

## Tbilisi 2022 Abstract Submission

### Title

Left, Right, or Both? Long-Run Returns from Bordeaux

### I want to submit an abstract for:

Conference Presentation

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### Keywords

Wine prices, alternative investments, price indices, hedonic models, Bordeaux, Sharpe ratios.

### Research Question

I examine asset selection for fine-wine investments: over the long-run, has it been better to invest in wines from the superstar chateaux of the Left Bank, Right Bank, or both?

### Methods

(1) Hedonic regression to examine the relationship between wine prices and ageing. (2) Interval- and value-weighted arithmetic repeat-sales estimator of Shiller (1991) to evaluate long-run returns.

### Results

Left Bank prices increase monotonically as they age, but Right Bank prices peak at age-60. For a portfolio of both Banks, the geometric real-return was 6.78% from 1938-2017 before costs.

### Abstract

Asset selection is fundamental to portfolio management. While fine-wine is increasingly seen as a bona fide vehicle for investors seeking alternative assets, basic questions of portfolio strategy remain unexplored. The vast majority of the literature on the returns to investing in fine-wines focuses on the five first-growths of Bordeaux's Left Bank (Le Fur and Outreville, 2019). Fundamentals for the Right Bank's superstars are attractive: they produce roughly an order of magnitude less (e.g., Lafite is over 15 times bigger than Ausone) and receive equally impressive critical reviews (c.f., Table 1). Further, the Right Bank could provide diversification benefits to a portfolio of wines from the Left Bank because of different varietals and production conditions (Bois et al., 2018; Anson, 2020). However, demand for the Right Bank has experienced less fantastic growth, perhaps because its exclusion from the 1855 Classification allowed it to escape the attention of newer oenophiles. In this paper, I evaluate how adding fine-wine from the superstar châteaux of Bordeaux's Right Bank might complement the traditional focus on the five first-growths of Bordeaux's Left Bank: over the long-run, has it been better to invest in wines from the superstar châteaux of the Left Bank, Right Bank, or both?

Specifically, I analyze the long-run returns to investing in the five first-growths of Bordeaux's Left Bank, plus three superstar châteaux from its Right Bank: Ausone, Cheval Blanc, and Petrus. To do so, I hand-collected prices from a historical archive of retail catalogs from a prominent retailer based in New York City, Sherry-Lehmann Wine & Spirits Merchants (Figure 1). I supplement this data with prices from the London International Vintner's Exchange (Liv-Ex), which is based on transactional information from around the world. My sample begins at the end of

Prohibition in the United States. Specifically, it covers 1938–2017 (Table 2).

I begin by comparing the eight châteaux in my sample across a variety of characteristics. All eight were established more 150 years ago. Wines on the Left Bank are dominated by the late-ripening cabernet sauvignon, which has been practically nonexistent on the Right Bank. Production levels are far higher on the Left Bank. Further, using standardized scores from experts provided by Cardebat and Paroissien (2015), I show average reviews are statistically indistinguishable. For example, the 95% confidence interval for the average review was (94.5, 95.5) for Haut-Brion and (94.7, 95.7) for Ausone. After merging the data from my two sources, I then analyze the long-run returns to investing in eight superstar châteaux Bordeaux using two complementary approaches.

First, I examine how the price of wine evolves as its ages. Using hedonic methods, I show the prices of the five first-growths increase monotonically over time (Table 3; Figure 2). At age-100, the wine is about 30 times more expensive than an age-0 wine. This path of prices is nonlinear with relative prices increasing at an increasing rate over time: at age-50, the wine is about seven times more expensive than an age-0 wine. Wines from the Right Bank follow a very different path: prices increase at an increasing rate until age-50, peak at age-60, and then decay towards zero as they approach age-100. Their prices also start at a higher base: at age-0, they are twice as expensive as their counterparts from the Left Bank. They stay more expensive until age-70. Their price peaks around age-60, when they are about 15 times more expensive than an age-0 wine from the Left Bank.

Second, I evaluate the performance of investing in the superstar châteaux of Bordeaux over the 80 years of my sample (Figure 3; Table 4). Using the repeat-sales method of Shiller (1991), I find a geometric-average annual return for a joint portfolio of wines was 6.78% in real terms from 1938–2017. The difference between the joint portfolio and only wines from the Left Bank is less than 0.01%. I find the joint portfolio has a higher ex-post Sharpe ratio than a portfolio of wines only from the Left Bank as long as the risk-free rate is less than 6.95%. Thus, adding Right Bank wines to the portfolio does provide a diversification benefit, which could be exploited by the strategic investor.

Of course, as highlighted in the review of Le Fur and Outreville (2019) and further considered in Masset et al. (2021), I am not the first to consider the long-run returns to investing in fine-wine. Le Fur and Outreville (2019) review 46 papers published from 1978–2018 on the returns from investing in fine wines. Most focus exclusively on the five first-growths from the Left Bank. Those that do include the superstar châteaux of the Right Bank have limited sample periods, with most using 10–15 years of price data or less: for example, 1983–1998 (Ali and Nauges, 2007), 2001–2010 (Chu, 2014), and 2007–2013 (Bocart and Hafner, 2015). Thus, my results are unique in their long-run focus on returns from investing in Bordeaux inclusive of the Right Bank.

My approach closely follows Dimson, Rousseau, and Spaenjers (2015), who study the five first-growths of Bordeaux over 1900–2012. Dimson, Rousseau, and Spaenjers hand-collected prices from a historical archive of auction catalogs provided by Christie's London, which they supplemented with records from a prominent London-based retailer Berry Bros. & Rudd. My pattern of monotonically increasing prices in wines from the Left Bank is identical to theirs. My geometric-average annual return of 6.78% in real terms from 1938–2017 is higher than their return of 5.3% from 1900–2012. They note the rate of appreciation in deflated prices accelerated after 1960, which explains the difference in the two rates of return. Dimson, Rousseau, and Spaenjers make two further contributions which will be addressed in future work: (i) using weather data, they show high-quality vintages follow a different price trajectory as they age than low-quality vintages, and (ii) they find an annualized real return of 4.1% after accounting for estimated storage and insurance costs, which outperformed bonds, bills, art, and stamps, but was slightly lower than equities.

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Table 1: Characteristics of the superstar wines of Bordeaux.

	Established	Varietal (%)			Bottles per Year	First Growth	Expert Score (95% C.I.)
		CS	M	CF			
<i>Left Bank</i>							
Haut-Brion	1533	45	37	18	132,000	1855	(94.5, 95.5)
Lafite	c1670	70	25	3	300,000	1855	(94.8, 95.7)
Latour	1378	75	20	4	180,000	1855	(95.1, 96.1)
Margaux	1572	75	20	5	192,000	1855	(95.0, 95.9)
Mouton	c1670	77	12	9	300,000	1973	(94.0, 95.0)
<i>Right Bank</i>							
Ausone	1690	0	50	50	<24,000	1955	(94.7, 95.7)
Cheval Blanc	1832	0	42	58	96,000	1955	(93.8, 95.0)
Petrus	c1837	0	95	5	26,000	NA	(94.9, 96.1)

SOURCES. Production characteristics from ? except area under vine (?) and distance to Lafite (author calculations via Google Maps).

NOTES: CS - Cabernet Sauvignon, M - Merlot, and CF - Cabernet Franc. If total percentage does not add to 100%, the residual is petit verdot.