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Understanding wine grape farmland investing

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INTRODUCTION

This paper outlines the nuances of investing in wine grape properties. It identifies why the U.S. could be the most attractive destination for institutional capital and highlights the most appealing regions within the U.S. to invest. Further insights are provided into total returns, risk, correlations, and portfolio considerations of wine grape investments.

"Westchester believes that the U.S. is the most attractive place for institutional investors to gain exposure to wine grapes. The combination of scalable properties that deliver strong returns and clear industry specialisation has attracted all of the world's top wine companies."

WINE GRAPE INDUSTRY BACKGROUND

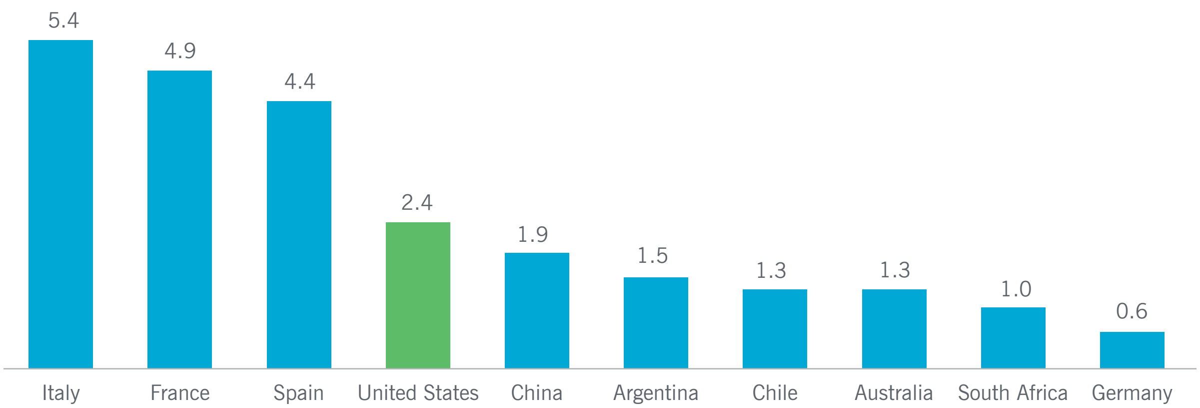
Wine demand

Growth in incomes worldwide has led to an increase in demand for wine. This can clearly be seen in developed markets – U.S. wine consumption per capita has grown by 10% per year over the last forty years. This demand growth is even more pronounced in developing markets such as China, which has experienced 14% annual per capita wine consumption growth over the same period. A strong correlation exists between Chinese GDP per capita and Chinese purchases of U.S. and Australian wine, both considered premium products in China. Wine has become an affordable luxury item and caters to a range of consumer price points.

Wine production

Not surprisingly, wine production is dominated by European countries such as Italy, France and Spain, as highlighted in Exhibit 1. These countries are considered "old world" wine regions as wine production dates back to thousands of years B.C. as it played an important role in religion. Most wine varietals used across the world today have their origins in Europe. However, over the last forty to fifty years, there has been significant growth in wine production outside of Europe in what are known as "new world" wine growing regions such as the U.S., Argentina, Chile, Australia and South Africa.

Exhibit 1: Top wine producing countries by volume (million tonnes)



