# Bridging Value and Growth: Designing a GARP Strategy for Australia

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## Introduction

The debate surrounding value investing versus growth investing has been a longstanding topic in the investment community, predating the introduction of factor investing concepts. With the increasing adoption of investment style boxes, value and growth strategies have naturally evolved as extensions of asset allocation beyond the traditional market portfolio. These two characteristics serve as fundamental pillars for assessing the performance of investment strategies. For several decades, utilizing value and growth, combined with size exposure in attribution analysis, has been a prevalent method within the investment community for classifying various investment styles.

This paper will present a novel investment strategy that occupies the space between value and growth: the growth at a reasonable price (GARP) strategy, specifically from an Australian market participant's perspective. Through a review of relevant research findings, the essence of the GARP strategy will be clarified by explaining how it differs from traditional value and growth strategies and by identifying key metrics for constructing an effective GARP strategy.

# Valuation Metrics as Growth

The conventional understanding of growth investing posits that growth is the opposite of value. Traditional value investing is characterized by investing in low-valuation stocks, as defined by price-to-earnings (P/E) and price-to-book (P/B) ratios. Conversely, growth investing typically involves high-valuation stocks. This distinction originates from the Fama-French Three Factor Model, which classifies stocks based on their P/B ratios. In the Fama-French Three Factor Model, the high minus low (HML) factor represents the average return of two value portfolios minus the average return of two growth portfolios, where value portfolios consist of companies with low P/B ratios, and growth portfolios consist of those with high P/B ratios.

However, this definition of growth can be misleading, as it implies that growth is merely the opposite of value. A purely high valuation strategy does not encompass the full spectrum of growth investing. Growth investors focus on companies with growth characteristics, particularly fundamental growth indicators such as sales and earnings. They consider that growth opportunities may not be fully reflected in current prices, leading to expected excess returns on stocks in the future. Valuation is as important to growth investors as it is to value investors.

To illustrate this distinction, we can compare valuation and style indices in the U.S. market. S&P Dow Jones Indices (S&P DJI) has offered style indices for decades to measure the performance of value and growth stocks using a style box approach. The S&P 500® Pure Growth and the S&P 500 Pure Value are two indices designed to track the performance of stocks exhibiting the strongest growth and value characteristics through a style-attractiveness-weighting scheme. Both indices utilize a two-dimensional sorting method, where each security is assessed based on both value and growth metrics. Stocks are then assigned to value, blend or growth categories based on their relative rankings in these metrics. In this style box approach, value metrics are defined as a composite of book value-to-price, earnings-to-price and sales-to-price ratios, while growth metrics comprise earnings growth, sales growth and price momentum.[1]

Additionally, S&P DJI offers a one-dimensional sort based on value metrics through the S&P 500 Enhanced Value Index. This index selects the top 100 stocks based on a value score, which is a composite measure combining book value-to-price, earnings-to-price and sales-to-price ratios, consistent with the style box definition of value. Conversely, the bottom 100 stocks are measured based on the highest valuation scores using the S&P 500 Enhanced Value - Lowest Quintile Index. Thus, the S&P 500 Enhanced Value Index and the S&P 500 Enhanced Value – Lowest Quintile Index serve as proxies for “value” versus “growth” when

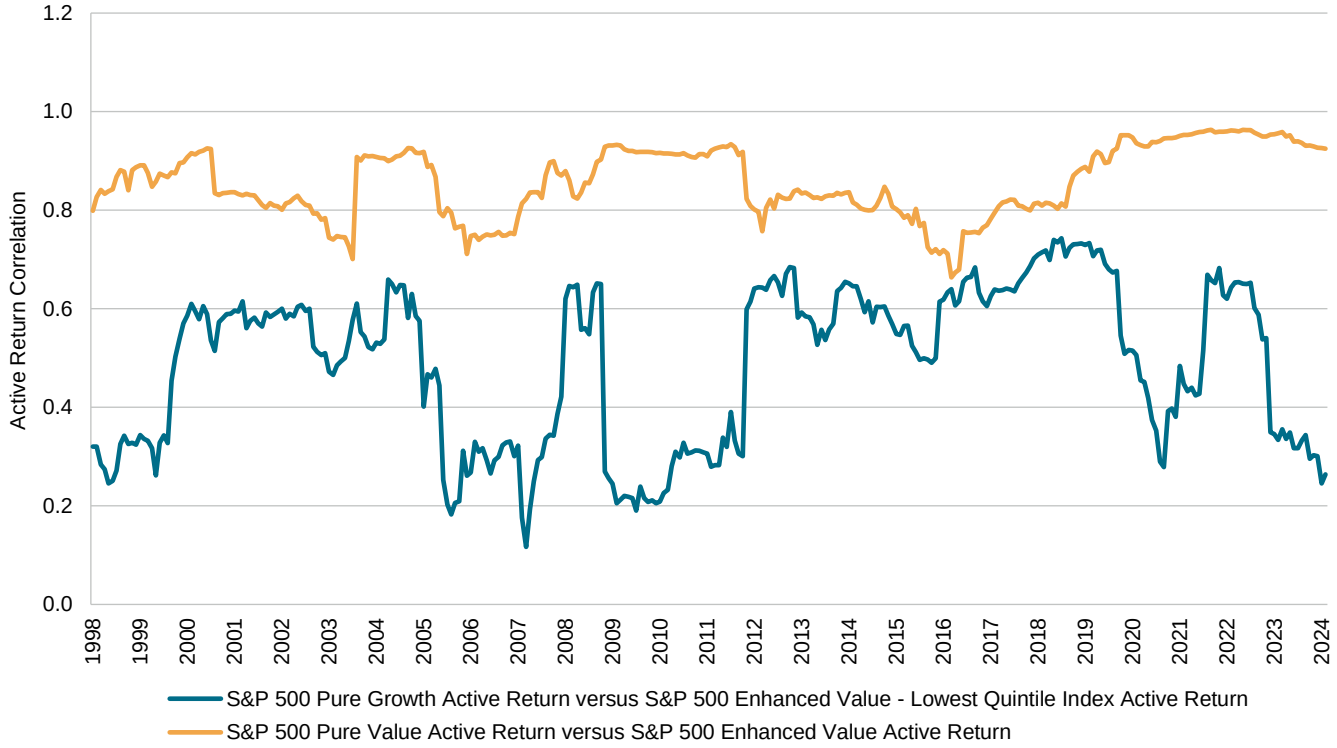
[1] For more information on the style index construction, please refer to the S&P U.S. Style Indices Methodology.

