

# **Finance and Fine Wine**

## **The rare Central European Fine Wine market as an alternative investment in the view of wineries, gastronomy and retail**

---

Master Thesis submitted in fulfilment of the Degree  
Master of Business Administration  
Major in Entrepreneurship, Innovation and Leadership

Submitted to Prof. Dr. Dimitris Christopoulos

by Dipl. Ing. (FH), dott., Sieghard Vaja  
Stud. No. 1802027

Vienna, May 2021



# AFFIDAVIT

I hereby affirm that this Master's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

Vienna, May 2021

---

*Date*

---

*Signature*



# ABSTRACT

This work aims to investigate the acceptance and the appeal of aged Central European Fine Wines, namely Austrian and German ones. In order to define our research questions, we line out following considerations: we assume that there is a latent demand, and hence we examine in this thesis, whether the current supply satisfies the presumed latent demand for Fine Wines.

In the light of the current development of this niche, a comparison with well-known French Fine Wine regions enlightens the current market. Recent research about Fine Wine investment is largely available and illustrates the implications of Finance and Fine Wines. Taking into consideration the economic crisis of the first two decades of this millennium, wine resulted in a less volatile asset. It is well described that Fine Wine is generally a fair alternative investment and attracts due its low risk and popularity. Motivated by the scientific framework, this investigation combines together existing knowledge. Therefore, Fine Wine availability augments the overall reputation of its territory and behaves as an important investment vehicle.

Our pilot study explores the view of selected wine professionals regarding an assumed latent demand for aged Central European wines and the current availability. In order to understand the market for Central European Fine Wine, wine industry members as well as high-end gastronomy owners and wine retailers have been surveyed. Apart the quantitative data, valuable qualitative responses underlined the findings and added value to this investigation. The acceptance of Fine Wine in the local Central European wine community is measurable and statistically relevant.

The findings reveal, how the Central European wine regions cope with their Fine Wine demand and how they could take advantage of it. The opportunities of Central European Fine Wine are hereafter discussed.

Keywords: Fine Wine market, Central European wine, Fine Wine demand, Fine Wine investment, risk, volatility

# ACKNOWLEDGEMENTS

This work couldn't have been possible without the beloved people who had sustained me in the moments of need and doubt. First of all, grateful words are directed to my parents, my family and my children, who always have been and are behind my decisions. Sadly, during the writing of the work, my father and mentor passed away. I will keep his advice and example strongly present.

Important inputs have been enabled by the proficient environment of the dynamic and contemporary city of Vienna. Citizens and foreign guests, I interacted with, are occasionally thought provoking and contributed indirectly to this work. Thanks even to my current employer for the endorsement during the Covid-19 crisis, which permitted me to focus and complete this thesis.

A special thank goes surely to my supervisor, his patience and his increasing enthusiasm for the topic, as well as the Modul University to sustain and encourage me due the delay of the initially proposed timeline.

I personally tribute a profound gratitude towards the following external advisors, who kindly helped me to retrieve important sources as well as open up their network for this writing:

Dr. Stöckl, Dean of the International Wine Management Program of FH IMC Krems, Austria

Prof. Dr. Prof H.C. Gergely Szolonoki, professor wine market research, Geisenheim University, Germany

Christian Zechmeister MA, head of wine region marketing and markets Austria & Germany, ÖWM Austrian Wine Promotion Board, Vienna, Austria

Manuel Bretsch, head of the educational services, DWI – German Wine Institute, Mainz, Germany

Stefano Eggenberger, owner of several high-end restaurants in Zurich, Switzerland

I would further embrace the entire wine community for their contribution in this work, even the ones who couldn't dedicate time to it, but have been positive and curious at the content.

# TABLE OF CONTENTS

<i>Affidavit</i> .....	<i>I</i>
<i>Abstract</i> .....	<i>III</i>
<i>Acknowledgements</i> .....	<i>IV</i>
<i>Table of Contents</i> .....	<i>V</i>
<i>List of Tables</i> .....	<i>VIII</i>
<i>List of Figures</i> .....	<i>X</i>
<i>List of Abbreviations</i> .....	<i>XII</i>
<b>1. INTRODUCTION</b> .....	<b>1</b>
1.1. CONTEXT AND PREVIOUS RESEARCH .....	1
1.2. CENTRAL EUROPEAN WINE INDUSTRY AT A GLANCE .....	3
1.2.1. <i>Austrian Wine</i> .....	4
1.2.2. <i>German Wine</i> .....	7
1.2.3. <i>France I: Burgundy Wine region</i> .....	10
1.2.4. <i>France II: Bordeaux Wine region</i> .....	12
1.2.5. <i>Comparison between the different wine regions</i> .....	15
1.3. VALUE CHAIN OF AGED FINE WINES .....	17
1.3.1. <i>Brief history of wine</i> .....	17
1.3.2. <i>English influence on the wine trade</i> .....	19
1.3.3. <i>Definition of Fine Wine</i> .....	20
1.3.4. <i>The Fine Wine market</i> .....	21
1.4. THE FINANCE IN THE WINE INDUSTRY .....	23
1.5. RESEARCH OBJECTIVES .....	23
1.6. STRUCTURE OF THESIS.....	23
<b>2. LITERATURE REVIEW</b> .....	<b>25</b>
2.1. INTRODUCTION .....	25
2.2. FRAMEWORK OF RESEARCH REVIEWS.....	25
2.2.1. <i>Framework I, terroir and wine region historical development</i> .....	26
2.2.1. <i>Framework II, wine marketing</i> .....	26
2.2.2. <i>Framework III, wine economics</i> .....	27
2.2.3. <i>Framework IV: wine investment</i> .....	28
2.3. THE FINE WINE INVESTMENT .....	29
2.3.1. <i>Production cost</i> .....	29
2.3.2. <i>Fine Wine as an Alternative Investment</i> .....	32
2.3.3. <i>Attributes</i> .....	33
2.3.4. <i>The price of wine</i> .....	34
2.3.5. <i>Wine as an investment vehicle</i> .....	36
2.3.6. <i>Risk elements</i> .....	40
2.3.7. <i>Improving illiquidity and Wine Investment funds</i> .....	41
2.4. MARKETS FOR FINE WINE.....	43
2.5. SUMMARY.....	46

<b>3. METHODOLOGY .....</b>	<b>48</b>
3.1. SELECTION OF METHODOLOGY .....	48
3.1.1. <i>Research design</i> .....	48
3.1.2. <i>Pilot tests</i> .....	52
3.1.3. <i>Selection of study site</i> .....	52
3.1.4. <i>Survey and Questionnaire design</i> .....	53
3.2. SAMPLING PROCEDURES.....	56
3.2.1. <i>Wineries</i> .....	58
3.2.2. <i>Gastronomy</i> .....	58
3.2.3. <i>Retail</i> .....	59
3.3. DATA REDUCTION METHOD .....	59
3.3.1. <i>Data typology and measurement characteristics</i> .....	59
3.3.2. <i>Factor Analysis</i> .....	60
3.3.3. <i>Multidimensional scaling (MDS)</i> .....	60
<b>4. RESULTS .....</b>	<b>61</b>
4.1. DATA ANALYSIS.....	61
4.1.1. <i>Quantitative data</i> .....	61
4.1.2. <i>Qualitative data</i> .....	66
4.2. FINDINGS FROM THE DATA ANALYSIS .....	69
4.2.1. <i>Investment and trade of aged wines</i> .....	69
4.2.2. <i>Wine quality and hedonic appreciation</i> .....	70
4.2.3. <i>Pricing and perceived value</i> .....	71
<b>5. CONCLUSIONS .....</b>	<b>73</b>
5.1. DISCUSSION OF THE RESULTS .....	74
5.1.1. <i>How to satisfy the latent demand</i> .....	74
5.1.2. <i>Expectations of the Customers</i> .....	74
5.1.3. <i>Approach to a business model</i> .....	75
5.2. IMPACT OF THE FINDINGS .....	76
5.2.1. <i>Contribution to knowledge</i> .....	76
5.2.2. <i>Implications for relevant stakeholders</i> .....	76
5.2.3. <i>Future research</i> .....	76
<b>BIBLIOGRAPHY.....</b>	<b>77</b>
BOOKS .....	77
JOURNALS .....	78
DISSERTATIONS .....	86
ARTICLES FROM THE INTERNET .....	86
<b>APPENDICES.....</b>	<b>89</b>
APPENDIX 1: INFORMATION SHEET .....	89
APPENDIX 2: CONSENT FORM.....	90
APPENDIX 3: QUESTIONNAIRE .....	91
<i>Questionnaire design</i> .....	91



<i>(1) Introduction - common questions, IQ 1 – IQ3 .....</i>	<i>92</i>
<i>(2a) Category Wineries, WQ1 – WQ3.....</i>	<i>93</i>
<i>(2b) Category Gastronomy, GQ1 – GQ3.....</i>	<i>94</i>
<i>(2c) Category Retail, RQ1 – RQ3.....</i>	<i>95</i>
<i>(3) Conclusion - common questions, CQ1 – CQ3 .....</i>	<i>96</i>

