FINE WINE PCC
Bordeaux Fund

Research
August 2013

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Have the Prospects for Fine Wine Returns Changed?

For many years we and others have highlighted the potential for fine wine investments to *generate 'double digit' returns (i.e. in excess of 10% per annum). Although the long-run data still supports this, the* last few years have been disappointing.

Investors entering the market in the last 3 years have seen low or negative returns and they and market commentators are understandably keen to know what the future might hold. This paper, therefore, explores what has guided fine wine prices in recent times and, in the light of this, explores whether the long-term prospects might have changed.

The top wines of Bordeaux have been traded for hundreds of years but the market changed little until the 1960s. Since then, it has been shaped by four main forces:

- **Internationalisation** has seen a number of countries generate new wine consumers to add to global demand;

- **Investment** has taken on a key role, including overturning (in the shorter term at least) the rule that supply can only fall as a wine is drunk and redefining the relative prices between different types of wines (e.g. young/mature);

- **Information** has allowed signals about price and quality to be transmitted rapidly around the world, leading to more efficient markets; and

- The external **economic environment** which over time has acted both positively and negatively on prices.

In the market today, internationalisation is a neutral force in the short term, but positive in the medium and longer term. Investment may be negative in the short-term; in the longer term it appears neutral for overall price movements, but likely to lead to higher correlation with other assets and prices which range further away from the levels which underlying demand would dictate. Information flows have little direct effect on prices but can also act to support the 'commoditisation' of wine. Finally economic effects look positive, especially in the medium/longer term.

This paper provides an explanation of how these forces have affected the market, an overview of how the movements in a key index over the last 25 years can be attributed to them and looks at how they might develop in the future. Given its prominence in the above analysis, we also look more closely at the significance of investment activity and how it has changed the underlying dynamics of fine wine prices.

Overall, our view is that the long-run tendency for prices to rise by an average of 10-12% per year – and thereby outperform many other asset classes – has not changed. However in the shorter term, prices might depart from this average by more and for longer periods than in the past.

The Three 'I's

There is nothing new about fine wine as a tradeable commodity. Ever since wine was first bottled under the 'brand' of the château that produced it (Haut Brion in the 1660s, referred to by King Charles II as 'Hobriono' and Samuel Pepys as "Ho Bryan"), connoisseurs have sought out the finest names and been prepared to pay escalating prices for them.

The market today, of course, looks very different to the one which Pepys might have recognised. However, it is striking that the main changes have only taken place over the last 50 years and have been heavily concentrated in the last fifteen. They can be thought of as the 'Three Is': Internationalisation; Investment; and Information. Together with external economic conditions, these can provide a narrative of the market over the last 50 years, and a base from which to assess future possibilities.

Internationalisation

Prior to the 1960s, virtually all Bordeaux wine was bought and consumed in Europe – in particular in France, Germany, the UK, and other Northern European countries such as Belgium, the Netherlands and Denmark. In 1961-64 all the countries outside Western Europe combined accounted for only 15% of global wine imports[1].

Since then, there has been a succession of countries whose wealthier classes have discovered wine and the picture has changed dramatically. The first significant entrants were the USA and Canada which, once they had recovered from the Second World War (and in the USA prohibition), began to increase their wine imports noticeably in the 1960s and 70s. In 1961-64 North America purchased just 2% of all internationally traded wine, whereas 2005-09 this figure had risen to 14% – in volume terms, the region's imports rose thirty-three-fold over this period.

Next was Japan. Wine imports into Japan were officially recorded as zero in 1965-9 but began to increase steadily from the 1970s onwards. However over the course of the 1990s the country's wine consumption more than doubled (in mega litres per year, from 77 in 1990-94 to 174 in 1995-99). Much of this was concentrated at the 'fine wine' end of the spectrum (as befits a country whose capital's restaurants now have more Michelin stars than Paris, London and New York combined) and was largely

[1] Statistics in this and the following two paragraphs derive from *Global Wine Markets, 1961 to 2009: A Statistical Compendium*, Kym Anderson and Signe Nelgen, University of Adelaide

responsible for the very rapid increase in the prices of top wines up to 1997 – as well as the decline in prices thereafter.

The early years of this century saw Russia and South Korea play their part in boosting fine wine prices, although as small consumers overall the effect does not show up clearly in statistics.

Beyond dispute though was the impact of China, described in more detail below. For Bordeaux wines alone, Chinese and Hong Kong exports rose from 100 hectolitres in 2008 to 550 in 2011[2], becoming in that short period by far the largest export market.

