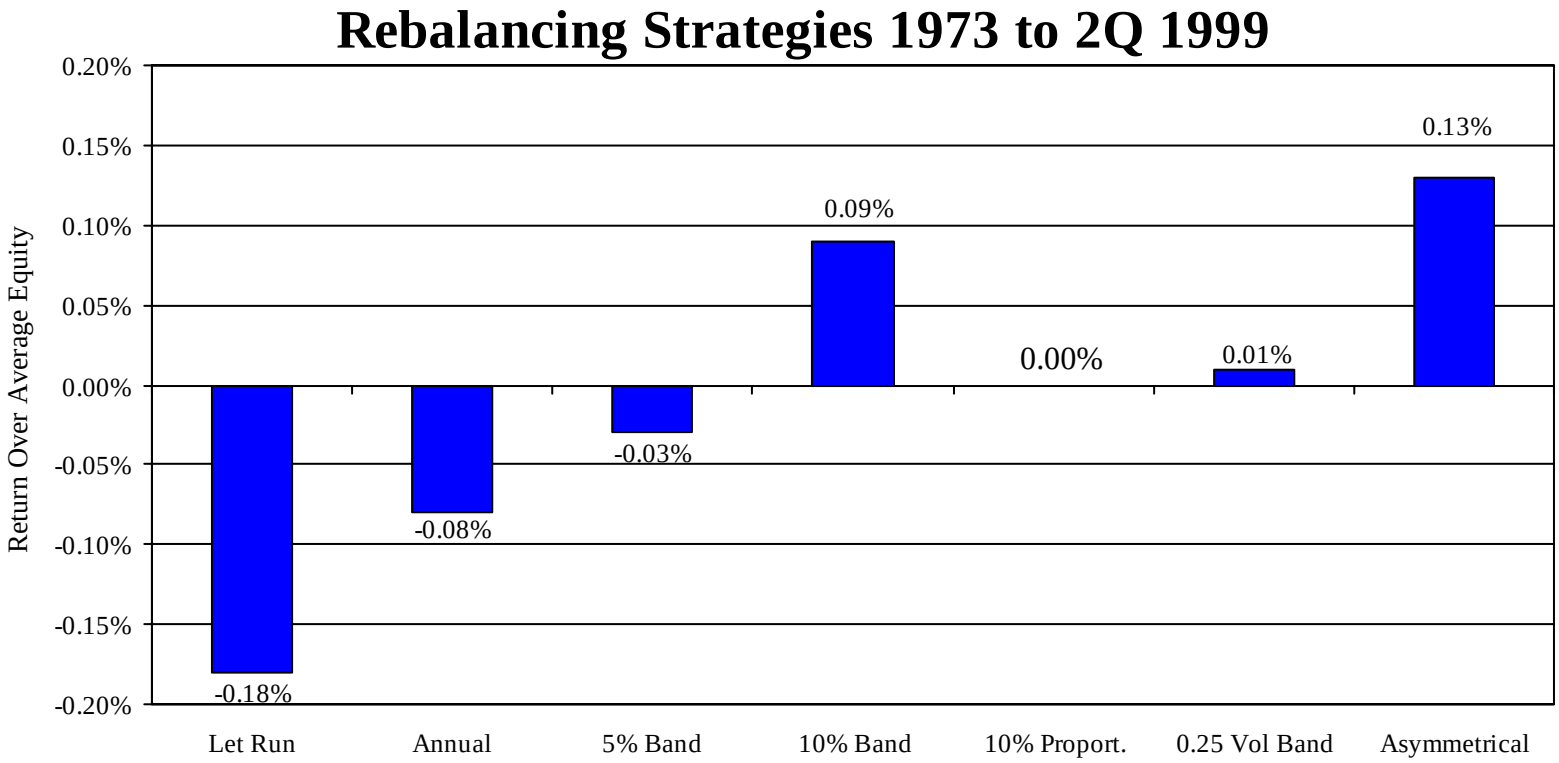

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When to Rebalance

- **A "Let Run" strategy, or a policy of no rebalancing, clearly results in a higher risk portfolio with an average equity exposure well above target.**
  - **In terms of absolute return, Let Run outperforms some rebalancing strategies due to a higher equity allocation.**
  - **However, simply targeting a 70% equity allocation, and maintaining the target, would result in higher returns (18 basis points annualized) than the let run strategy.**
- **By letting the "market" rebalance the portfolio over time, the let run strategy results in asset allocations that are far away from targets at critical times.**
  - **Equity exposure fell as low as 52% in 1974, just before stocks recovered strongly.**
  - **Equity exposure reached 77% in the quarter before the crash of 1987.**
- **Annual rebalancing has proven to be a poor strategy historically.**
  - **Not only did annual rebalancing trail the let run policy (due in large part to lower average equity), but the policy detracted value in risk adjusted returns by both measures.**