# LIST OF TABLES

Table 1: Global cultivation of key grape varieties – source DWI (2020) .....	8
Table 2: German ripeness scale for PDO wines, source Cult Wines (2021) .....	9
Table 3:VDP classification categories, source Cult Wines (2021).....	9
Table 4: Percentage of trade on Liv-ex (regions, by value), source Live-ex (2020) .....	15
Table 5: The comparison by numbers of the four wine regions investigated in the thesis .....	16
Table 6: Percentage of Trades on Live-Ex, Source Cult Wine (2020) .....	16
Table 7:Framework I, terroir and wine region historical development.....	26
Table 8: Framework II, wine marketing .....	26
Table 9: Framework III, wine economics.....	27
Table 10: Framework IV: wine investment.....	28
Table 11: Wine production factors, source adapted from Marone et al. (2017) .....	30
Table 12: Production factors costs per category of winery, source Marone et al. (2016) .....	31
Table 13: Return and risk of selected investments, source Jureviciene (2015) .....	39
Table 14: Return and risk of selected investments, Source Jureviciene (2015) .....	41
Table 15: Summary of the world’s wine markets 1996-2001 – Part I, source Anderson (2004) .....	43
Table 16: Summary of the world’s wine markets 1996-2001 – Part II, source Anderson (2004) .....	44
Table 17: Firm concentration within the wine industry in 2000, source Anderson (2004) .....	44
Table 18: Major multi-companies involved in international wine trade, source Anderson (2004) .....	45

Table 19: Numerator for Sample Size Formula, Equation (2.3); Two- Sided Alternative Hypothesis, Type I Error, $\alpha = 0.05$ , source Sullivan (2021) .....	52
Table 20: Sample proprieties.....	56
Table 21: Sample size of the survey categories .....	57
Table 22: Sample response rate during the period of January to June 2020.....	57
Table 23: Survey responses: Weighted Frequency into value of 7 scale from low to high .....	61
Table 24: Survey responses: correlation matrix.....	62
Table 25: Component loadings per variable.....	64
Table 26: Component loadings factors overview .....	64
Table 27: Qualitative answers IQ3 – IQ3 .....	66
Table 28: Qualitative answers WQ1 – WQ3.....	67
Table 29: Qualitative answers GQ1 – GQ3 .....	67
Table 30: Qualitative answers RQ1 – RQ3.....	68
Table 31: Qualitative answers CQ1 - CQ3 .....	68

# LIST OF FIGURES

Figure 1: Different approaches to the definition “Central Europe” - Source Wikipedia (2020) .....	2
Figure 2: Austrian Wine Region map, source ÖWM (2020) .....	4
Figure 3: Austrian Varietal Distribution, source ÖWM (2020) .....	4
Figure 4: Shares of the 2019 grape harvest in surface and in hectolitres - source ÖWM (2020) .....	5
Figure 5: Austrian wine production vs. wine consumption from 1983 to 2019, source ÖWM (2020) .....	5
Figure 6: Austrian wine exports 1977 2019 – source (ÖWM 2020) .....	6
Figure 7: German Wine Regions , source DWI (2020).....	7
Figure 8: Burgundy Wine Region map , source Beaune Tourism Bord (2020) .....	10
Figure 9: Burgundian wine export market shares, source “Vins de Bourgogne” (2020)	11
Figure 10: Bordeaux wine region map, source Bordeaux Tourism Board (2020) .....	12
Figure 11: Wine drinking population by generation 2000 – 2015, source WMC (2020) .	21
Figure 12: Cohort share of wine purchased, source WMC (2020) .....	22
Figure 13: Fine wine entering growing phase during crisis events, source Cult wine (2020) .....	22
Figure 14: Wine production timeline, source Marone et al. (2017).....	30
Figure 15: Bordeaux 2020 vintage availability timeline, source Cult Wine (2020) .....	30
Figure 16: Table of occurrence of words for the determination of wine quality, source Mandy Gu (2019) .....	35
Figure 17: estimation of ATET and 95% point-wise confidence band, source Ali (2005) .....	35

Figure 18: Fair Value Estimate of South African wines, source Priilaid & van Rensburg (2012) .....	36
Figure 19: Dynamics of wine, gold, stock and bond prices from Jan 2007 to Oct 2014, source Aytaç et al. (2015) .....	37
Figure 20: Stability of wine investments compared to the gold prices in a recent 11 year period, source Cult Wine (2020).....	38
Figure 21: Risk and return of alternative investments and stocks during 1992-2011, source Jureviciene (2015) .....	38
Figure 22: Comparison investment indices, source Masset (2009).....	39
Figure 23: Evolution of nine wine funds in local currency and the Live-ex Index for Jan 2000 to Sep 2013, source Masset & Weisskopf (2015).....	42
Figure 24: Distribution channels and volumes for Austrian wine 2017 – 2019, source ÖWM (2020) .....	46
Figure 25: Research design typology full model, source Strang (2015).....	49
Figure 26: Power and size determination, source Sullivan (2021) .....	51
Figure 27: The Questionnaire design .....	54
Figure 28: Factor analysis of the thesis' dataset.....	63
Figure 29: Multidimensional results of the thesis' dataset.....	63
Figure 30: profile plot analysis .....	65

# LIST OF ABBREVIATIONS

ANZ = Australia and New Zealand

AME = Africa and Middle East

APA = Asia and the Pacific Islands

ATET = Average Treatment Effect on the Treated

AW = Austrian Wine

B2C = describes the “business to customer” or better the direct-to-consumer sales relationship

CE = Central Europe

CEW = Central European Wine

CEWI = Central European Wine Industry

CEF = Central and Eastern Europe and Former Soviet Union

DAC = “Districtum Austriae Controllatus”, an Austrian wine classification system, high-end wines, top of line

DACH = abbr. The common entity of market and / or political countries listed to their international plate signs (D) Germany, (A) Austria, (CH) Switzerland

DO = Designation of Origin (wine)

EFT= Exchange Traded Funds

GW = German Wine

FW = Fine Wine

LAC = Latin America and Caribbean

LWIN = Live-ex Wine Index Number

NWWG ANZ, USC = Argentina, Brazil, Chile and South Africa

PDO = “Protected Designation of Origin” according to EU wine regulation

USC = United States of America and Canada

VDP = “Verband Deutscher Prädikatsweingüter”, Association of German high-quality wine producers

WEE = Western European exporters (France, Italy, Portugal, Spain)

ÖWM = Austrian Wine Marketing Board or namely Österreich Wein Marketing





# 1. INTRODUCTION

## 1.1. Context and previous research

Fine Wine<sup>1</sup> is the main underlying topic of this thesis. FW is a complex agricultural, natural product, which is sourced by fermented grape must of specific place influenced territories. Every territory<sup>2</sup> has an intrinsic contribution to the potential quality perception of the final product. Some territories have the “natural” capacity to produce valuable ones, instead of others. In truth, looking beside the given conditions, some territories are able collectively to market their wines better than other ones, which might have similar initial conditions. It is a matter of marketing, associative behaviour of the wine industry actors living and working there. The dimension of time is a real discriminative measure, which could be applied to define a territory’s value compared to others. Indeed, wines will perform differently in time.

Accordingly to wine critics, their judgement about perceived value or commonly said “high-quality” wine, is influenced by regions with outstanding wines<sup>3</sup> which are more valuable than others.

One of a mostly ignored potential, is the value chain of aged wines, when it comes to the wines of Germany and Austria and beyond. In reality, many professionals while conscious about this, refrain from following through due to the cost of ageing wine and the risk of pricing at the time of distribution. Indeed, each FW has its particular specificities, but not an official expiring date, which makes it so special and attractive for collectors or speculative proposes. On the other hand, wine changes its perceived quality

---

<sup>1</sup> "Fine wine" typically means the best sorts of wine, though exactly what that means is subjective - though wine critics largely agree in practice. An essential attribute of fine wine is that improves in quality with ageing. This is an ability, that not all wines do accomplish.

<sup>2</sup> Territory is intended as a definition of several scientific and humanistic components. The French term “terroir” applied to the wine science, defines the multitude of different scientific approaches e.g soil, climate, human behaviour and diligence or “savoir faire”, as well as the expression of a particular grape variety and a particular wine production method, which is excelling solely (uniquely) in that given place due to hundreds of variables combined in that manner concurrent, which cannot found in other territories.

<sup>3</sup> This derives from the 1855 classification of wines that bound wine quality to estates within a region (Bordeaux at the time)

during a given period of time. In order to be appealing to the consumer, the right timing of release seems to be important in that decision.

Wine ageing occurs through the redox reaction of the dissolved oxygen and the small amount of oxygen, which permeates through the seals during storage. This reaction will occur during a certain period of time, which will have a notable influence of the final taste of the product. Wine will taste differently any time it will be tasted and therefore it will gain more or less attractiveness to the potential consumers.

The investigation of the proposed research is to understand if a value chain of aged Central European Wine, or CEW, is latent and has the potential to be unleashed. To focus the definition CEW, it is limited in this work to the wine producing countries Austria and Germany solely, although Central Europe would include per definition other wine producing countries in its neighbourhood. Several countries bounded by a common history and values could be counted to Central Europe or “Mitteleuropa”, as Ash (1990) explains in his historical and political definition of the topic referring to the relationship between the DACH and the so called “Eastern Europe”.