No doubt this pattern will continue to repeat, with other emerging economies joining the party in due course. Currently most discussion is focussed on India, which seems likely to reduce and simplify its import taxes soon and where there is a large untapped market. But whatever the future holds, wine – and particularly fine wine – is now a truly global market.

Investment

For most of the 350 years between Pepys and today the commoditisation of wine – i.e. its use purely as an investment – was extremely limited. The auction house Christie's staged its first specialist wine sale in 1766, but for the next 200 years these auctions were mostly for the disposal of cellars of deceased noblemen. Demand, meanwhile, was very much consumption driven.

Perhaps the first significant change came in the 1960s, with the advent of *en primeur*[3] sales – although these only really took off in the early 1980s. These *en primeur* offers were attractively priced to compensate buyers for the delay in receiving their wines and the attendant risks. Hence buying at this stage became the standard method of wine investment for many, and it remains so for some – even though the attractiveness of *en primeur* has radically reduced since the turn of the millennium[4]. Nevertheless most 'investment' still took place on a casual basis and on a relatively small scale. Although price falls were not impossible in times of extreme economic stress, this meant that the consumption demand still dominated, giving the market an inherent stability.

The 1990s saw the introduction of semi-formal investment structures including companies offering 'managed accounts' (i.e. charging a fee for putting together and managing a portfolio on an individual client's behalf). But the watershed was the launch in 2003 of the first public funds (The Wine Investment Fund and the Vintage Wine Fund). Following this there has been a rapid increase in the number of funds, investment managers and trading platforms offering wine investment services. Owners of wine investments are no longer limited to wealthy connoisseurs approaching it as a sideline to their consumption; they now include those who are not wine lovers, and institutional investors of all sizes attracted purely by the historical track record of relatively high returns, low volatility and low correlation to other assets. Importantly the châteaux themselves have also begun effectively to engage in 'investment' by withholding stocks for later release at (they hope) higher prices.

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[2] Conseil Interprofessional du Vin de Bordeaux, 2012 Press Kit

[3] The sale by the most important Bordeaux châteaux of their production before it is actually physically available – hence known in North America as 'futures'. Typically, *en primeur* sales take place in the Spring after the vintage, with the wines being physically available some 18-24 months later.

This means that different fundamental forces are now at work. In particular it is no longer true to say that the supply of a wine can only diminish as stocks are drunk. True, the global *stock* of a particular wine can only fall. But the amount being offered for sale – the *flow* into the market – can increase if holders decide to sell. The fact that such sales are more likely to be needed when the market is stressed for external (economic) reasons can make the situation worse.

However the reverse is also true. In the past, demand tended to increase either because a wine was entering a period where it was attractive to drink, or because external forces were acting positively on the market as a whole (i.e. good economic times, or the internationalisation described above). Today, however, wine prices can also be pushed higher purely by investor sentiment and increased target allocations – this, for example, probably explains the strong recent performance of Châteaux Pavie and Angelus following their promotion in the St Emilion classification of 2012.

This increasing influence of investment-influenced demand has had many effects. For example, younger vintages have become more expensive relative to older ones, as investors tend to prefer the liquid markets which younger wines provide while those buying to drink may prefer more mature wines. More recently, the appetite for Burgundies (where supplies of the top wines are naturally very limited) from a single large fund has fuelled a rapid rise in prices, while other regions have struggled.

As will be described below it seems likely that investment flows have been responsible for a high proportion of the more extreme swings in the index over the last ten years. More immediately, they have been a key factor in the flat market seen over the last twelve months, with significant net sales from investment holders preventing the quite strong underlying demand from causing prices to increase.

Information

The final change to the fine wine landscape has been the vast increase in the amount of information available and easily accessible.

Fifty years ago even consumers of wine were poorly served, generally having to rely on their chosen wine merchant for friendly advice on what to drink and when. Some performed this role very well; others no doubt succumbed to the inevitable conflict of interests involved in both advising on something and selling it.