Source: FAOStat, 2019 data

CONSIDERATIONS OF WINE GRAPE INVESTMENT GEOGRAPHIES

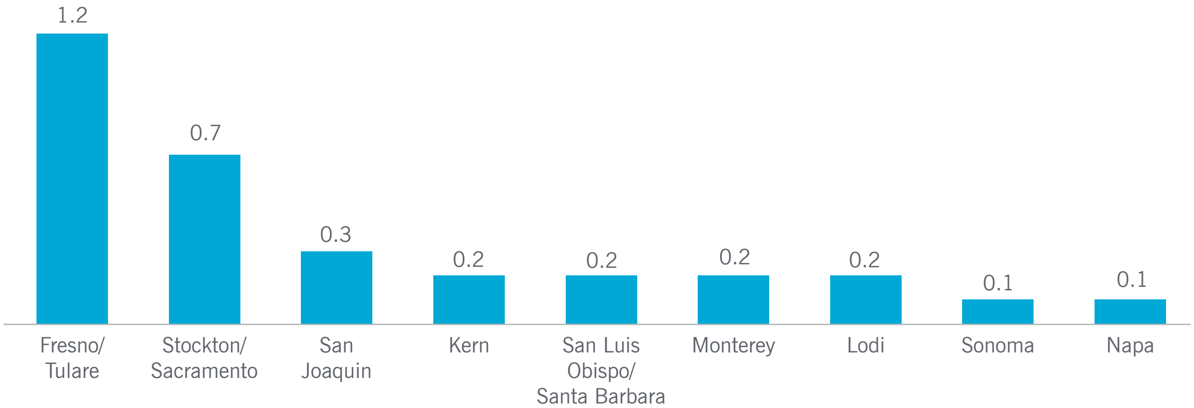
From an investment standpoint, there are several key factors to be considered when assessing the suitability of different geographies. These include profitability, efficiency of supply chains and political stability.

Westchester believes that the U.S. is one of the most attractive places for institutional investors to gain exposure to wine grape investments. Although only the fourth-largest wine producer globally by volume, the combination of scalable properties that deliver strong returns, and clear industry specialization has attracted all of the world's top wine companies. In addition, the business environment and market transparency are unparalleled.

- **Higher potential property returns:** U.S. wine grape properties enjoy higher production margins compared to their European counterparts due to a lower average vine age, vineyard layouts being designed for mechanisation, and extensive irrigation infrastructure (in most regions of Europe irrigation of vines is heavily regulated, intensifying drought risk).
- **Industry specialisation:** the supply chain infrastructure in the U.S. is centred around specialisation, where vineyard owner/operators sell grapes to wineries. This compares with the more integrated model seen in Europe and other parts of the world. In this way the investments are simplified – investors buy land and vines, and do not need to own processing assets or develop wine brands, distribution supply chains and winery cellars.
- **Unparalleled business environment:** many of the other top wine grape producing countries have excessive bureaucracy (such as Europe where there are restrictions on new plantings or regional bans on irrigation of vineyards), unfavourable investment climates for foreign investors (China, South Africa), restrictive foreign investment regimes (Australia and New Zealand) or economic instability (Argentina).
- **Market transparency:** local U.S. Department of Agriculture (USDA) offices compile annual grape crush reports and grape acreage reports with valuable information on pricing, production and crop quality to help inform investment decisions and reduce uncertainty on wine grape contract prices.

Within the U.S., California is by far the largest wine grape producer, responsible for 94% of total production. Wine grapes are grown in every part of the state (see Exhibit 2), however some districts dominate the state's production and offer a track record of attractive investor returns.

Exhibit 2: California wine grapes crushed by district (million tonnes)