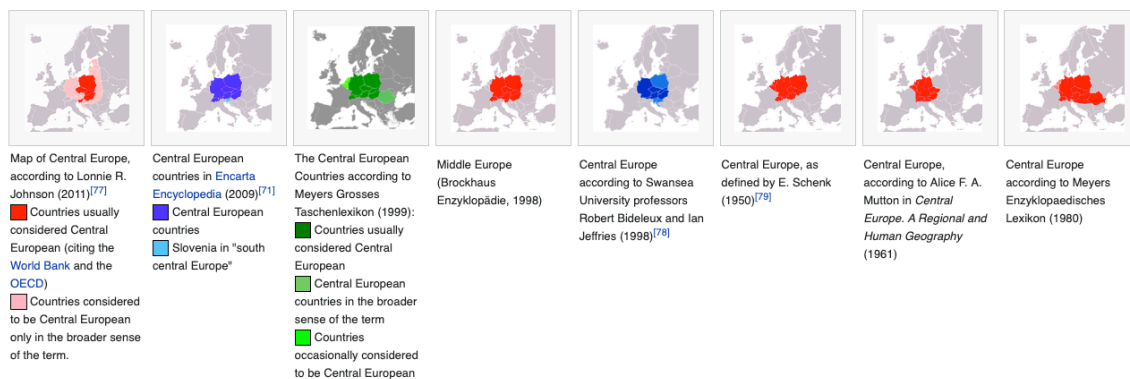


FIGURE 1: DIFFERENT APPROACHES TO THE DEFINITION “CENTRAL EUROPE” - SOURCE [WIKIPEDIA](#) (2020)

Currently, there is neither specific research in that field, nor has the Central European Wine Industry or CEWI<sup>4</sup> offered a structured system to source aged wines at all. However, some comparable models from different wine regions still exist in the Wine Industry<sup>5</sup>, which can be referred to for a pilot study and show a possible scenario of that business opportunity.

<sup>4</sup> In our definition of “Central European Wine Industry”, producers (wineries) as well as the professional wine retailers and suppliers are included as one entity.

<sup>5</sup> The definition of Wine Industry encompasses the wine related industry

Previous research (Bouri et al. 2018; Czupryna & Oleksy 2015; Fogarty 2007; Johns & Storchmann 2001; Masset et al. 2016) has highlighted some aspects of the value chain and focuses mainly on production methods, ageing and its scientific analysis to identify patterns or prevision models, hedonistic studies, pricing and perceived quality (willingness to pay) and socioeconomic studies related to the generic wine topic.

Some of the most interesting ones are cited in the next chapters and helped to bring to light the argument.

## **1.2. Central European Wine Industry at a glance**

A brief review of how the CEWI is structured and reference to some key numbers of renowned FW regions follows in this section.

- Austria: Wine regions and nation numbers, production, export
- Germany: Wine regions and nation numbers, production, export

They are closely compared to some narrowly famous Western European wines. Following acclaimed by critics and journalists, and therefore regions traded for their FW:

- Burgundy: statistics, production, export
- Bordeaux: statistic, production, export

This comparison is necessary to get an understanding of the FW market in terms of production and sale. Very few is known about the CEW and therefore the most famous regions in France can be seen as a reference. We are able to deduce the overall dynamics and the importance that FW plays within a certain wine producing area, when statistics and hard facts will be investigated.

For this reason, we will do a comparison and an overview of the cited wine regions and highlight their producing capacity compared to their export activities.



The largest production of wine is found in the Eastern part of the country, with the regions “Niederösterreich” and “Burgenland” leading the statistic, as shown in the following figure.

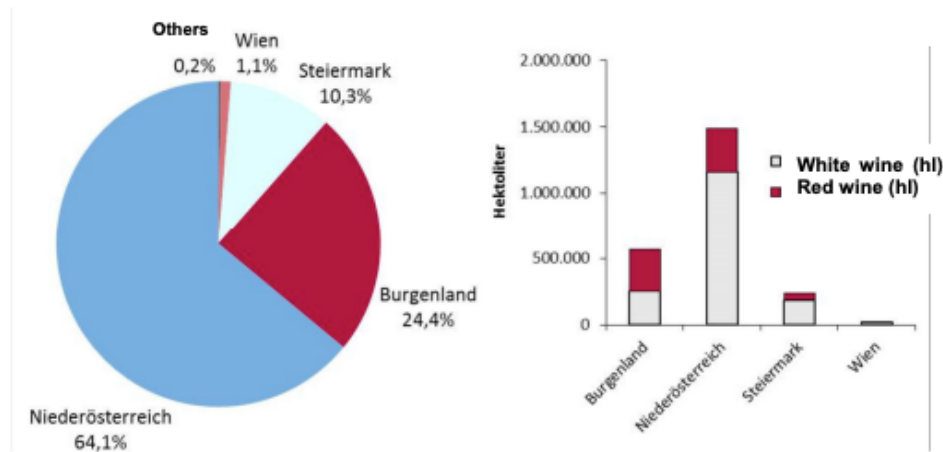


FIGURE 4: SHARES OF THE 2019 GRAPE HARVEST IN SURFACE AND IN HECTOLITRES - SOURCE ÖWM (2020)

It can be noted with certain interest, that the wine production is suffering the influence of the Continental climate and therefore can privilege or vanish the yields, the wine consumption has some more stable development with a slightly tendency in the decades in reducing the absolute value. Nevertheless, wine seems to keep the attention high during the decades and the changing generation. The structural loss of consumers is replaced by new ones in a stable manner. This can be deduced in the following graphic:

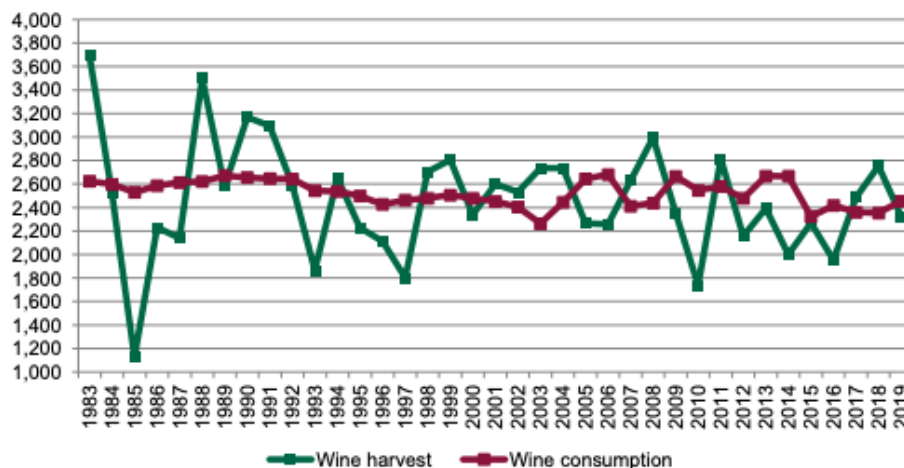


FIGURE 5: AUSTRIAN WINE PRODUCTION VS. WINE CONSUMPTION FROM 1983 TO 2019, SOURCE ÖWM (2020)

Another good sign of Austria’s wine industry health is the export increase after the catastrophic wine scandal in 1986. The historic crisis was caused by the addition of an illegal and hazardous sweetening agent “glycol” in entry level wines for the local market as well as for the export, as described by Skinner (1993).

This practice led to a disastrous drop of sales and to a beating loss of trust, whilst some ill-fated consumers suffered serious illness and in certain cases incurred to dead. The lesson was learned: cheap wine could be dangerous, while quality wines not. So, it was accepted to pay more for better wines. This shaped the sales and the production too. It can be seen in the obvious following graphic. This tendency is still driving the Austrian export until nowadays and can be seen as the success model of the Austrian Wine Marketing Board or ÖWM as described by Skinner (1993).

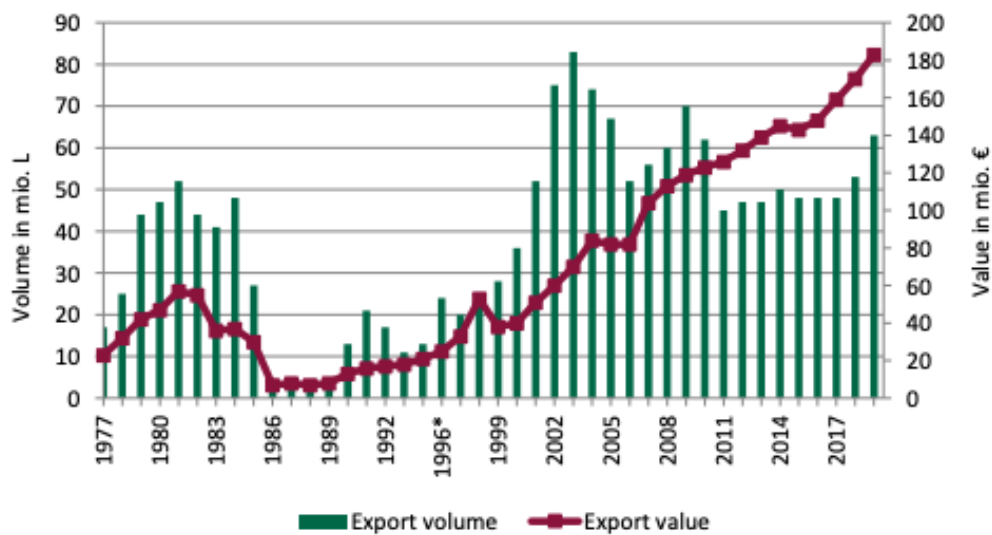


FIGURE 6: AUSTRIAN WINE EXPORTS 1977 2019 – SOURCE (ÖWM 2020)

## 1.2.2. German Wine



FIGURE 7: GERMAN WINE REGIONS , SOURCE DWI (2020)

Germany disposes of a relatively small wine producing area within Europe but ranked 6<sup>th</sup> in the world and with approximately the double surface under vine compared to the neighbour Austria.