using valuation metrics alone. Meanwhile, the S&P 500 Pure Growth employs a composite growth metric to assess the growth characteristics of a stock.[2]

Exhibit 1 examines the rolling three-year excess return correlation between the S&P 500 Pure Value and S&P 500 Enhanced Value Index, compared to the S&P 500 Pure Growth and S&P 500 Enhanced Value – Lowest Quintile Index. The correlation between the S&P 500 Pure Value and S&P 500 Enhanced Value Index is significantly higher than that between the S&P 500 Pure Growth and S&P 500 Enhanced Value – Lowest Quintile Index. This indicates that the measurement of value, or low valuation, is consistent across indices; however, using high valuation metrics to define growth, such as the S&P 500 Enhanced Value – Lowest Quintile Index approach, may not accurately reflect true growth stocks.

Since pure valuation metrics do not effectively proxy growth characteristics, a modified approach based on valuation will be introduced: the price/earnings-to-growth (PEG) ratio.

**Exhibit 1: Active Return Correlation**




Source: S&P Dow Jones Indices LLC. Data from June 30, 1995, to July 31, 2024. Active return is defined as the reference difference between the index and the S&P 500. The S&P 500 Pure Growth and S&P 500 Pure Value were launched Dec. 16, 2005. The S&P 500 Enhanced Value Index was launched April 27, 2015. The S&P 500 Enhanced Value – Lowest Quintile Index was launched Feb. 10, 2017. All data prior to such date is back-tested hypothetical data. Index performance based on total return in USD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

[2] For more information on the enhanced value index construction, please refer to the S&P Enhanced Value Indices Methodology.

# PEG Ratio

Just as Ben Graham and Warren Buffett represent the fundamental value investing camp, the growth investing camp has its own icon: Peter Lynch. A renowned fund manager at Fidelity Investments, Lynch managed the Fidelity Magellan Fund, focusing on growth companies. He took over the fund in 1977 and transformed it into the largest equity mutual fund in the world during the 1980s, establishing himself as one of the most reputable fund managers in investment history. Lynch emphasized not only the growth prospects of companies but also their valuations. He often sought growth companies that were benefiting from market trends, which might have appeared expensive based on standard valuation multiples like the P/E ratio but were, in fact, undervalued relative to their growth. Thus, Lynch's growth strategy is referred to as GARP.

A common metric used in the GARP strategy is the PEG ratio. Developed by Mario Farina in his 1969 book[3] and popularized by Lynch in his 1989 work, the PEG ratio reflects the idea that "The P/E ratio of any company that's fairly priced will equal its growth rate."[4] Consequently, conventional GARP investors typically use a PEG ratio of ≤1 as a rule of thumb for identifying eligible GARP stocks. A lower PEG ratio generally indicates a more attractive company valuation relative to its growth rate. However, there are challenges associated with using the PEG ratio.

## Growth Rate Calculation

The first challenge is calculating the growth rate. Estimating a company's future growth—whether short or long term—poses difficulties for market participants. They can either use historical growth rates or estimated growth rates. While estimated growth rates provide a forward-looking measure, they come with several drawbacks. A fundamental investor may conduct comprehensive research on various companies to gauge their future growth prospects. However, to measure future growth systematically, one often relies on sell-side analyst estimates (consensus data). This approach introduces additional challenges.

1. Analyst coverage may be biased toward larger, more popular companies.
2. Even if analysts can accurately forecast a company's growth, that growth may already be reflected in current market prices.
3. Ensuring consistency in growth estimates across time (analyst coverage can change) and different markets (coverage methodologies may vary) can be problematic.

Conversely, using historical growth metrics offers a straightforward method for measuring sales and earnings growth. Historical data is audited and publicly disclosed in financial

[3] Farina, Mario V., "A Beginner's Guide to Successful Investing in the Stock Market," 1969.

[4] Lynch, Peter, "One Up on Wall Street: How to Use What You Already Know to Make Money in the Market," Simon & Schuster, 1989.

statements, resulting in better data availability without coverage dependencies. Since this data consists of actual observations, it is more comparable across markets and time series. For this analysis, we will utilize the historical three-year earnings growth to calculate the PEG ratio.