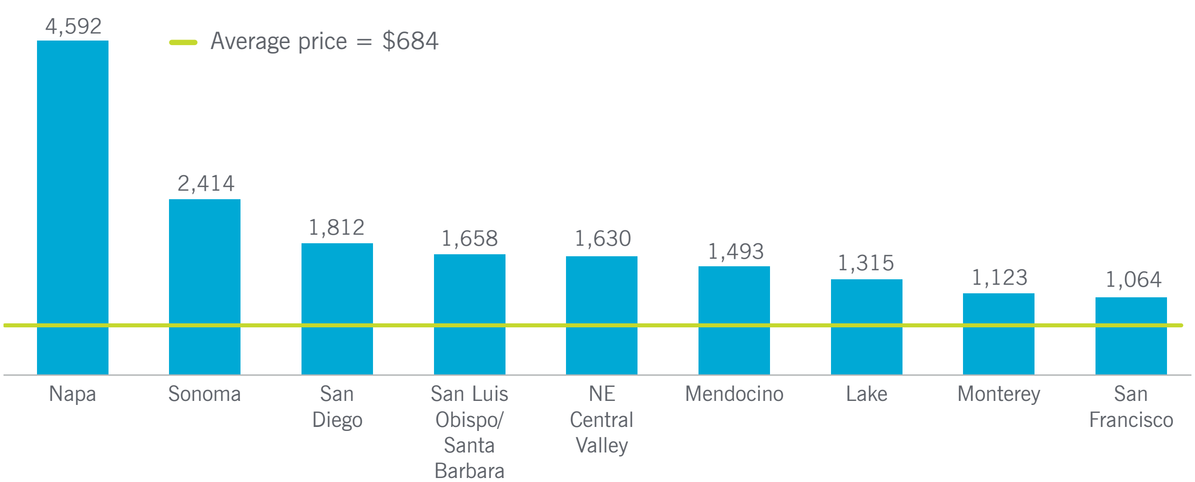


Source: USDA Wine Grape Crush Report, 2020

The largest growing districts by tonnage are found in the Central Valley (Fresno/Tulare, Stockton, San Joaquin and Kern districts) a large area of flat, fertile land over 400 miles long which stretches down most of the length of the state and is surrounded on all four sides by mountains, thus creating a unique and stable microclimate. The Central Valley is best-known for almond production (with 80% of all almonds grown worldwide originating there) and is the highest-yielding wine grape producing area in the state. Wine produced from this district tends to go into bulk wines for blending and as a result wine grape prices are well below the state average shown in Exhibit 3.

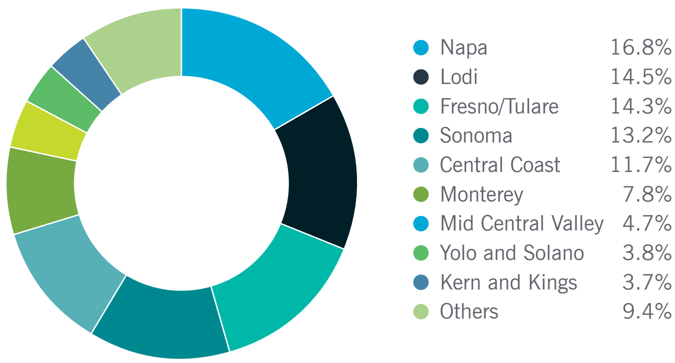
There are many wine grape-growing districts – distinct areas defined by the USDA – where grape prices are above the state average, shown in Exhibit 3, however not all districts are major producers. This paper will focus on districts of most interest to investors, namely those in the top half of producing districts by volume (thereby showing a track record of large-scale production) and with prices above the state average such as those covering Napa, Sonoma and Monterey counties. These districts dominate the Californian wine production in terms of value as shown in Exhibit 4.

Exhibit 3: California wine grape pricing by district (U.S.$/ton)



Source: USDA Wine Grape Crush Report, 2020

Exhibit 4: Value of California wine grape harvest by district



Source: USDA Wine Grape Crush Report, 2020

In general, districts that produce higher-priced wine are also those districts where growers benefit from higher grape sales. These wines tend to be produced by small to medium-sized wineries who have created a wine brand associated with the growing district and varietal and where provenance is an important part of their brand. Many tasks such as harvesting and grape sorting are often done by hand. The typical wineries found in the Central Valley take a more industrial and commoditised approach, which results in lower wine grape pricing and wines.

A huge range of varietals are grown in California, in total 46 white varietals and 65 red varietals. Production is however dominated by a few – Chardonnay was the most prominent in 2020, representing 15.2% of total production, while Cabernet Sauvignon was second, with 14.1%. Pinot Noir was less prominent for the state as a whole, representing 6% of total production, however it is one of the highest-performing varietals (in terms of price and quantity) in Sonoma and Monterey. Exhibit 5 highlights the key features of the more attractive wine grape investment districts in California.

Wine grapes are a long-term investment. While some productive vines in the world are more than a hundred years old, professional, investment-grade vineyards have a lifespan of around 25 to 30 years. Yield and quality start to decline and production costs increase after 25 years, making investment returns less attractive after this time. New vines, once planted, take around three years to first produce a wine grape crop, and around five years to achieve full production. As a result, planting decisions have to be taken with a long-term view. Varietals can be regrafted midway through their life cycle in a process where old shoots are removed and new shoots are tied to the root and treated with a grafting hormone. However, regrafting can impact returns and is not the preferred technique.