Hence, Germany leads in some of the global statistics for some cultivated wine varieties and is counted among the top producers worldwide in that specific rank as shown in a recent table of the DWI (2020):

<b>Riesling</b>	Rebfläche/Vineyard area	<b>Weißburgunder</b>	Rebfläche/Vineyard area
Länder/Countries	in ha	Länder/Countries	in ha
<b>Deutschland</b>	23.809	<b>Deutschland</b>	5.334
Rumänien	6.121	Italien	1.823
USA	4.605	Österreich	1.992
Frankreich	4.025	Frankreich	1.232
Australien	3.157	Tschechien	812
Ukraine	2.700	Russland	695
China	2.500	Slowakei	827
Österreich	2.068	Slowenien	524
Italien	1.681	Moldawien	350
Moldawien	1.343	Ukraine	338
<b>Insgesamt/ Total**</b>	<b>63.936</b>	<b>Insgesamt/ Total**</b>	<b>14.834</b>

<b>Grauburgunder</b>	Rebfläche/Vineyard area	<b>Spätburgunder</b>	Rebfläche/Vineyard area
Länder/Countries	in ha	Länder/Countries	in ha
Italien	24.501	Frankreich	32.289
USA	8.485	USA	25.004
<b>Deutschland</b>	<b>6.402</b>	<b>Deutschland</b>	<b>11.767</b>
Australien	3.731	Moldawien	6.521
Frankreich	2.925	Neuseeland	5.514
Neuseeland	2.422	Italien	4.711
Ungarn	1.601	Australien	4.948
Rumänien	1.561	Schweiz	4.207
Tschechien	912	Chile	4.148
Kanada	625	Argentinien	1.988
<b>Insgesamt/ Total**</b>	<b>54.441</b>	<b>Insgesamt/ Total**</b>	<b>118.202</b>

TABLE 1: GLOBAL CULTIVATION OF KEY GRAPE VARIETIES – SOURCE DWI (2020)

“Deutschland” is the German noun for “Germany” and is underlined in bold. In fact, the country’s most famous white wine variety is “Riesling”, which by the way is one of the most ageable white wine varieties known. After France and USA, Germany is the country, which produces most of the renown red variety “Pinot Noir” called “Spätburgunder”. Also, this cool climate grape variety is able to originate FW and is accordingly to several wine critics, a (not so) hidden secret.

The tradition of German wine looks back to Roman times with introduction of this Mediterranean lifestyle in the occupied territories protected by the “limes” and thereafter with the divulgation of the Christian religion, the Franks and the abbeys in the Middle Age. In the Modern times German wines were popular in the upper-class and on the European aristocratic tables. The GW have been appreciated for their long liveness, fresh and cool climate characteristics. Traditionally that led to a rather sophisticated classification of their wines, where the origin and therefore the “terroir” have been the



most essential essence. In the following table we can distinguish several levels of the increasing quality of this system still in use nowadays:

Ripeness scale for PDO wines		
'Must weight'	Category	Sweetness level
<p style="text-align: center;">Lower</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Higher</p>	<b>Qualitätswein (Quality wine)</b>	<b>Dry – Med Sweet</b>
	<b>Prädikatswein categories (Superior quality wine)</b>	
	Kabinett	Dry – Med Sweet
	Spatlese	Dry – Med Sweet
	Auslese	Dry - Sweet
	Beerenauslese	Sweet
	Trockenbeerenauslese	Sweet

TABLE 2: GERMAN RIPENESS SCALE FOR PDO WINES, SOURCE CULT WINES (2021)

There is also a particularity, unique to the German wine nation. It is the Association of German Quality producers. These producers are the absolute leading producers in every vine area, which contributed to the recent quality offensive in the markets. Additional to the German wine law, they follow stricter own quality norms. They also adopted an auxiliary classification, mandatory for its members, which derives from the French classification of the FW regions “Bordeaux” and “Bourgogne”.

In the following table this is summarised briefly:

<b>VDP Grosse Lage</b>	The ‘grand cru’ sites with the producer and vineyard listed on the bottle. Only regionally defined grapes can be used. If the wine is dry, it can be labelled as a VDP Grosses Gewächs (GG).
<b>VDP Erste Lage</b>	The ‘premier cru’ sites with the producer and vineyard listed on the bottle. Only regionally defined grapes can be used.
<b>VDP Ortswein</b>	The ‘village-level’ wine lists the producer and village.
<b>VDP Gutswein</b>	The ‘regional-level’ wine that lists the producer and which of the 13 German wine regions that grapes come from.

TABLE 3:VDP CLASSIFICATION CATEGORIES, SOURCE CULT WINES (2021)

According to recent wine export statistics of DWI (2020), 10% of the production is sold outside the country, while at the same time, Germany is one of the largest wine and alcoholic beverages import nations, with a rather constant high consumption. Most of the exported goods are high-quality wines and appreciated worldwide. The three largest export destinations by volume of German wines, are in decreasing order: USA, Netherlands and Great Britain.

### 1.2.3. France I: Burgundy Wine region

Bourgogne and its five wine-producing regions  
La Bourgogne et ses cinq régions viticoles

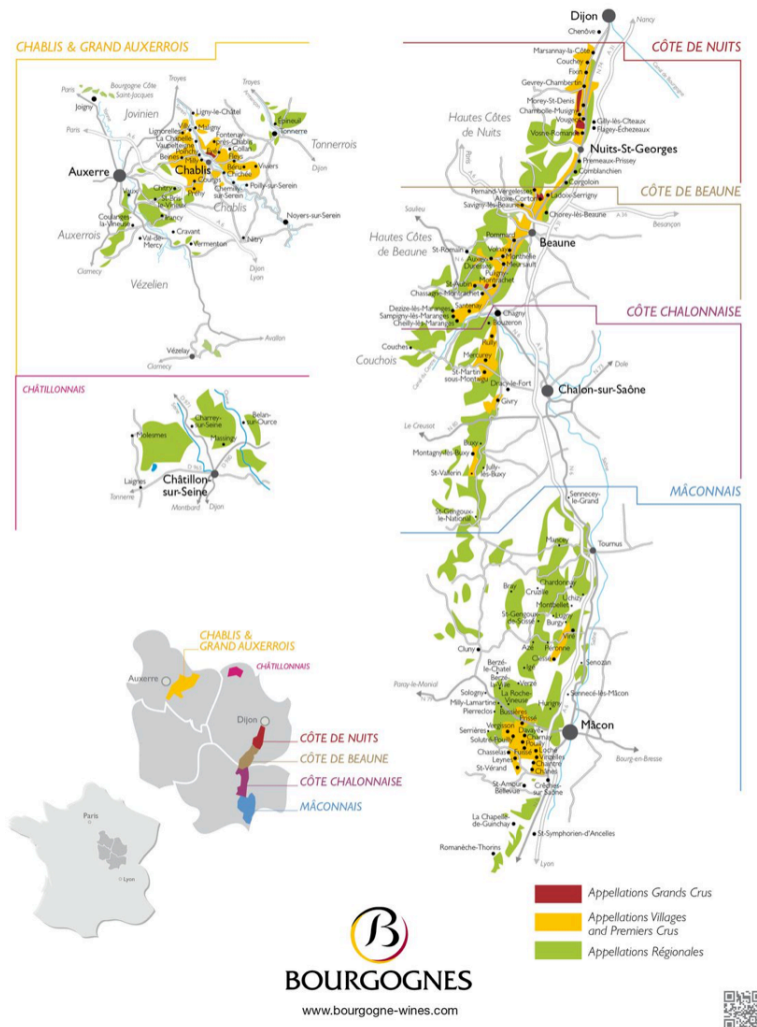


FIGURE 8: BURGUNDY WINE REGION MAP , SOURCE BEAUNE TOURISM BORD (2020)

One of the most renowned wine regions traded in the FW market, is certainly Burgundy. The French wine region counts on a millennial tradition and reputation, which led to an undisputed presence in modern FW trade on the global scene. Indeed, as stated in the FW trade platform Liv-ex trade (2020), essentially the French brands dominate the overall offer. Burgundy produces 60% of its wine output in white wines and respectively 29% red wines and 11% of Sparkling wine known as “Crémant de Bourgogne”. Similarly to AW and GW, the Burgundian producers can rely on a challenging, but furthermore quality improving continental climate, which is essential to permit a high-quality based viticulture and therefrom outstanding cool climate wines. A difference is getting

obvious, once one compares the CEWI with Burgundy: while the variety of different varieties seems to be the common use in CEW, to offer also several dozen of monovarietal wines, Burgundy dominant varieties are Chardonnay for 51% (white wine) and Pinot Noir for 39.5% (red wine) of the planted vine. This fact has allowed the costumers to understand easier the offered qualities and to recognise the wine styles. Following the region’s classification system AOC – Appellation d’Origine Contrôlée – 1% of the wine production is classified as the top range, namely “Grand Cru”, while 47% belong to the “Premier Cru” and “Village”, which combined represent nearly half of the overall region’s wine production. All the referred data is the latest available as from the official published “Vins the Bourgogne” (2020).

As shown in the following figure, the wine regions are strongly export oriented with 47% of the wines sold abroad and the remaining part consumed domestically.