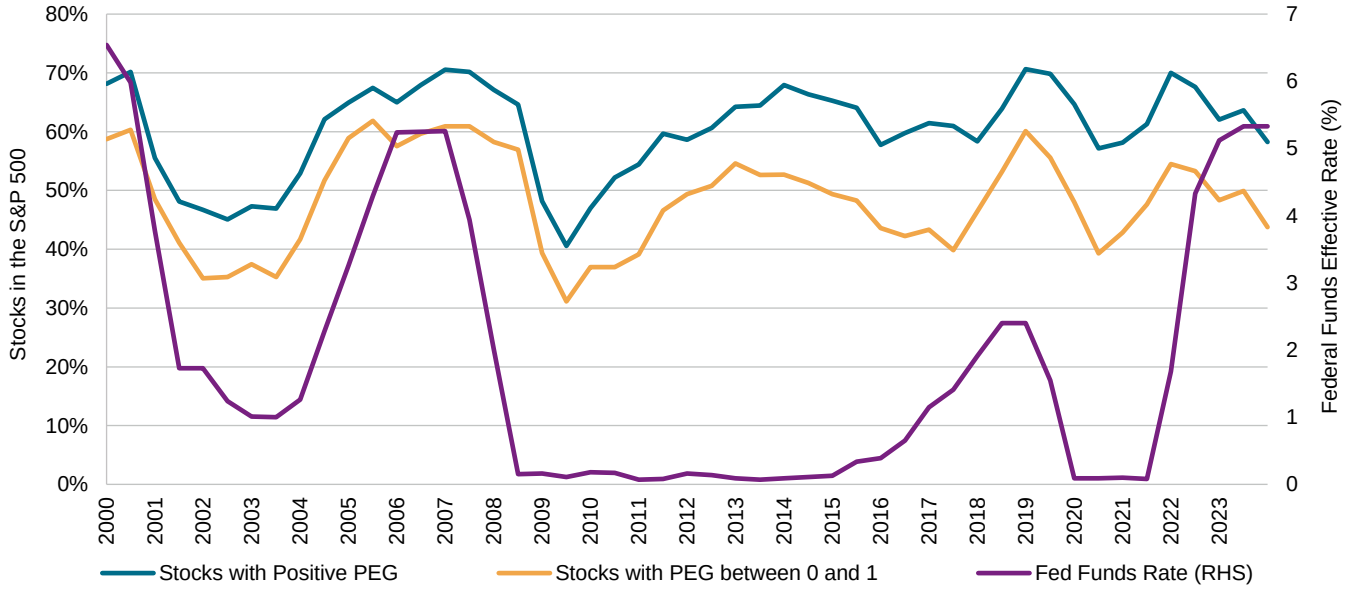
Dividing the trailing 12-month P/E ratio by the historical three-year earnings growth, the PEG ratio can be calculated for the U.S. market using S&P 500 constituents and the Australian market using S&P/ASX 200 constituents.

## PEG<1?

The second challenge involves a rule of thumb based on PEG<1. The premise is that a PEG ratio of less than 1 indicates that a company's valuation should be lower than its growth rate. However, the PEG ratio is influenced by the market environment and overall valuations across different markets. Exhibit 2 illustrates the percentage of stocks in the S&P 500 with positive PEG ratios, particularly those between 0 and 1. Fluctuations can be observed in the number of stocks qualifying as PEG<1, sometimes exceeding 50% of the S&P 500, while at other times dropping below 40%. Additionally, with over 200 stocks meeting the PEG<1 criterion, further screening becomes necessary.

Exhibit 2 also shows the historical Federal Funds Rate, highlighting the relationship between interest rates and overall market valuations, even when adjusted for growth rates. Historically, during rate-cut environments, overall valuations tended to inflate, leading to a decrease in the number of stocks satisfying PEG<1. Conversely, when interest rates increased, overall market valuations declined, resulting in more companies meeting the PEG<1 criterion.