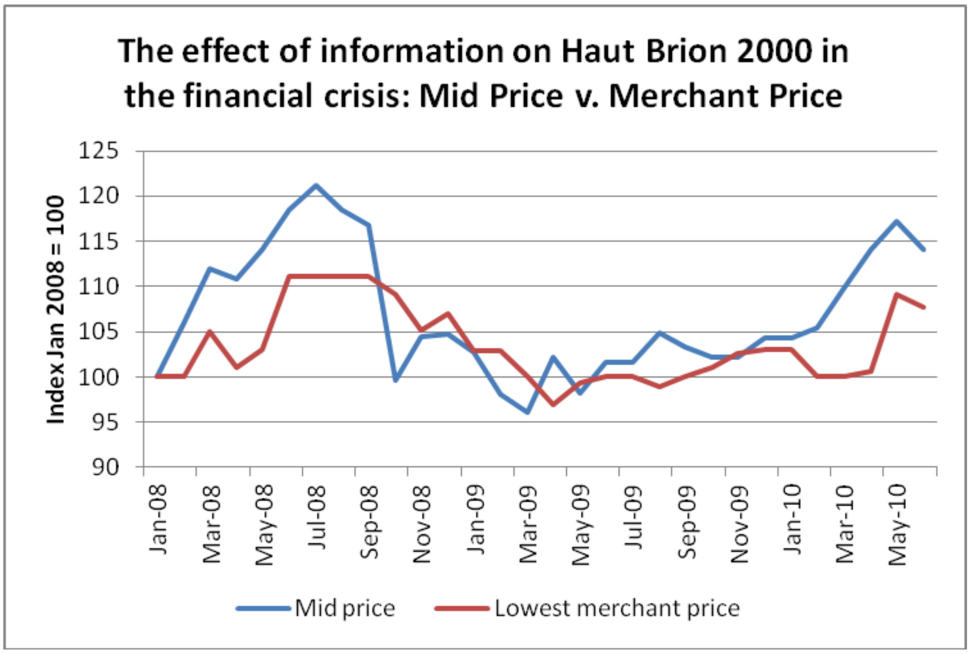
Although independent critics did exist, they were few and had limited influence. That began to change with the formation of *The Wine Advocate* by an American lawyer, Robert Parker, in 1978, and particularly with his bold pronouncements about the quality of the 1982 Bordeaux vintage: he considered it excellent while others were sceptical. When Parker proved to be 'correct' this, combined with his easily accessible notes and scoring system, was the beginning of a revolution in wine writing and wine buying.

Perhaps the next major development was the formation of the leading exchange for wine, the London International Vintners Exchange (Liv-ex), in 1999 – made possible by the internet. Again this had little impact at first, but its (trade only) customer base built gradually and by the late-2000s it was displaying live bids, offers and trade data on a wide range of wines. Liv-ex also put a great deal of effort into collecting and cleaning contemporary and historical pricing data. It was thus able to create the first reliable and consistent long-run indices, the longest of which goes back to 1988.

2005 saw the first serious publication on wine specifically as an investment[5], and in 2006 the market gave birth to its own branch of academic study with the foundation of the American Association of Wine Economists[6].

Today of course both consumers and investors have instant access via the internet to a vast array of information and opinions on wines and their pricing. Perhaps the most interesting effect of this has been to speed the transmission of price changes through the market.

Historically, wine prices have been slow to adjust (in economic terms, 'sticky'), particularly in a downward direction, as merchants are reluctant to adjust their list prices. However in difficult times they will often do deals at significant discounts while still selling to less well informed customers at list price. The chart below shows an example of this effect for the financial crisis period. The blue line shows the mid price (at which trades were actually being struck on the Liv-ex exchange) which the red line shows the lowest available list price.



At either end of the period shown, list prices rose less quickly than the mid price, while in the depths of the crisis list prices fell less quickly: in October 2008 the mid price fell by 15%, in line with the wider market, while the lowest list price fell by only 2%.

It is probably fair to say that without Liv-ex it would have been very difficult for most market commentators to know what was really going on in the market during this period. One effect of improved

[5] *Wine Investment for Portfolio Diversification*, Mahesh Kumar

[6] Since when the volume of research has increased dramatically: just one example is *Wine Price Risk Management*, Manchester Business School. Banks and asset managers are also increasingly writing wine research as they would for more traditional asset classes (e.g. Morgan Stanley, Rabobank, UBS, Deutsche Bank, Credit Suisse).

information has therefore been greater volatility in prices in the short term – or at least, greater visibility of the volatility of prices.