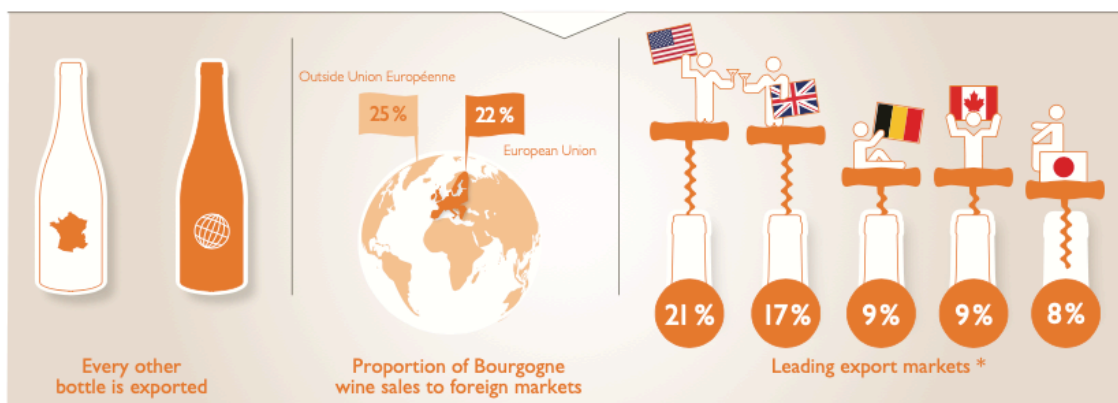


FIGURE 9: BURGUNDIAN WINE EXPORT MARKET SHARES, SOURCE “VINS DE BOURGOGNE” (2020)

Interestingly, with only 4.5% of shares of the total French wine production Burgundy is, due the strong export sales, responsible for a considerable 21% of revenue for all exported French AOC wine. We can deduct, that the average sales price is therefore higher than other French wines, as the costumers are willing to pay more for the single bottle. As said previously, nearly half of the production belongs to an AOC system-based production and yet half of the wine production is exported, which seems a remarkable fact. Unfortunately, the obtained data doesn’t permit to correlate this evidence. However, a significant reputation in FW seems to be met in Burgundy and its wine.

## 1.2.4. France II: Bordeaux Wine region

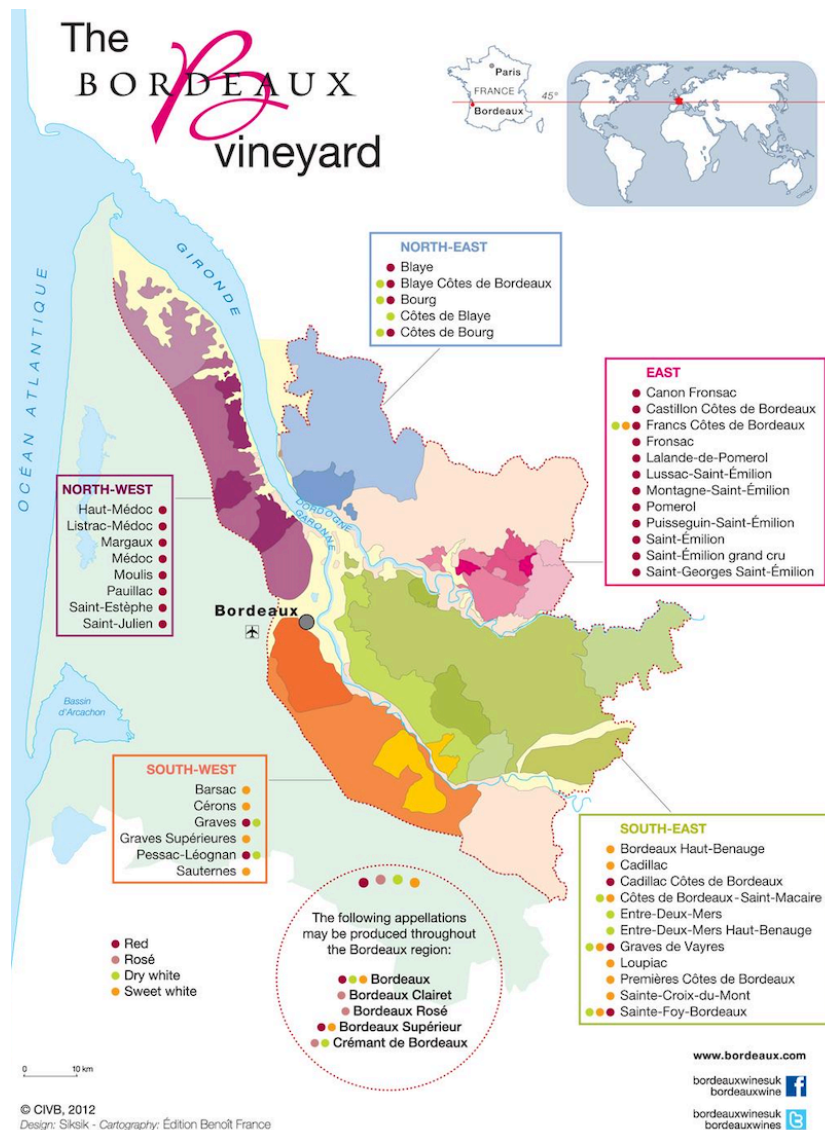


FIGURE 10: BORDEAUX WINE REGION MAP, SOURCE BORDEAUX TOURISM BOARD (2020)

The most western French wine region Bordeaux has a long-standing history and gained therefore its position in the FW trade. Collectors and investors consider some of the Bordeaux wine producers, as the best in terms of ability to age and holding or increase their value in time. This occurred mainly in the light of the English thirst for French wines during the past centuries.

To cite the latest fact sheets, Anson (2020) gives an insight in the local wine industry:

*“Bordeaux in 2020 represents 110,800ha of vines, In AOC, a figure that has stabilized over the past few years (in 2016 it was*

111,000ha). Between 2006 and 2016, in contrast, the surface area of vines in Bordeaux contracted by 10,500 ha due to grubbing up vines to balance supply and demand and to concentrate on the highest quality areas of production. ... Two-thirds of Bordeaux wine is sold by the 300 négociants on the Place de Bordeaux who sell to over 170 countries. Alongside the négociants are 77 courtiers, or wine brokers, who sit between châteaux and merchants, regulating the market. Bordeaux in 2020 has 29 cooperative cellars who work with 39% of the region's winegrowers and produce 23% of the overall Bordeaux production. The region is split into 65 AOCs, producing 1% sweet white, 9% dry white, 4% rosé, 1% crémant, 12% Côtes de Bordeaux, 44% Bordeaux or Bordeaux Supérieur, 11% St Emilion, Fronsac, Pomerol, 18% Médoc and Graves (representing 85% red wine production overall, 4% rosé and 11% white). The grape plantings are split into, for the reds, 66% Merlot, 22% Cabernet Sauvignon, 9% Cabernet Franc, 3% other. For the white grapes, they stand at 46% Semillon, 46% Sauvignon Blanc, 5% Muscadelle, 3% other."

We can clearly understand that the entire Bordeaux wine region has regularly some contractions and larger investments, due to the variation of its vine plantings. By the way, the surface of 11,800ha corresponds roughly to the entire German wine production area. So there seems to be a demand that drives this investment. We could now analyse the sales report of the further cited Anson (2020):

*"Sales of Bordeaux wine dropped by 10% from March 2019 to March 2020, even before the disastrous impact of Covid on the market. The domestic market represents 56% of Bordeaux wine sales today, with 44% going overseas. In the past five years, however, the sales of Bordeaux wines within France itself have fallen 20% (although to put that in context, the consumption of wine in France overall has dropped by 28% over the past 20 years, although beer is up 40% since 2010). Young French people report having more interest in drinking white wine than red, something that benefits other regions before Bordeaux, but perhaps points a route for future plantings. Overall wine sales from August 1, 2019, to July 31, 2020, saw the sale of 3.8 million hectolitres, the equivalent of 506 million bottles, a drop of 4% from the previous year. The biggest export market in 2018-2019 remains China (300,000hl of wine, more than half the amount from just three years ago), with the United States just behind. Since the 25% tax was introduced by Donald Trump's government, sales to the US fell by 12%. The third biggest market from 2019 to*

*2020 is the UK, but as the trade magazine Economie-Consommation said, 'nobody knows what effect Brexit will have on the English consumption (of European wines)'.*"

Still the presence on international trade platforms is high as stated in Liv-ex (2020), and here it should be said, that a wine is a middle-long term investment and so has a more stable offer. But in the last years the dominance has been weakened by introducing diversified portfolios with new wine regions. Also, in Bordeaux a strong export activity helps apparently to build up the value and demand amongst the collectors and investors. The wines indeed fulfil all necessary characteristics to be considered as an investing vehicle: durability, low volatility and high demand.

As an interesting information, Jane Anson (2020) reports in her article for the Wine Scholar Guild, of a successful conviction of Bordeaux wine countifying on China, which developed with the increasing demand of FW all over the world, also in China with its logarithmic increasing demand of wine:

*"In June 2020, Bordeaux successful secured a criminal conviction over counterfeit wine in China – making them the first collective brand – either Chinese or international – to win a victory in criminal proceedings against forgeries and abuse of intellectual property. The case, which was held in the People's Court of Shanghai Pudong, related to the Chengdu Wine Fair in March 2019, where counterfeit bottles were on display at a stand within the fair (with a further 100,000 bottles later discovered). The company received a suspended prison sentence, a fine of 100,000RMB for the company and a specific fine of 50,000RMB by the individual who carried out the offense. Bordeaux gained 'geographical indication' status in China in 2015, and 45 Bordeaux appellations (GIs) were officially recognised by the Chinese government in 2016. In 2019 China and the EU reached a bilateral agreement to protect 100 European GIs in China and 100 Chinese GIs in Europe, and this conviction was the first successful implementation of the new protections."*

The fact, that Bordeaux wines are countified, shows the rather important position, that these wines hold in the market. Interestingly, the reputation of these wines lead criminals to abuse the brands' trust and defraud their costumers, which do not contribute to any benefit in building up a respectable and a sustainable business. On the other hand, we can deduct that the reputation – for the original FW – is rather high and trustful and convinces costumers to invest for further revenue or to collect for their own consumption.