**Exhibit 2: PEG Ranges of Stocks in the S&P 500 and the Federal Funds Effective Rate**

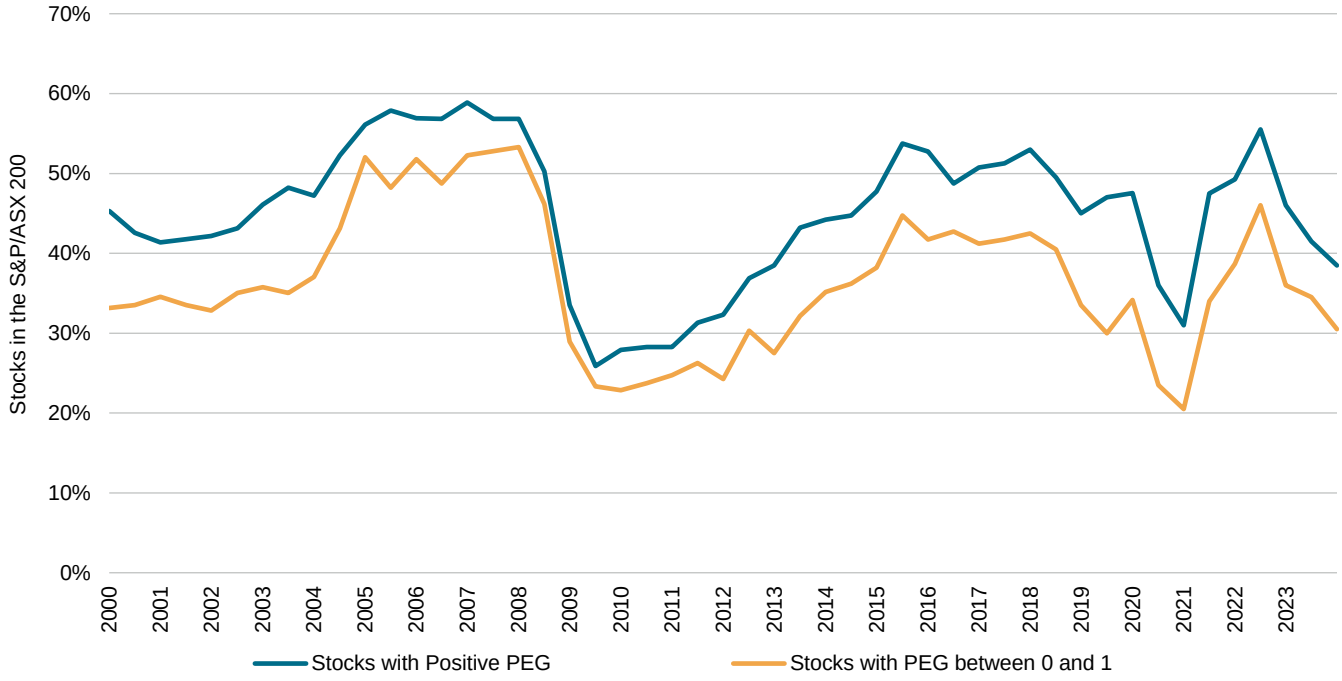



Source: S&P Dow Jones Indices LLC, FactSet, Board of Governors of the Federal Reserve System (U.S.), Federal Funds Effective Rate [FEDFUNDS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/FEDFUNDS on Sept. 3, 2024. Data from June 30, 2000, to June 28, 2024. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Furthermore, Exhibit 3 displays a similar trend for stocks in the S&P/ASX 200 with PEG ratios between 0 and 1. The number of stocks in this universe with PEG ratios below 1 has also fluctuated over time, and on average, the percentage of stocks with PEG ratios below 1 was lower in the S&P/ASX 200 than in the S&P 500.

This observation raises additional concerns regarding the PEG<1 threshold. First, the assumption that PEG<1 means undervaluation implies a linear relationship between valuation metrics and growth metrics; however, in practice this might not necessarily be the case. In addition, combining valuation and growth ratios into a single metric can complicate cross-sectional evaluations. For a stock with a low PEG ratio, it may be challenging to determine whether the low ratio results from low valuation or high growth. For example, a company with only 1% growth could qualify if its valuation metric is sufficiently low.

**Exhibit 3: Peg Ranges of Stocks in the S&P/ASX 200**




Source: S&P Dow Jones Indices LLC, FactSet. Data from June 30, 2000, to June 28, 2024. Index performance based on total return in AUD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

## Low PEG Ratio with High Volatility

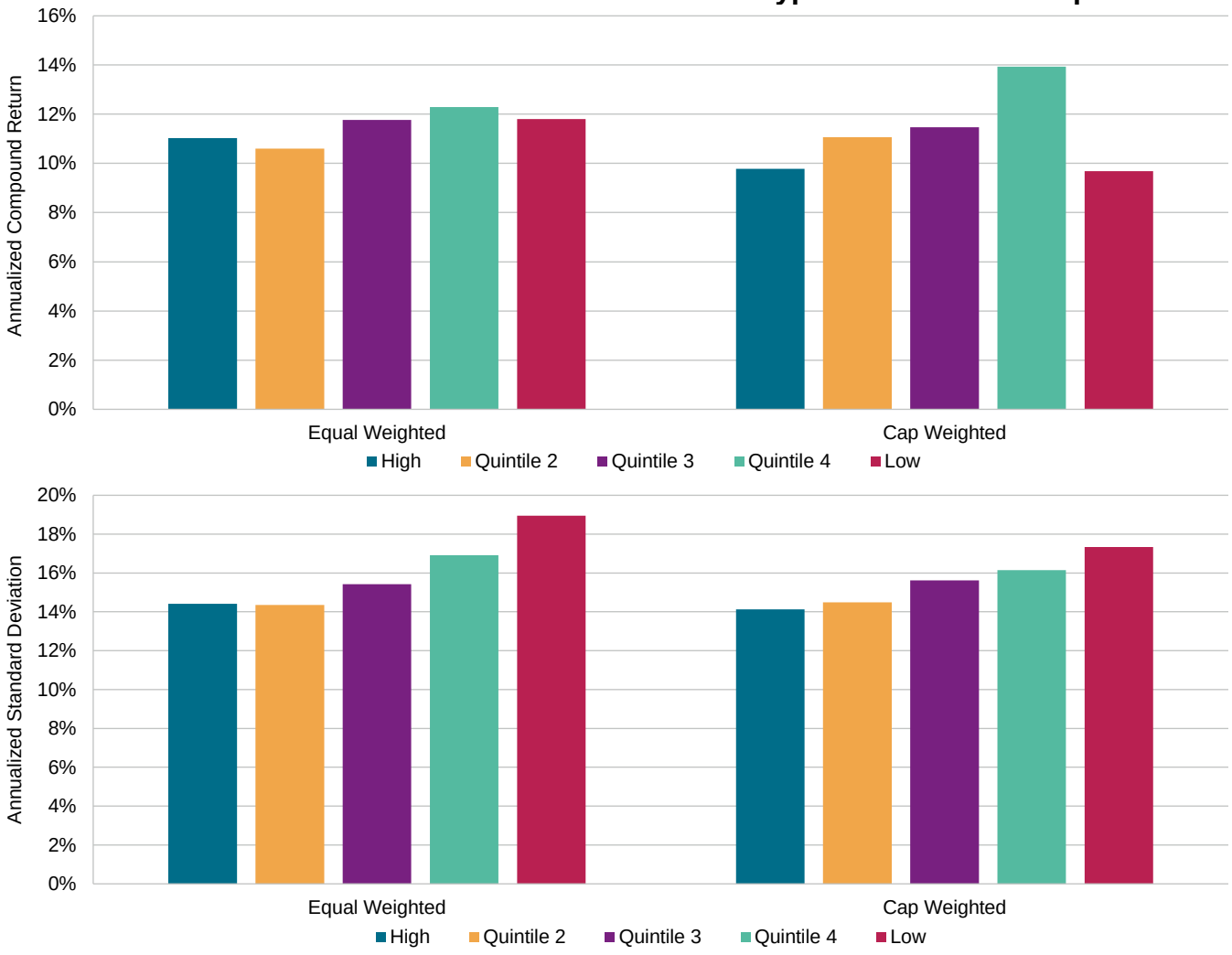
Lastly, even if PEG<1 is not used as a cutoff, sorting stocks based on PEG ratios and selecting those with low PEG values can still present a challenge, as the group of stocks with low PEG ratios may include those with high risk.