Return profile

There is significant variance in the total return profile of California's wine grape growing districts. Capital appreciation and income are driven by consumer demand for certain varietals within the districts, growing conditions, and in some areas the land's suitability for alternative uses.

Exhibit 6 shows that investors in the Central Coast (using Monterey County as a proxy) realise just under 70% of their total return through income. In Napa and Sonoma, investors receive around a

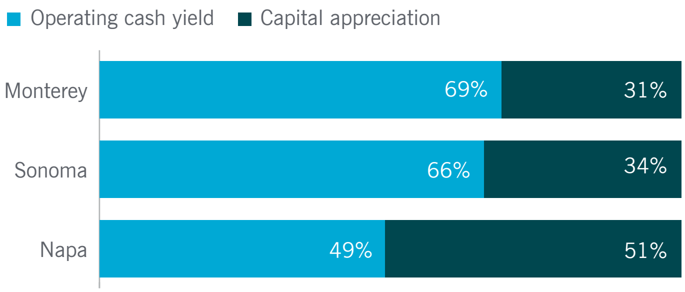
Exhibit 5: Summary of key wine producing districts in California

District	Physical characteristics	Main varietals	Price per bottle
Napa	Narrow valley surrounded on three sides by mountains, misty mornings and warm afternoons	Cabernet Sauvignon, Chardonnay	$50 upwards
Sonoma	Adjacent valley to Napa, flat valley floor surrounded by hills and mountains	Pinot Noir, Chardonnay	$25 - $40
Monterey	Large scale vineyards, temperature regulated by proximity to the sea, flat to moderately undulating	Pinot Noir, Chardonnay	$15 - $25

Source: Westchester, 2021

half and a third respectively of their total return through capital appreciation due to a greater degree of land constraint and historically higher crop price growth. On the Central Coast there are alternative uses also, however these are mostly agricultural, with Monterey county being one of the United States's largest vegetable growing areas in addition to its vineyards.

Exhibit 6: Breakdown of wine grape properties total return by district



Source: USDA data, 2020

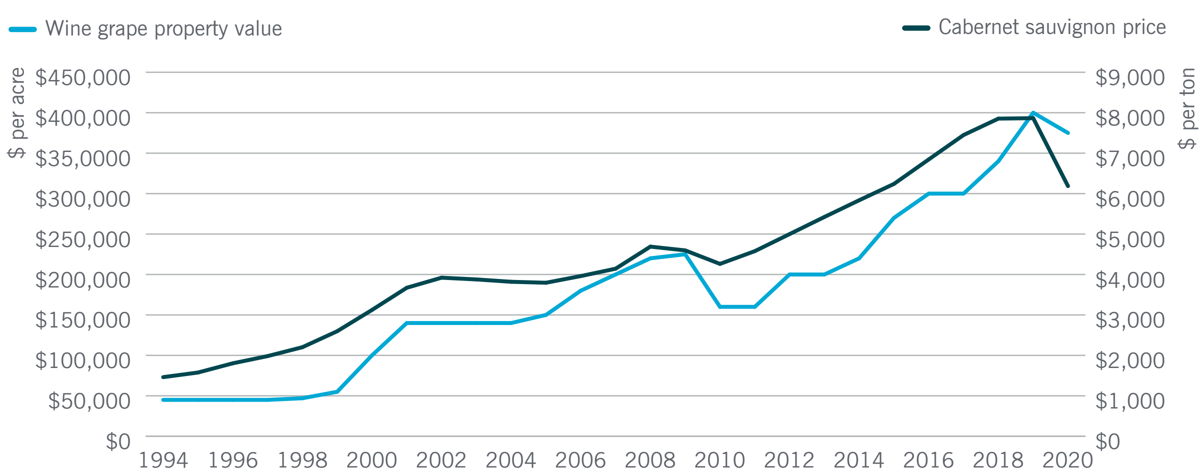
Site value creates a drag on cash yield as it increases the denominator (total asset value) without a corresponding increase in the numerator (income). This is common in districts such as Napa Valley and high-value sub-districts – also known as AVAs (American Viticultural Areas) - (Alexander Valley and Russian River) of Sonoma County, where there is demand for winery and premium residential real estate land.