### 1.2.5. Comparison between the different wine regions

Undeniably, French regions, albeit lightly declining and in particular Bordeaux wines, still dominate the global FW market in the segment of upmarket wine sales at auctions.

Region	2010	2011	2012	2013	2014 (YTD)
Bordeaux	95.2%	93.2%	87.2%	82.1%	79.2%
Burgundy	1.2%	2.6%	5.5%	7.0%	6.2%
Champagne	1.4%	1.1%	2.3%	2.3%	2.8%
Rhône	0.7%	1.2%	1.5%	2.8%	4.0%
Italy	0.9%	1.5%	2.3%	3.5%	5.7%
Others (incl. USA, Australia, Spain, Chile, Argentina)	0.5%	0.5%	1.3%	2.3%	2.2%

TABLE 4: PERCENTAGE OF TRADE ON LIV-EX (REGIONS, BY VALUE), SOURCE LIVE-EX (2020)

Several articles point out this drift, as Kim Anderson (2004) summarised:

*“Competition from other New World producers was slow in coming. South Africa initially posed little threat because of over-regulation domestically and anti-apartheid sentiment abroad. Argentina and Chile, because their domestic and trade policies discriminated against exportable agricultural products, were also slow to penetrate the British market. Nor did the USA emerge as rapidly as Australia. Its viticultural land was more expensive and its currency stronger.”*

Interestingly is the paradoxical reporting made for instance that Ireland’s wine consumption had trebled since the 1990’s mostly sourced from New World countries and the doubling of UK consumption was for less than one-quarter sourced from Europe.

A tentative inference from this is that newer wine consumers, be it per country as the standard of living improve and lifestyles change or be it the new generation of young consumers, offer an attractive target market for new entrants. This however needs further probing as these statements relate to all wine consumption and not FW for investment. Nevertheless, exposure to wines leads consumers to join the family of lovers of good or better wines.



In the following table, in which we compare the four wine regions (Anson, 2020, DWI, 2020, Vins de Bourgogne, 2020, ÖWM, 2020), some similarities amongst them are made visible:

Wine Region	Wine Production*			Sales*	
	Total Surface	White Wine	Red Wine	Domestic	Export
<b>Austria</b>	45'574 ha	67%	33%	67%	33%
<b>Germany</b>	103'000 ha	66%	34%	89%	11%
<b>Burgundy</b>	30'052 ha	71%	29%	53%	47%
<b>Bordeaux</b>	110'800 ha	90%	10%	56%	44%

\* all numbers refer to the year 2019, sourced at the official 2020 wine region reports

TABLE 5: THE COMPARISON BY NUMBERS OF THE FOUR WINE REGIONS INVESTIGATED IN THE THESIS

Firstly, Austria-Burgundy and Germany-Bordeaux have a similar extension of their vines. Secondly, with the exception of Bordeaux, a high percentage of white wines connects 3 of 4 regions, which are counted amongst the cool climate wine regions Europe. All three have in common strong continental climate conditions. Bordeaux though is therefore at an advantage, referring to its particular climate, as the milder influence by the sea creates optimal conditions for red wine growing. At least, when it comes to sales, we can spot the attitude of renown regions such as Burgundy and Bordeaux, to balance their domestic sales and the exports. Compared to AW and GW, Austria tends to have an increased exports activity, rather than Germany, where domestic sales predominate. Of the selection of tables in reviews and others available, the most striking is the table below showing a vast difference that still exists between French wines and all other wines:

Region	2010	2011	2012	2013	2014 (YTD)
Bordeaux	95.2%	93.2%	87.2%	82.1%	79.2%
Burgundy	1.2%	2.6%	5.5%	7.0%	6.2%
Champagne	1.4%	1.1%	2.3%	2.3%	2.8%
Rhône	0.7%	1.2%	1.5%	2.8%	4.0%
Italy	0.9%	1.5%	2.3%	3.5%	5.7%
Others (incl. USA, Australia, Spain, Chile, Argentina)	0.5%	0.5%	1.3%	2.3%	2.2%

TABLE 6: PERCENTAGE OF TRADES ON LIVE-EX, SOURCE CULT WINE (2020)

The gains made by all other countries over the years are an encouragement that the French domination is not absolute; better wine producing methods and the resultant



better wines capable of value adding and quality improving ageing are increasing the competition and facilitating a shift to a wider range of wines featuring in the international wine exchanges and recently the fast-growing on-line wine selling businesses.

The task is more daunting for the French wine industry than it is for the challengers.

### **1.3. Value chain of aged Fine Wines**

The history of wine related in the next section illustrates the value wine held in ancient civilizations and how this has not waned in more contemporary society, on the contrary. The natural phenomenon of competing behaviour to access a share of lucrative business and the economic logic that such behaviour limits and sometimes depresses profits, ensures from a consumers point of view that there is fair distribution value gained in the wine cycle, running in the words of old monopolistic integrated Standard oil “from well to lamp”.

Production cost, including land value on which “provenance” or terroir has a major influence, new production techniques, regulations such as disclosing method of taste creation and ageing -for example using oak chips rather than proper oak barrels-, all contribute to the cost make-up and value add of FW. Infrastructure and financing cost are also specific to the FW due to the necessity of proper ageing, unlike artificially aged “18 year old” black label whisky. Demand will determine the value proposition for FW. Annual growth in value and the ultimate sale value will establish whether the achieved return on investment is paying off. This aspect will be discussed in much greater detail in the literature review.

#### **1.3.1. Brief history of wine**

The history of wine as an exquisite product goes back as far as the Egyptian civilization. Wine jars were discovered in the tombs of early Dynastic nobles. In that period wine was already considered a valuable commodity, made exclusively for royalty and nobles. Its consumption was appreciated by the elite over the locally brewed beer. At the time, wine was really only for consumption and not considered as an investment. It was also used for other purposes such as mixing with foul tasting medicine, as a mild antiseptic, to quell fevers and so on. Wine was associated with divinity.

According to Plutarch, who quoted Eudoxus, Egyptians thought wine was: “The blood of those who had once battled against the gods, and from whom, when they had fallen and had become commingled with the earth, they believed vines to have sprung.”

The Greek mythology had a figure, Dionysus, a son of Zeus, who was the bringer of wine. His face is found on the Sommelier's pin.

Variety in wine was still limited to sweet, dry and sour wines. The latter being produced from unripe grapes. Preservation of wines was also still very poor. It is inferred that ancient Greek wines had nutty and sweet aromas similar to brown sugar. Some writings on soil conditions and grape types were found.

During the next great civilization, the Roman Empire, the Romans who were profligate drinkers, improved the methods of wine making. For the wine making, large terracotta pots lined with beeswax were used, sealed with clay after fermentation. A robust method allowing wine to be kept for 15 years. The Romans popularized wines for all folk. Vinum Operarium for lower classes and slaves, Vinum Dulce as a table wine, and branded wines for the upper class such as Falernian, a 16% alcohol content wine. Yet by today's standards, most Roman wines were quite unpalatable, usually diluted with water. One passage in the Bible refers to wine that "it bites like a snake and poisons like a viper". Measures against excessive drinking were also not uncommon.

During the Middle-Ages and early Renaissance, monks and nuns were responsible for a vast improvement in taste and cultivated vineyards to make wine an everyday drink. Knowledge grew with increased production and consumption. Wines as an investment was not yet part of the landscape though. It would take a few more centuries to reach today's wine quality.

Fast forward to the milestone event at the "Exposition Universelle de Paris" in 1855, during the reign of Napoleon III, nephew of Napoleon I. A classification, still relevant today, of the best Bordeaux wines was created. To be listed as "Grand Crus Classés" carried a high mark of prestige. Within that category the best wines were assigned the highest rank of "Premier Cru". Only 4 Châteaux were awarded this appellation: Château Latour, Château Lafite Rothschild, Château Margaux and Château Haut-Brion.

For over 100 years this was it. Only in 1973 did Mouton Rothschild and other to follow get promoted to Premier Cru, after decades of relentless lobbying. This was the beginning of formal classification of FW and a prelude to wider application of classification through expert wine tasting, which would lead to a better grasp of the inherent value of the different wines and their potential as an investment for later consumption.

Even today this early classification of Bordeaux and Burgundy wines created a big lead in contemporary worldwide recognition of those wines. In 2018, Sotheby auctioned a 73-year-old bottle of French Burgundy which became the most expensive bottle of wine ever sold at auction, fetching \$558,000. The bottle of 1945 Romanée-Conti sold at Sotheby for more than 17 times its original estimate of \$32,000. We will revert to the issue

of specificity later. The 600 1945 Romanée-Conti bottles were still produced by older vines. They were replaced with younger vines in 1947.

Two other aspects deserving analysis are the notion of “provenance” adding certainty to the authenticity of origin and push in demand by the burgeoning presence of wealthy Chinese wine buyers.

The general item of investigation, wine with investment potential, is broadly defined as FW.

### 1.3.2. English influence on the wine trade

Historically, England has been an important promoter of wine from the continent to their upper-class and aristocracy to distinguish from the other population. This was the rise of the French wine industry and later fortified wines of Portuguese and other European origin, as well as the trade with the New World under its influence as South Africa, Australia, New Zealand and others. This shaped the taste of the English but influenced also the upper-class consumers outside the island. English businessman founded several production and trade companies to assure quantities but also qualities

FW has become an investment vehicle or asset class. London has held and is still holding a leading role in international financial markets, and until recently the UK was part of the European Union (EU), which by all statistical information is still by far the largest consumer of FW.