To illustrate this from the empirical data, we sorted the companies based on the PEG ratios of S&P 500 constituents, excluding those with negative P/E ratios and negative three-year historical earnings growth ratios. These companies were allocated into five hypothetical

compositions based on PEG ratios, ranging from highest to lowest. These hypothetical compositions were rebalanced semiannually at the end of June and December.

Exhibit 4 illustrates the equal-weighted returns of each hypothetical composition. This analysis indicates that historically, the relationship between the PEG ratio and long-term performance is mixed. Over a period of more than 30 years, the second-lowest quintile composition performed the best. Additionally, the lowest PEG quintile composition exhibited the highest risk, as measured by the annualized standard deviation of monthly returns among all five quintiles. Overall, the risk-adjusted return of the lowest quintile composition was the weakest, as the higher volatility outweighed historical performance. We also assessed the performance of the hypothetical market-cap-weighted composition and observed similar return patterns.

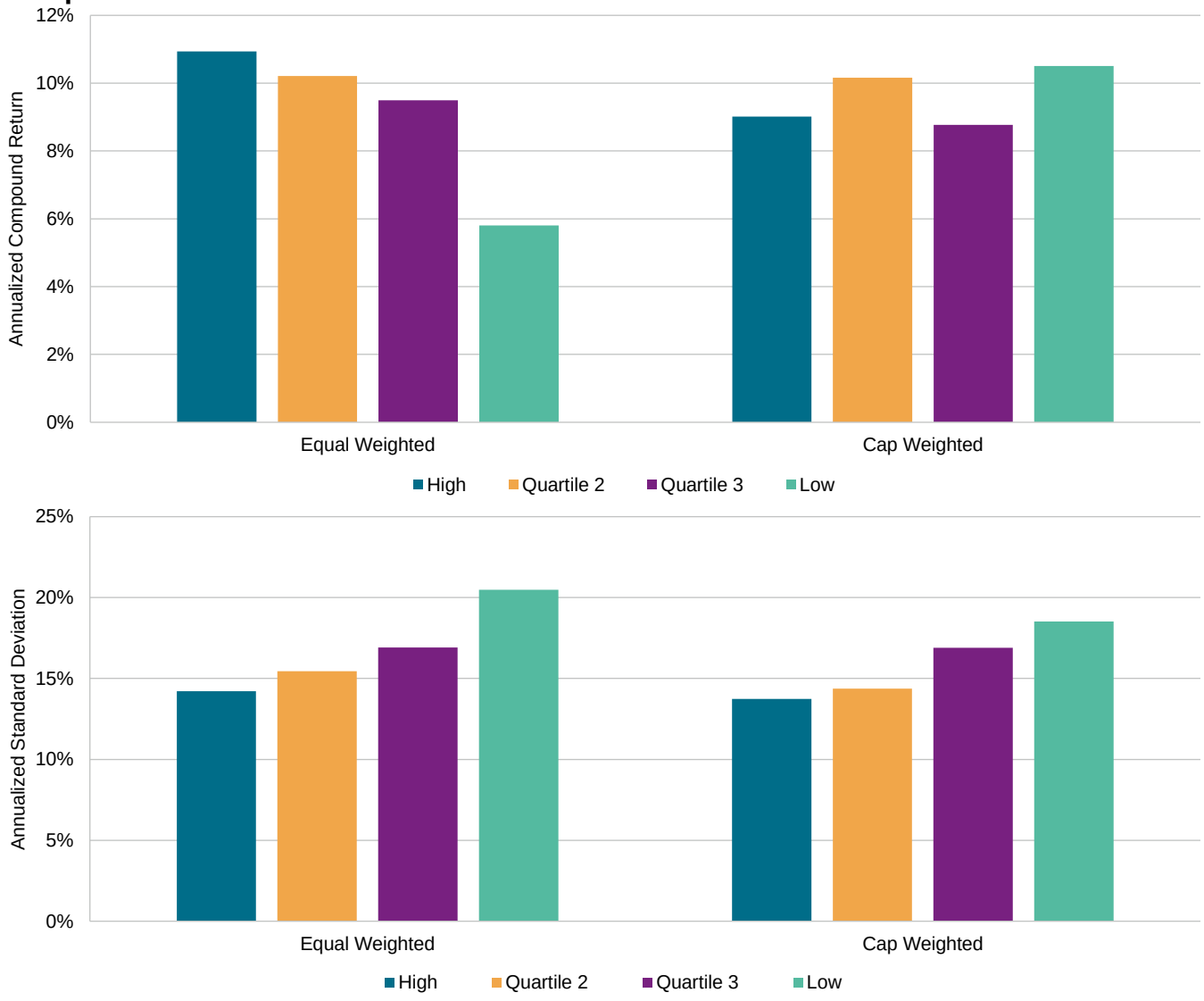
**Exhibit 4: Performance of S&P 500 Stocks Sorted into Hypothetical PEG Compositions**