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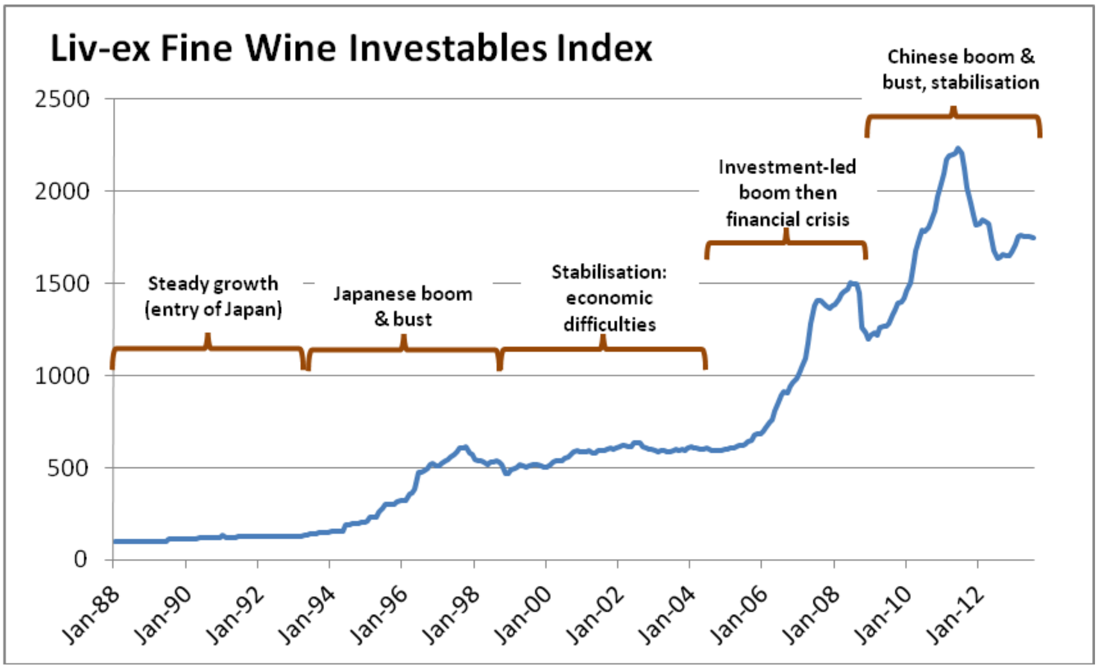
A narrative of market developments since 1988

We can use the analysis of the previous two sections, together with knowledge of external economic developments, to sketch a description of the market over the last 25 years – the period of the longest-running reliable and consistent index, the Liv-ex Fine Wine Investables. The index shows a compound annualised return of 11.9%. Its full history is shown in the graph: the main periods are summarised in the chart and described further below.



1988-1993: Steady growth

Although little appears to happen during this period in the graph, the scale is somewhat deceptive: in fact prices rose by 50% during these six years. This can partly be attributed to the first stirrings of demand from the Japanese market. However UK inflation was also above 5% for around half the period, meaning that the real change in prices was less significant.

1995-98: Japanese boom & bust

From December 1993 to October 1997 the index more than quadrupled in value – an extraordinary annualised rate of return of 44%. However with the Asian crash everything was reversed: the stock market actually peaked in mid 1996, but rose again nearly to that level in June 1997, before beginning its long decline. On the Nikkei index this fall was some 62%, and lasted until 2003. In the wine market – as we shall see again in 2008 – the falls were shorter (taking place over just 14 months) and less pronounced (prices fell by 24%).

1999-2004: *Stabilisation in the face of economic difficulties*

Although prices stabilised in 1999 and showed some signs of a return to growth, there was little to catch the imagination during this period. It must be remembered though that externally this was a very difficult period, with substantial declines in all major stock markets following the bursting of the dot.com bubble, slowing economic growth rates, the 9/11 attacks and the continuing effects of the Asian crisis. In light of this, a flat market might be considered at least respectable. It was achieved partly with the benefit of the entry of new (but smaller) markets such as Russia and South Korea, and partly with the very early impact of investment inflows.

2005-2008: Investment-led boom and financial crisis bust

The period from 2005 to mid 2008 saw rapid and accelerating growth in wine prices, largely on the back of substantial investment inflows. The Investables index rose by 150% during this period (30% annualised). Several new public funds and some large, private institutional ones were established.

However when the financial crisis reached its height in the second half of 2008, wine prices suffered their fastest (although not largest) fall; after the collapse of Lehman Bros October alone saw the index drop by 13% as the 'dash for cash' affected anything which could be sold. At least one open-ended wine fund suffered large redemptions. With Liv-ex and the internet now in place to transmit information rapidly, there was nothing to cushion or delay the drops (as there might have been in previous era) and by December the Investables was 20% below its June peak.

2009–mid 2011: China boom

As with the Asian crisis, wine price falls were shorter and less extreme than equity falls (the FTSE 100 for example lost 55%) and December 2008 proved to be the bottom of the fine wine market. For the first six months of 2009 the recovery was cautious, but from July 2009 to June 2011 there were very rapid increases – a total over this period of 68% (31% annualised).

This is the period now recognised as the China boom. It resulted from combining two forces: first the cuts in Hong Kong import duty, from 80% to 40% in March 2007 and then to zero in February 2008; and second the rise of a new wealthy class in Chinese society. According to Forbes magazine the number of billionaires in China rose from 28 in 2009 to 115 in 2011.