The pricing of FW asset class materialises via auctions; most auctions are held in places where it is expected the demand for the asset class will be good. Because of the nature of FW as an asset class, reputation, ensuring authenticity of the FW on auction, does matter a lot. The most prestigious auction houses such as Sotheby’s Wine, Christie’s, Acker Merrall & Condit, and others, all regularly organise auctions in London.

The English have had a significant influence on wine trade so far. Looking into the future, “online” auctions are gaining ground, a movement accelerated considerably with the advent of the corona virus pandemic. Online auctions are as not bound by locality issues, but still have to deal with physical delivery of auctioned FW, a characteristic of many alternative investment classes unlike the share scripts and derivative instruments.

The likely path of English influence on the wine trade is one of declining importance though. Having left the EU, and the EU moving financial trade to its European centres,

combined with more frequent and larger online auctions support this inference. In Aytac, Hoang and Mandou, (2015) the important role of investors coming from other than traditional wine investment countries as USA, UK etc., are taking part more and more dominantly in the entire scene. This is the case of Asian investors as described in their “Wine: To drink or invest in? A study of wine: Asian investment asset in French portfolios”, which explains the increasing importance of New investing countries, in collaborating and even replacing traditional ones.

### 1.3.3. Definition of Fine Wine

FW is recognised by experts and highly rated, the price level is above the usual industry average. More or less, it is regulated by the demand and offer. The offer will be rather limited than available, due the uniqueness of the product. A “Fine Wine” is one of exceptional quality. A “*special wine*” is an alternative expression of a FW, to whom an individual has developed a personal relation. Therefore, the wine represents an emotional link to the individual to consider it special for him or a group of similar individuals. Wine seems to be mainly identified by its origin and gets so a strong relationship with the French term “terroir”. It becomes eventually a discriminatory element.

Demossier (2011) argues the following anthropologic definition of terroir: Terroir is thus referred to as a spatial and ecological concept that “*links together the actors, their histories, their social organizations, their activities, and, most importantly, their agricultural practices*” (Bérard et al. 2005). The development of the place or terroir concept has had an important aim, in order to promote and distinguish local products. Demossier (2011) further explains:

*“The use of ideas about place to make arguments about quality became increasingly important in the twentieth century and it was adopted as part of a sustained socio-political movement to protect ... agricultural products from internal and external forces. It makes therefore products of place recognisable and valuable. Single wineries within a terroir will so stand out and contribute to a territorial marketing and benefit from their strong commercial position. Those wine will represent an increased value and are so on the list of the “collectables”.*”

Deloir (2005) finds in his definition of terroir and research, the contemporary presence of climate, soil, cultivar and man, which play a relevant role to distinguish a place and its output instead of others. In fact, it is rather difficult from a scientific perspective to

define clearly the topic FW. However, In the “handbook of the economics of wine” Ashenfelter et al. (2018) see here a combination of: a definite territory and therefore scarcity, reputation and market organisation. To become an acclaimed FW also the ability to age to extend the trade for an undefined period of time. Wine is one of few food products not to indicate officially any expiry date on its label. Opinion leaders and experienced wine journalists periodically contribute their opinion on the “ability to age” or the current taste performance of selected wine. All this might help to understand the so-called FW. Seemingly the term is in use mostly amongst the operators of the secondary wine market for their costumers as investors looking for an alternative portfolio, as well as wealthy consumers of those products.

### 1.3.4. The Fine Wine market

The FW market has grown considerably in importance. As reported from auction sales conducted in the US, UK, Geneva, Hong Kong and Shanghai as well as online sales, the wine-auction sales rose from \$ 381.7 million in 2017 to \$479.1 million in 2018, a growth of 26%, and online sales rose 20% to \$ 74.9 million, signalling the increased popularity of online bidding. It remains that the French Bordeaux and Bourgogne wines still represent the lion’s share of those auction sales. This is precisely what motivates this thesis, how to understand this market and get better representation at the auctions of CE FW.

We take the opportunity to illustrate the state of the market in a dynamic fashion with the following two graphs:

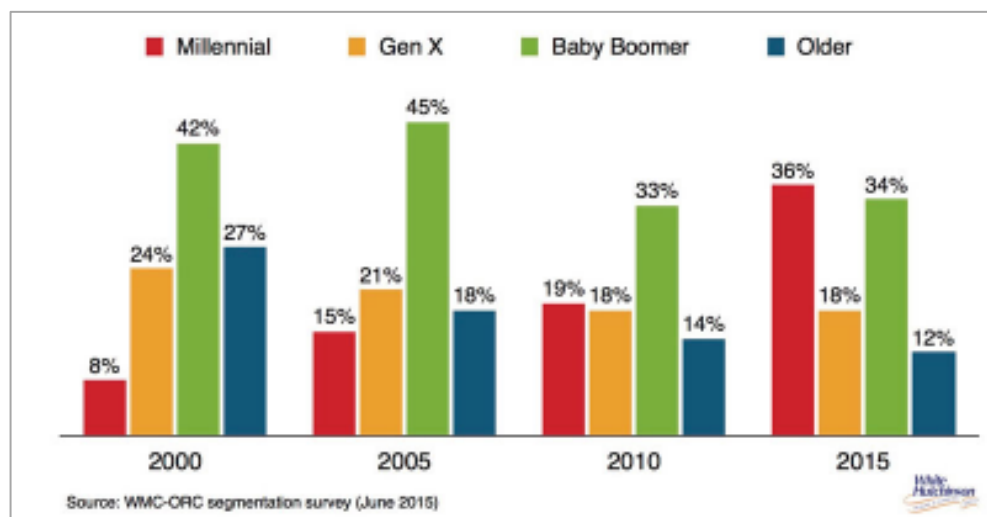


FIGURE 11: WINE DRINKING POPULATION BY GENERATION 2000 – 2015, SOURCE WMC (2020)

Interpretation: The new generation of wine drinkers, the millennials, should be the focus of the wine marketers. Thus, millennials do notably consume wine, but “Baby Boomers” consume more wine in terms of overall volumes.

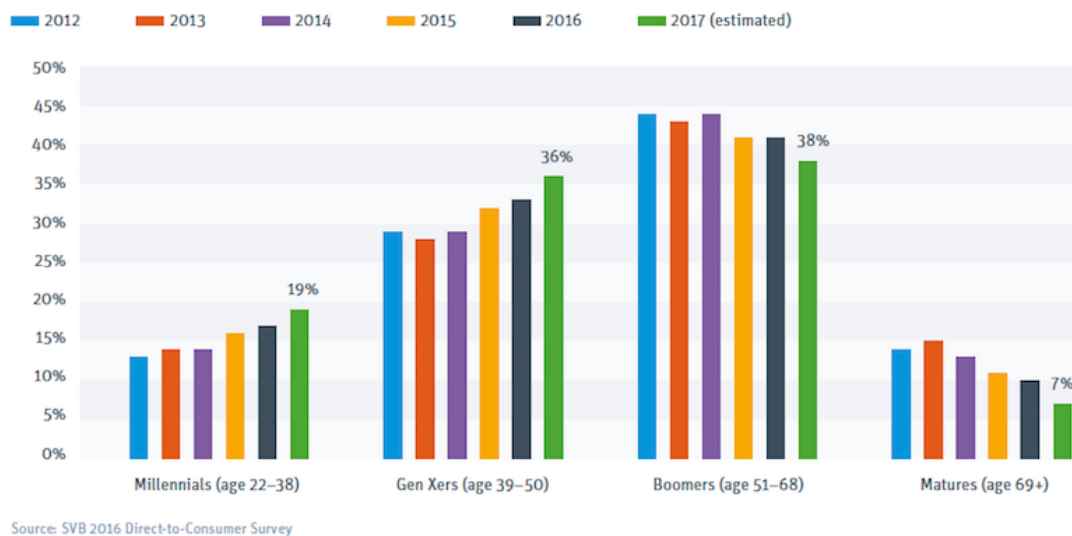


FIGURE 12: COHORT SHARE OF WINE PURCHASED, SOURCE WMC (2020)

The other interpretation of the second graph is, that wine consumption increases with age up to 69, where after it drops significantly also of course because of the thinning of that age group and their changed consumption attitudes, following their rather general sensible health conditions.

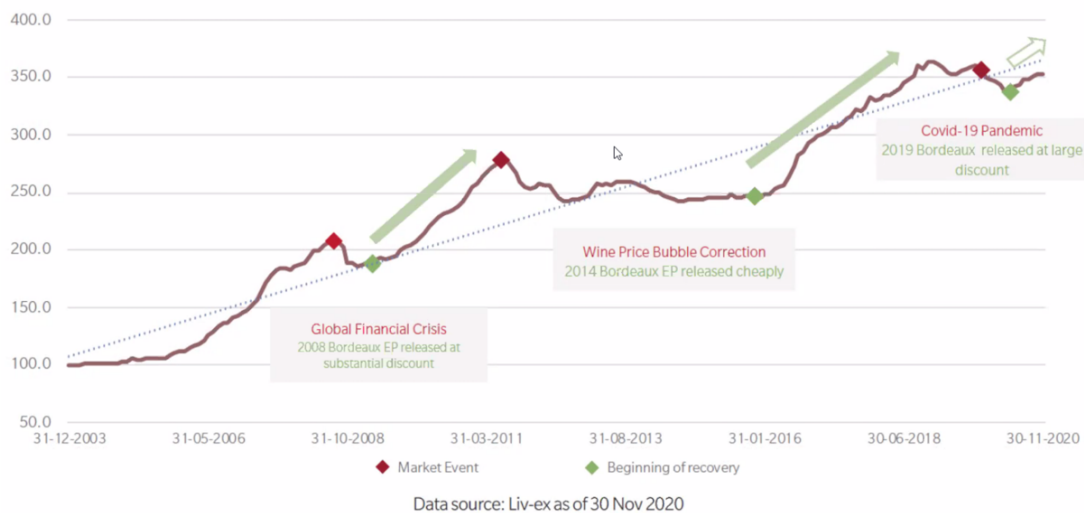


FIGURE 13: FINE WINE ENTERING GROWING PHASE DURING CRISIS EVENTS, SOURCE CULT WINE (2020)

In the recent graph of Cult Wine (2020) above, Bordeaux wine release prices are related to crisis as namely the 2007 global financial crisis, the 2011 Bordeaux wine bubble correction and finally the 2020 Covid-19 pandemic. After a short fall, wine prices recover. It has to be noted, that the wine prices saw a tendency to grow during the two-

decade period, although any crisis affect shortly their growth. Wine seems to demonstrate its profit-returning investment ability.