All compositions are hypothetical compositions.
Source: S&P Dow Jones Indices LLC, FactSet. Data from June 30, 1990, to July 31, 2024. Index performance based on total return in USD. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

A similar exercise was replicated in the S&P/ASX 200 universe. Given the smaller number of stocks in this underlying universe, they were allocated into quartile compositions instead of quintile. Exhibit 5 presents the results, illustrating that return dispersion depends heavily on the weighting schema in Australia. The lowest PEG ratio quartile emerged as the best-performing quartile in the cap-weighted version, while it was the worst-performing quartile in the equal-weighted version. In both cases, the lowest PEG ratio quartile exhibited the highest historical volatility.

**Exhibit 5: Performance of S&P/ASX 200 Stocks Sorted into Hypothetical PEG Compositions**




All compositions are hypothetical compositions.
Source: S&P Dow Jones Indices LLC, FactSet. Data from June 30, 2000, to July 31, 2024. Index performance based on total return in AUD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

# A Double-Sort GARP Approach

At S&P DJI, our approach to designing a GARP strategy differs from traditional methods. We employ a two-step selection, multi-factor approach to define our GARP strategy. First, we utilize two growth metrics—three-year earnings-per-share (EPS) growth and three-year sales-per-share (SPS) growth—to select the top 30% of companies with the highest growth scores. Then, within this growth universe, we select the top 50% of companies based on their composite quality and value scores. The quality and value scores are derived from three fundamental metrics: financial leverage ratio (quality factor), return on equity (quality factor) and earnings-to-price ratio (value factor).

This approach effectively balances exposure to growth, valuation and quality, emphasizing companies with strong earnings and sales growth while preferring those with strong valuation metrics and solid financial strength. This strategy has performed well in the U.S. and other developed markets.[5]

To implement a similar framework and introduce the GARP strategy in the Australian market, we considered several local nuances. We examined how each fundamental metric performs in the Australian market. Following our previous exercise on the PEG ratio, we sorted the companies in the S&P/ASX 200 based on three-year EPS growth (EPS growth), three-year SPS growth (SPS growth), return on equity (ROE), debt-to-equity (leverage) and earnings-to-price (EP) independently. We then allocated the companies to four hypothetical compositions based on each metric, ranging from highest to lowest, rebalancing these compositions semiannually at the end of June and December.

Exhibit 6 illustrates the equal-weighted returns of each hypothetical composition. The main takeaways are as follows.

1. For both EPS growth and SPS growth, the best-performing quartile was the second-highest quartile. Companies with low growth tend to perform poorly and exhibit high historical volatility. However, one may want to be cautious about concentrating on stocks with the highest historical growth, as this can lead to lagging performance and high volatility. This implies that we may exclude low growth stocks while further screening within the relatively high growth universe based on other metrics.