However with hindsight there was clearly also a 3rd force in play which had not been seen in previous bull markets: speculative investment flows seeing prices rising and attempting to 'piggy-back' the increases. The underlying conditions were right for prices rises, but not of the pace or extent actually seen.

Mid-2011 – today: Correction, investment outflows and stabilisation

Such speculative buying on the back of legitimate underlying price rises is a common feature of asset bubbles, and tends to need a trigger – perhaps minor – to bring about a reversal. In this case 2011 saw both the 2010 *en primeur* releases, which were priced far too expensively and did not sell in significant volumes, and an external shock in the form of the eurozone crisis. Some of the speculative investment flows reversed, but unfortunately these developments also coincided with the maturity of some large closed-ended funds set up in the 2005-2008 period. With fixed end dates they had no choice but to liquidate into a falling market, creating a downward spiral. Finally, the 2011 *en primeur* campaign in Spring 2012 was an utter failure, further knocking participants' confidence and cashflow.

The result was price declines on the Liv-ex Investables of 27% between mid-2011 and mid-2012, the sharpest decline in the index's history. Prices appeared to stabilise from July 2012, and were showing signs of beginning an upturn around the turn of last year. But this nascent recovery was knocked back when the one of the largest public funds (Nobles Crus) began to suffer redemptions following questions about its valuation process. This was compounded by another very poor *en primeur* season for the 2012s. Prices began to drift again. In the most recent weeks Nobles Crus has been liquidating its portfolio, putting further downward pressure on prices.

It is this which is at the root of questions about the potential of wine investments today. However, fine wine should always be seen as a long-term investment and therefore it is important to place these recent events in context. The following points are all relevant:

(i) Despite the 2008 and 2011/12 price falls, prices following the second of these bear markets were still 16% higher than five years previously. Indeed, fine wine has been very low risk over any five years since reliable records began, while still having the potential for high returns. This is explored further in Appendix 1.

(ii) Again despite weak recent performance, comparisons with other assets still strongly favour wine. Since reliable wine price records began in 1988, the wine index has increased more than seventeen-fold. Over the same period gold has increased slightly less than three-fold and the FTSE 100 less than four-fold. Even the oil price has risen less than seven-fold. Wine has shown considerably lower volatility than these assets too.

(iii) The average annualised return on the longest available index of fine wine prices is 11.9% since January 1988.

Market size and the significance of investment activity

Before turning to the future, it is helpful to pause and assess the significance of investment activity in today's market.

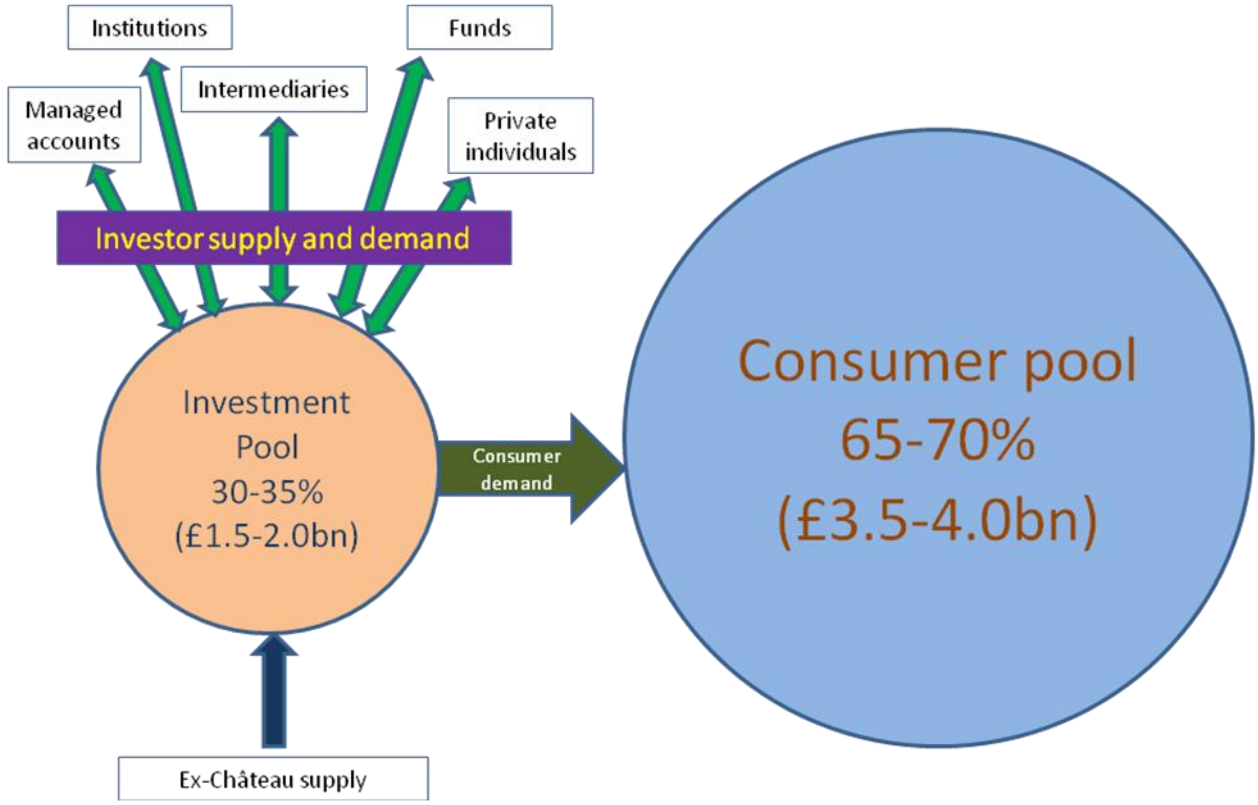
Our calculations suggest that for the wines which we define as investment grade, total worldwide stocks are around £5-6 billion (details of this calculation are available on request). Note that our definition is much narrower than most: we include only Bordeaux, within which we look at only 35 châteaux which meet a set of specific criteria. We also only include certain vintages between 4 and around 25 years old. Clearly a broader definition would generate a larger market size, but all figures in this paper assume and use our definition only.