Capital appreciation

Capital appreciation of wine grape properties is highly correlated to the strength of the wine market for a specific district or varietal, as well as the ability or lack thereof to create more plantable acreage. For example, substantially all of the acreage that can be planted in Napa Valley has been planted, making it a supply constrained market. Capital appreciation can be further boosted by alternative land uses other than agriculture. Since the market generally derives the value of a wine grape property through the discounted cash flow method, wine grape property values are highly correlated (96% overall correlation) to wine grape prices, as shown in Exhibit 7.

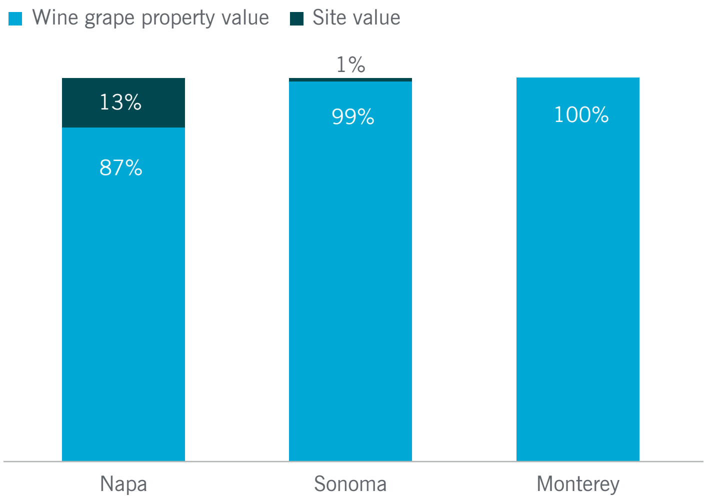
Conversely, site value, which is the value associated with the land's suitability for alternative uses other than agriculture, is based on subjective measurements. In Napa Valley, where approximately 10-20% of total fair market value of a wine grape property can be attributable to site value (see Exhibit 8), this valuation premium is derived from demand for residential real estate and wineries. Wealth primarily generated from Silicon Valley has created demand in the San Francisco Bay Area for land for residential and tourism uses, which has influenced total wine grape property values considerably.

Exhibit 7: Napa Valley wine grape property values and Napa Valley Cabernet Sauvignon bulk wine grape prices



Source: Westchester analysis of 2020 USDA data

Exhibit 8: Wine grape property valuation breakdown by region



Source: Westchester analysis of 2020 USDA data

Income return

Owners of wine grape properties generate an annual operating income through the sale of wine grapes or as a finished product (or bulk wine) to wineries. This annual operating income is driven by i) grape yield (which can normally be expected to be relatively consistent once the vines reach maturity) ii) grape pricing iii) operating expenses (including crop protection, pruning, harvesting, management and, if sold as bulk wine, crushing and fermenting). Grape sales can be structured in different ways as described below.

WINE GRAPE SALES

Wineries generally produce a range of wines that differ by district, varietal, and quality. To produce wine grapes themselves requires a significant capital investment in land, biological assets and additional working capital. While wineries do grow their own grapes, they have often instead allocated their capital towards the development of brands and new products. As a result, a grower-producer model is common in the California wine industry in which wine grapes are produced by growers who own the wine grape property, and those wine grapes are then purchased by wineries that produce the wine. This system gives wineries the ability to produce a broad range of wines and growers the ability to specialise in grape production within specific districts and market segments.

Growers sell to wineries in two formats: i) raw product (wine grapes) or ii) finished product (bulk wine) with the former being most common. When a grower sells their product to a winery in raw form, a wine grape contract dictates the terms of the transaction. The contract includes details such as the amount of fruit being purchased, at what price it is being purchased, how and when the fruit is to be harvested (whether by hand – as many premium wineries demand – or by machine), and the contract term. The general terms are similar for finished product transactions, with the differences predominantly being in how the product is tested for quality and delivered to the customer.