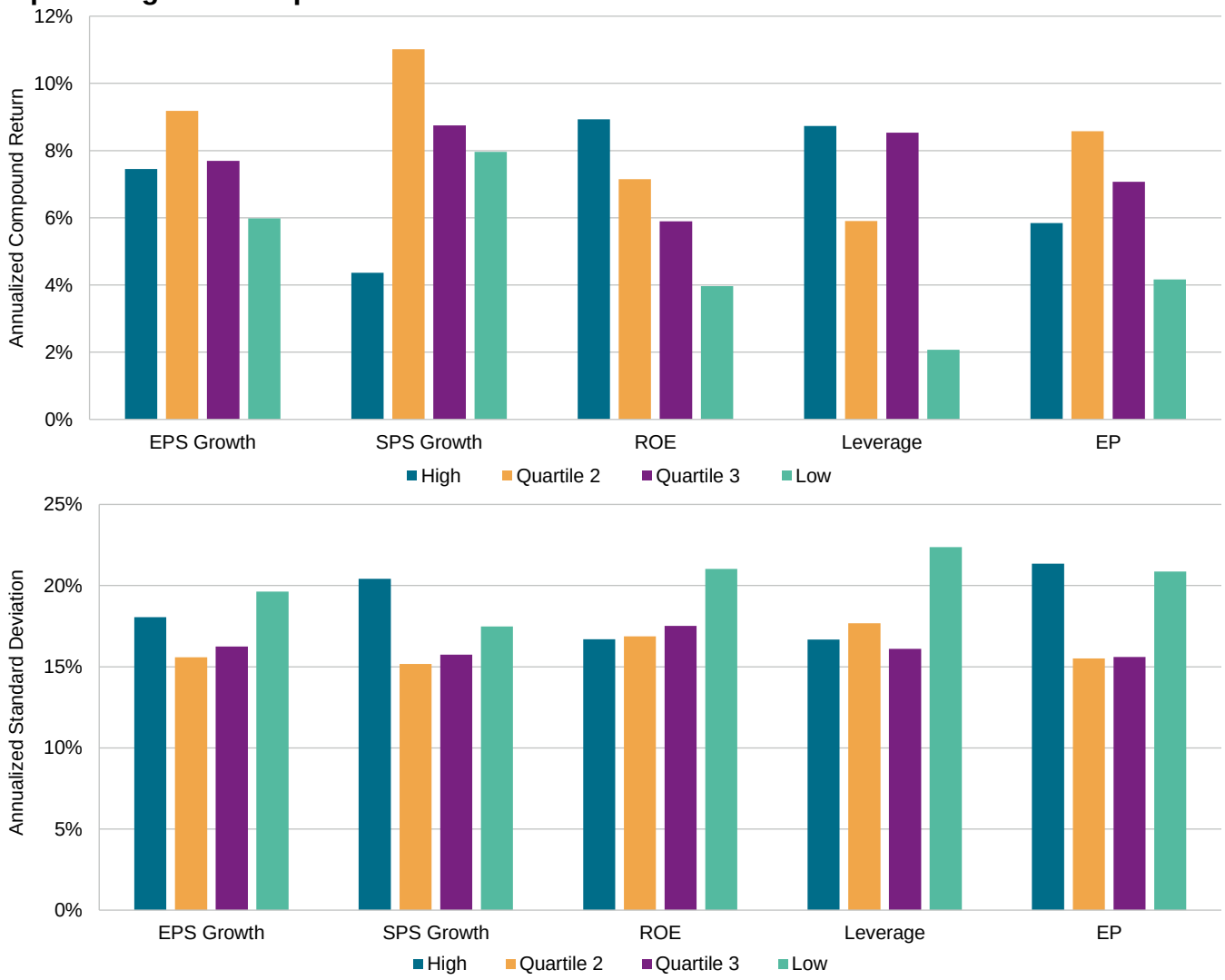
2. Among the two quality metrics, ROE has historically performed well. The highest ROE quartile demonstrated the highest return with the lowest volatility, showcasing its effectiveness in the Australian market. Conversely, leverage was not a suitable metric for the Australian market; the lowest leverage quartile composition exhibited the worst

[5] For detailed performance and index characteristics analysis, please refer to Indexing GARP Strategies: A Practitioner's Guide and Introducing the S&P World Ex-Australia GARP Index.

historical performance and highest volatility. The Australian market tends to be heavily weighted toward financials, in particular banks, with the sector accounting for more than 30% of the S&P/ASX 200 weight on average over the past 10 years. Leverage ratios may not effectively measure the riskiness of a company's financial profile, particularly for banks. Thus, when constructing a GARP strategy for Australia, one may consider removing the leverage metrics from the quality measures.

3. For the valuation metric, the best-performing quartile was the second-highest EP quartile. The lowest EP quartile had the worst performance with the highest historical volatility.

**Exhibit 6: Historical Performance of S&P/ASX 200 Stocks Sorted into Hypothetical Equal-Weighted Compositions**




All compositions are hypothetical compositions.
Source: S&P Dow Jones Indices LLC, FactSet. Data from June 30, 2000, to July 31, 2024. Index performance based on total return in AUD. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

We also examined the cap-weighted returns of this exercise, with results presented in Exhibit 7 in the Appendix. Most findings from the equal-weighted version held true for the cap-weighted version. However, there were significant differences in returns for some quartile compositions between the two methods, such as the lowest ROE quartile composition. This discrepancy is understandable, given the concentrated market cap distribution in Australia. The implies two things.

1. Allocating into quartile compositions while cap weighting constituents can result in a few mega-cap stocks dominating the composition performance, so it may be necessary to cap the single stock weight in the composition when taking a cap-weighted approach.

2. With the large-cap market concentration, equal weighting may lead to high tracking error against the market index. Therefore, one could consider a factor-tilting approach that ties weights to market cap as well as incorporating single-stock capping and GICS sector capping when constructing compositions in the Australian market.

The research conducted offers valuable insights for designing a GARP strategy tailored to the Australian market. This strategy will be explored in greater detail in a forthcoming paper.