Within this we believe the value of stocks held for investment purposes is around 30-35% (see Appendix 2). This is very much lower than in other commodity markets such as gold, where the figure is close to 100%. This might appear to be helpful, because 'drinking' can provide a stable underlying base to demand and of course over time erodes supply.

However even with a more limited investment sector life is not so simple. If the 30-35% figure is approximately correct, this means that the remaining 65%-70% has been removed from the market for good, and by definition *cannot affect prices*. Prices are determined entirely by demand and supply among the remaining 30-35% (this is an average across all wines – the figure is likely to be lower for more mature wines, more of which will have been drunk or reached its final owner who will eventually consume it, and higher for younger wines). We can call that 30-35% the 'investment pool'.

Within this pool, supply can come from any of the types of stockholder, if their net position in that wine needs to be reduced. Equally, they can also generate demand if wish to increase their exposure (this is less likely for some, e.g. the châteaux). Demand can also of course come from end-consumers, who will remove that wine from the investment pool for good. But critically this is only one factor at work in the inflows and outflows in the pool. The larger the percentage of global stocks represented by the investment pool, the less important will be outflows to the end-consumer pool.

The diagram below is a schematic representation of these stocks and flows:



Thus over the long run it is correct to say that supply of any particular wine tends to fall as eventually it moves from the investment pool to the consumer pool. However this is not necessarily true in the short, or even medium term – as net supply from investors into the investment pool can exceed the demand from drinkers and other investors which removes it[7].

[7] It has been pointed out that the Investment Pool / Consumer Pool distinction is analogous to the 'free float / tightly held' distinction in equity markets. Tightly (or closely) held shares exist but are unlikely to be traded, as they are held by directors / strategic investors / governments etc. The distinction is widely used for weighting stocks in indices and all other things being equal, a stock with a higher free float will have higher liquidity and therefore be easier and cheaper to trade. Where a stock has a low free float a small rise in demand may push up prices, and vice versa. This is an interesting insight although of limited practical use in the fine wine market as the degree of free float for particular wines is virtually impossible to estimate.

The future

If we assume that the main influences on the market remain the same – internationalisation, investment, information and the external economic environment – from today's perspective what might the future hold?

Internationally it is safe to assume that there will be further countries and regions entering the market over the medium and longer term. As mentioned above, India is currently the leading candidate, with discussions underway to reduce import tariffs imminently. This could lead to its opening up over the next 1-5 years: it is very interesting that the leading Bordeaux châteaux are already promoting their wines and brands in the country. While not as important as China (partly because of religious restrictions), the Indian market is of significant potential size. Many other countries might follow although none is likely to be large enough to have a major impact on prices.

Information flows meanwhile can only continue to increase. Recent developments include the launch of two exchanges similar to Liv-ex but which are also open to private individuals. If these become successful they should in theory lead to a squeeze on merchants' margins, as private clients can effectively buy and sell at trade prices. Such changes have been predicted before and not come to pass, but if they were to happen we might see a smaller, leaner merchant sector. As set out above, faster transmission of information should lead to the 'true' market price becoming more visible more quickly, which could mean higher short-term volatility.