Unique to wine grape markets and unlike traditional commodity markets, all contracts are individually negotiated either between the grower and the winery or through a grape brokerage. Because of this structure, current contract information is opaque, and relationships between wineries (customers) and growers drive a large portion of transaction activity. Therefore, it is common to see wineries and growers employ grape purchasing and grape selling specialists that maintain relationships and facilitate wine grape and bulk wine transactions.

Another of the major components of a wine grape contract is the term. Short-term contracts (1 year contract term) more closely reflect spot market prices throughout the final 6 months of the growing season. Prices for short-term contracts represent current market conditions and are therefore more volatile. Long-term contracts (2+ years contract terms) reflect a year-round price and are used by growers to mitigate pricing volatility. Wineries use long-term contracts to secure grape supply and reduce price risk. Growers generally utilize a combination of long-term and short-term contracts and weight based on their risk appetite. As a result, wine grape investments that employ long-term wine grape sales contracts reduce the volatility associated with annual price changes.

WINE GRAPE INVESTMENTS: RETURN, RISK AND DIVERSIFICATION

The different wine growing districts of California vary significantly in their risk-return profiles, as shown in Exhibit 9. Investors can take advantage of this through building a portfolio of wine grape properties in different producing districts, planted with different varietals. This also helps to protect against both market risks (with wine markets being very individual for each district and varietal combination, with consumer perception very much focused at a granular level) and natural risks (in California these principally relate to fire and water).

Exhibit 9: Average annualized income, capital returns and volatility for each district (2001-2020)

	Average Return		Volatility	
District	Income	Capital	Income	Capital
Napa	7.9%	9.1%	1.9%	12.5%
Sonoma	5.4%	3.6%	1.6%	12.4%
Monterey	14.6%	6.3%	5.7%	8.8%

Source: Westchester analysis of industry data

This is evidenced in Exhibit 10, which shows the low correlation between different wine growing districts and highlights how financial investors can diversify their wine grape and farmland investment exposure even within California. Another important characteristic to note is the low volatility of annual income returns. Considering the operating exposure of wine grape investments, the volatility of annual income returns is relatively low. This is mostly due to wine grape contracting mitigating annual price risk.

Exhibit 10: Correlation of total returns between district (2001-2020)

	Napa	Sonoma	Monterey
Napa	1.0	0.02	0.21
Sonoma		1.0	0.22
Monterey			1.0

Source: Westchester analysis of industry data

Exhibit 11: Total return outcomes of combining different wine grape districts (2001-2020)

	Total Return		
	Average	Downside	Volatility
Napa only	17.1%	-15.7%	12.5%
Sonoma only	9.1%	-13.3%	12.1%
Monterey only	20.6%	5.0%	10.2%
50% Napa, 50% Sonoma	13.1%	-0.7%	8.8%
25% Napa, 25% Sonoma, 50% Monterey	16.8%	6.1%	7.6%

Source: Westchester analysis of industry data

Exhibit 11 shows that constructing a portfolio of wine grape properties from the different districts offers the most attractive combination of average return, downside limitation and volatility. The higher incomes and higher average total return available in Monterey is balanced by the lower volatility of annual incomes in Napa and Sonoma as well as stronger capital growth in Napa.

CONCLUSION

Wine grape investments provide farmland investors with relatively stable cash yields and potential for capital appreciation. This paper has highlighted the nuances that different growing districts and varietals in California offer in terms of total returns, volatility and correlations. By investing across different Californian wine grape districts, investors can gain diversification benefits. Crucial to realising strong risk adjusted returns is in-depth knowledge and experience of wine grape property acquisition, vine development and management of grape contracting.

For more information, please visit our website, nuveen.com/westchester.

A word on risk

As an asset class, agricultural investments are less developed, more illiquid, and less transparent compared to traditional asset classes. Agricultural investments will be subject to risks generally associated with the ownership of real estate-related assets, including changes in economic conditions, environmental risks, the cost of and ability to obtain insurance, and risks related to leasing of properties.

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