# Conclusion

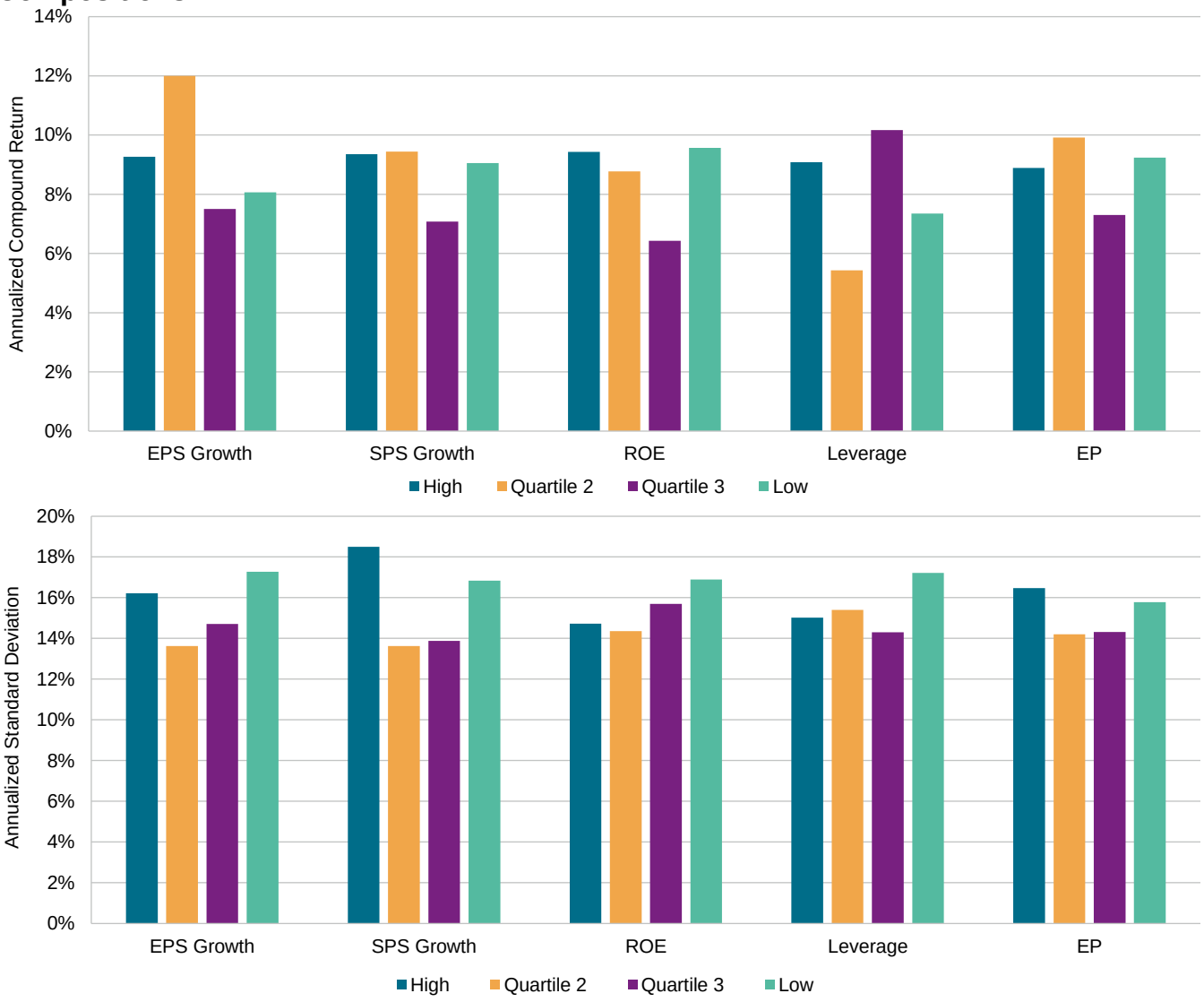
In summary, the exploration of the GARP strategy highlights its unique position within the investment landscape, bridging the gap between traditional value investing and growth investing. By employing a multi-factor approach, companies with strong growth, reasonable valuation and robust quality can be identified.

This analysis of both U.S. and Australian markets indicates that while traditional metrics like the PEG ratio could provide valuable insights, incorporating a broader set of factors, such as ROE and earnings-to-price ratios, may enhance the robustness of index construction.

Moving forward, the insights gained from this research will inform the development of tailored GARP strategies that consider local market nuances in Australia. Future work will delve deeper into the practical implementation of a GARP indexing approach within the Australian market, providing market participants with a tool for navigating the complexities of the GARP strategy.

# Appendix

## Exhibit 7: Performance of S&P/ASX 200 Stocks Sorted into Hypothetical Cap-Weighted Compositions

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# Performance Disclosure/Back-Tested Data

The S&P 500 Pure Growth and S&P 500 Pure Value were launched December 16, 2005. The S&P 500 Enhanced Value Index was launched April 27, 2015. The S&P 500 Enhanced Value – Lowest Quintile Index was launched Feb. 10, 2017. The S&P World Ex-Australia GARP Index was launched August 9, 2024. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spglobal.com/spdji. Past performance of the Index is not an indication of future results. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results. Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used.

Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices maintains the index and calculates the index levels and performance shown or discussed but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US $10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US $1,650), the net return would be 8.35% (or US $8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US $5,375, and a cumulative net return of 27.2% (or US $27,200).

# General Disclaimer