But as the previous section shows, the direction of net investments or disinvestments is now key to price movements. As far as we are aware, all major funds – whether public or private – which needed to meet redemptions or wind up have done so, with the exception of Nobles Crus. Notably, the Vintage Wine Fund, worth more than €100m at its peak in 2008, finally completed its run-off in June 2013 and is now closed. There may be other funds of which we are not aware, although these could be net buyers or net sellers. However Nobles Crus is a significant player, and as there is still uncertainty about how their sales will develop, we expect some unease over the next few months. However once this is cleared, the supply side of the market should improve markedly.

The rise of investment interest also has implications for the way an investor or investment manager should approach the market. With investor sentiment an important determinant of price direction, market timing may become more important. An understanding of the net cash position and investment strategies of other investment managers will allow predictions of which wines will be being bought and sold at which times.

In the longer term it is reasonable to assume that the investment market will continue to become larger and more sophisticated. This could eventually lead to the establishment of tracker funds, Exchange-Traded Funds, and derivatives although such products have been attempted before without success[8]. Together with the more efficient information flows, such developments – particularly if combined with a rise in the 30-35% 'investment pool' figure – will increase the 'commoditisation' of fine wine, i.e. see it

[8] See e.g. *Who Killed the WINEFEX?* Prof. Dr Eric Pichet, BEM Bordeaux Management School. Amongst the reasons advanced for the failure are a lack of interest from the producers, for whom derivatives contracts in other fields provide useful hedging opportunities, and the fact that prices were simply not volatile enough to warrant trading a derivative based upon them. The product must also attract a market maker to generate liquidity. It is not clear that these problems have yet been overcome.

acting more like a pure investment medium. If so, we would expect it to display somewhat higher correlation to other markets and be more susceptible to investor sentiment – i.e. less determined by underlying demand from wine drinkers. As with the Chinese boom, this means that prices might depart further from the level which they would reach in the absence of an investment market, and remain so divorced for longer periods. Some evidence of increasing correlation to selected other assets can indeed be seen in the data[9].

<u>This, in turn, would mean that even if the long-run returns can be expected to remain around 10-12%, the fluctuations away from the average could become greater and could last for longer periods.</u>

These market developments must be set against the economic backdrop. Here there is a split between the west – which is showing some signs of the beginnings of a recovery – and China and some other Asian countries, where growth is slowing down. Note however that it is only the *rate of growth* which is slowing in China – growth itself is still very high by western standards at around 7.5% - easily enough to generate increasing demand for fine wine – all other things being equal.

There is one factor common to all countries though and that is the efforts to reflate economies around the world by pursuing very loose monetary policies (low interest rates and increasing the supply of money, known as 'quantitative easing'). This should eventually lead to inflation, as (in the absence of growth) a higher amount of money in the economy is divided between a similar stock of goods and services. Like gold, wine is a physical asset which is immune to inflation and its value cannot be eroded by the actions of governments. It is therefore likely to attract attention when inflation fears rise, including attracting new investors to the sector.

In summary, the predicted effects of the four main influences on fine wine prices are:

- Internationalisation: neutral in the short-term, positive in the longer term.

- Investment: possibly negative in the short-term; in the longer term neutral as regards average price increases, but with potential for wider and more long-lasting fluctuations around the average as well as possible higher correlation with other assets.

- Information: generally neutral for prices, but potentially supporting the commoditisation of fine wine which has the effects mentioned in the previous bullet point, and leading to higher short-term volatility.

- Economic environment: positive, especially in the medium/longer term.

To repeat, in the longer term the fundamental forces acting on wine prices are unchanged and we therefore believe that <u>the long-run returns can be expected to remain around 10-12%</u> - thereby continuing to outperform other assets.

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[9] Further details available on request

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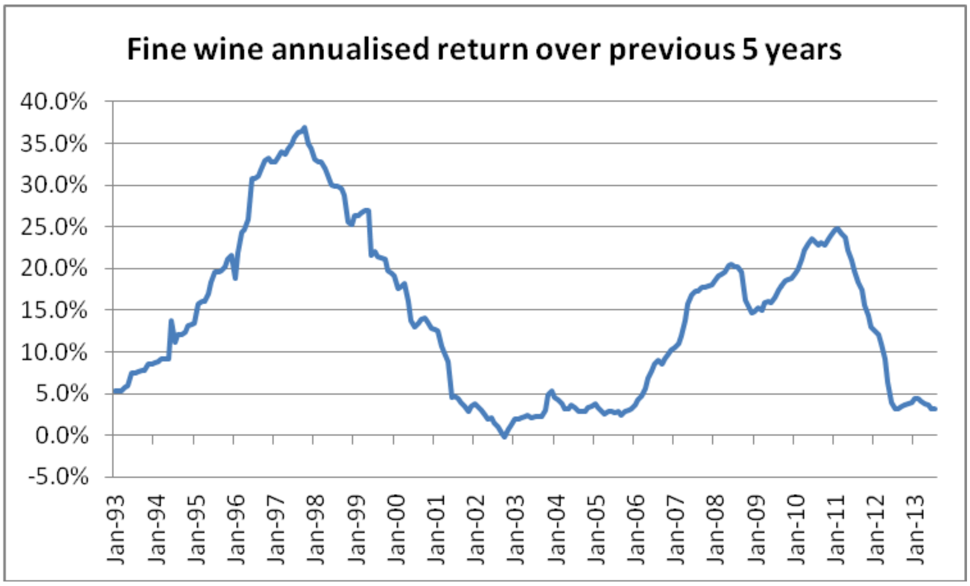
Appendix 1: Five-year returns and previous historical periods of stress

As we have seen, the longest reliable fine wine price dataset, the Liv-ex Investables index, goes back to 1988 and shows a healthy 11.9% compound annualised growth. The most widely used index, the Liv-ex 100, which began only in 2001, shows somewhat lower performance – but still an average annualised rate of 9.5%. These figures would seem to support the view that double-digit returns to fine wine remain realistic.

There are, of course, significant variations around those averages. We believe that the ideal holding period for wine is five years, and the graph below shows the rolling five year return since reliable records began in 1988 (the graph shows the return over the 5-year period running up to the date on the horizontal axis, expressed in compound annualised form):



This graph makes a number of interesting points. First, of the 247 five-year periods shown, only one (the five years to October 2002) has produced a negative return – and that of only -0.2% annualised. This is in sharp contrast to equities: for example, the equivalent figures for the FTSE 100 are 75 negative periods, with the worst being -9.4% annualised.

Second, the proportion of periods which produce low returns – say, less than 5% per annum – is also low: just 71 of the 246 periods. For the FTSE this figure is 127 – more than half of all periods.

Third, the highest returns are comparatively very good indeed: the maximum return is an annualised 36.9% (compared to the FTSE at 17.7%) and 146 periods generate returns of more than 10% (FTSE 69 periods).

Fourth, however, is that it is possible for fine wine prices to be stuck in the doldrums for some time. For all but one five year periods ending between June 2001 and March 2006, the index return was between 0% and 5%. While we are not suggesting that this will happen again, there is a precedent for a prolonged period of unexciting returns. Note that when the market broke out of this cycle returns increased rapidly.

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Appendix 2: The value of the global stock of investment wine

There are six broad categories of owners of wine for 'investment'. They are:

- Formal, public wine funds

- institutional investors – large individual players either investing themselves, or through a fund-like structure which is not open to the public and would therefore not have information publically available;

- 'managed accounts', whereby an adviser puts together and manages a portfolio on behalf of a private individual;

- stock-holding merchants, négociants and other intermediaries;

- the châteaux themselves, who as mentioned above are increasingly holding back stock for later release; and finally

- private individuals owning stock directly, which they might eventually consume but might resell.

The last independent estimate of the aseets under management in wine funds was by Liv-ex in October 2011. Liv-ex did not provide an actual estimate, but their commentary suggested that "the total amount of funds under management in the UK has not risen significantly faster than market pricing" since the end of 2008. At the end of 2008 funds under management were around €150m, and between then and October 2011 the Liv-ex 100 rose by 49%. Therefore we might estimate that at the time total funds held were around €225m.

Reliable (or even unreliable) estimates of the value of stocks held in each category are impossible to obtain. It seems likely that institutional investors and managed accounts are smaller than formal funds. Stock holding intermediaries may be at a similar level, and châteaux reserves maybe a little higher[10]. Including everything apart from private individuals then suggests total stock of around €1.1bn. Individuals' holdings excluding what their owners will eventually drink constitute probably the largest category, but the hardest to estimate. They could easily make the total around €2bn.

Against a total market size of £5-6bn, this means that investment stocks constitute probably 30-35%.

[10] The total annual production of the châteaux we classify as investment grade has a value of around €1bn. Therefore this would mean that châteaux reserves from all vintages combined represent around a quarter of one year's production. For some properties this figure will undoubtedly be higher, but for others much lower.