## **1.4. The Finance in the wine industry**

The whole value chain of the wine industry has several segments to which different forms of financing apply. The acquisition of a winery, the management of vineyards, the production of wine are all singularly supply-side aspects with according needs in terms of financing. The segment of the financing this thesis is particularly interested in is the aspect of the ageing of FW as an investment proposition, not only by the producers of the wine, but also by the consumers and by the ultimate investors who would not invest for the purpose of later consumption. The latter would see their investment as an investment in a separate asset class, which investment would be made purely on the basis of financial risk-return considerations. This aspect will be analysed in much more detail in the literature review.

## **1.5. Research objectives**

Following the preparatory work and the investigation we are rolling out, we suggest to explore this two research question:

Research question 1: **Is there a latent demand for aged Central European Wines?**

Research question 2: **Is the current offer satisfying the demand?**

In this thesis, we would like to uncover the opportunities of CE FW. Hence, data is needed to confirm and underline that demand. The data is collected through an elite survey and rolled out as a pilot study sourcing information into wineries, gastronomy and wine retail.

## **1.6. Structure of thesis**

In the next chapter, a review will be conducted of literature and the research that has been carried out on the phenomenon of FW. This will cover various facets. The production cost of FW, the characteristics of FW and how they influence the price of wine. These characteristics vary from the broad category of terroir and vintage, across independent ratings to the taste of the wine. Some review will be done on the attributes of

this alternative investment as opposed to other often quoted alternative investment vehicles like paintings, coins, stamps and so on. The value of FW as a pure investment class on its own also merits review. The perceived growing demand of alternative investment classes has seen the establishment of wine investment funds offering a diversification within the FW investment class.

Lastly a review of the current market patterns and access and representation on the major distribution channels of FW will lead to the core of the thesis' aims.

In the methodology, in the subsequent chapter, a survey will establish the key determinants in the eyes of the interviewees of successful marketing of CEW.

In the conclusions, we will initiate a discussion of the results, thereafter extrapolations will be made to peak into the possibility of worldwide extension of higher sales of CEW.



## **2. LITERATURE REVIEW**

### **2.1. Introduction**

The introduction demonstrated the value and appreciation of wine throughout history and with the development of better production techniques and methods, the emergence of FW as an ever more important niche segment in the entire wine industry. The waning but still overwhelming dominance of French wines in that market segment was noted, begging the question how to gain a greater market share in that segment by other FW.

A review of the various aspects particularly from an investment angle, will provide the right perspective on the own research that will be done for Central European FW.

### **2.2. Framework of research reviews**

It is surprising, how prolific the entire argument about wine and its surroundings covers a vast editorial and scientific edition. It mostly touches topics of technical aspects, how to produce and optimise wine production, marketing wines and consumer behaviour, and wine economics.

It was indeed a discovery to find a recent high-quality work about FW investment. In the light of the economic crisis of the first two decades of this millennium, wine resulted in a less volatile asset. Motivated by the scientific framework, this investigation will join together existing knowledge, to uncover the chances of Central European FW production and trade.

In the following tables, selected parts of the literature framework, on which this work is based, is regrouped and explained.

## 2.2.1. Framework I, terroir and wine region historical development

	Author	Argument / Title
Terroir and Wine region historical development	Almaraz, P. (2015)	Bordeaux wine quality and climate fluctuations during the last century: changing temperatures and changing industry
	Anderson, K. (2016)	How might climate changes and preference changes affect the competitiveness of the world's wine regions?
	Bérard & Marchenay (1995)	Lieux, temps et preuves: la construction sociale des produits de terroir
	Davis et al. (2019)	The effect of climate on Burgundy vintage quality rankings
	Delogier et al. (2005)	Grapevine responses to terroir: a global approach
	Demossier (2011)	Beyond terroir: territorial construction, hegemonic discourses, and French wine culture
	Li, H et al. (2018)	The worlds of wine: Old, new and ancient
	Skinner, P. (1993)	The Utilisation of a Central Wine Marketing Organisation in The Re-Marketing of Austrian Wine Post - 1985

TABLE 7: FRAMEWORK I, TERROIR AND WINE REGION HISTORICAL DEVELOPMENT

It all begins with the origin, which in the value chain of FW is the prerogative for the essence on being considered a valuable wine. Several authors identify the importance of the origin and the building on trust and recognizability amongst the costumers and therefore for the retail, gastronomy and producers. Every territory has intrinsic attributes, which define and mark indelibly the wines of its origin. Given this particularity, the territory is a complex system consisting of: soil composition, meso and micro-climate, but also the decisive contribution of the winemakers, who solely decide to plant certain grape varieties and hence impose a certain wine production. This is applied to classic and known wine regions, namely Bordeaux and Burgundy, but is applied even to other countries with “newer” tradition such as Australia and New Zealand and therefore applies also to CEWI countries as emerging countries on the FW market.

## 2.2.1. Framework II, wine marketing

	Author	Argument / Title
Wine marketing	Ali, H., Lecocq, S. and Visser, M. (2005)	The impact of gurus: Parker grades and en primeur wine prices
	Arikha, N. (2007)	Wine psychology
	Bazala, B., Knoll, M. and Derndorfer, E. (2015)	Perception and Acceptance of White Wines by Consumers belonging to Different Age Groups
	Calvo-Porral, C., Lévy-Mangin, J.P. And Ruiz-Vega, A. (2020)	An emotion-based typology of wine consumers
	Carloto, A. (2017)	Wine quality ratings versus price in the wine enthusiast magazine
	Chan, Y., Gu, K. and Yang, S. (2018)	Predicting Wine Points using sentiment analysis
	Flint, D.J., Signori, P. and Golcic, S.L. (2016)	Contemporary Wine Marketing and Supply Chain Management – A global perspective
	Hall, C.M. and Mitchell, R. (2008)	Wine Marketing - a practical Guide
	Resnick, E. (2008)	Wine Brands – Success Strategies for New Markets, new Consumers and New Trends
	McIntosh, W. and Schmeichel, B. (2002)	Collectors and Collecting: A Social Psychological Perspective
	Sigala, M. and Roninson, R.S. (2019)	Management and Marketing of Wine Tourism Business – Theory, Practice and Cases
	Snipes, M. and Taylor, D. (2014)	Model selection and Akaike Information Criteria: An example from wine ratings and prices
	Tuccille, J., (2009)	Gallo be thy Name – The inside Story of how One Family rose to dominate the U.S. Wine Market

TABLE 8: FRAMEWORK II, WINE MARKETING

Wine is a product for hedonistic consumption, which in its complexity engenders emotionality amongst its consumers, who need a progressive acquisition of product related education to fully understand it and appreciate it.

In order to proceed with the influence of wine marketing, wine ratings and influencers shift the consumers perception of quality. Thus, the “real” wine production price diverges from the willingness to pay, as the wine is perceived precious and all positive signals such as points, ratings and reputation build up a positive mood and trust.

As wine is consumed and mainly recognised as a product for special events rather than an economic asset, it is collected to satisfy a need and as a status symbol. This leads to desire and, in the psychological meaning, a form of obsession. Wine marketing plays with its tools, to raise that desire and well-feeling mood.

## 2.2.2. Framework III, wine economics

	Author	Argument / Title
Wine economics	Anderson, K. (2004)	The World's Wine Markets – Globalization at Work' USA
	Ashenfelter et al. (2018)	Handbook of the economics of wine
	Ashenfelter (2010)	Predicting the quality and prices of Bordeaux wine
	Aiassa, P et al. (2018)	Successful Wine Cooperatives: Field Reports from Cooperative Managers in Austria, Italy, and Germany
	Bitter, C. (2017)	Wine Competitions: Re-evaluating the Gold Standard
	Bombrun, H and Sumner, D. (2003)	What Determines the Price of Wine?
	Capitello, R, Charters, S., Menival, D. And Yuan, (2017)	The Wine Value Chain in China
	Caracciolo, F., Embalo, L. and Pamici, E. (2010)	The hedonic price for an Italian grape variety
	Gaeta, D. and Corsinovi, P. (2014)	Economics, Governance, and Politics in the Wine Market – European Union Developments
	Gokcekus, O., Gokcekus, S. (2019)	Empirical evidence of lumping and splitting: Expert ratings' effect on wine prices
	Hammervoll, T., Mora, P. and Toften, K. (2014)	The financial crisis and the wine industry: The performance of niche firms versus mass-market firms
	Loose, S. and Pabst, E. (2017)	Current State of the German and International Wine Markets
	Marone, E. et al. (2017)	The cost of making wine: A Tuscan case study based on a full cost approach
	Newton, S., Gilinsky, A. and Jordan, D. (2015)	Differentiation strategies and winery financial performance: An empirical investigation
	Prillaid, D. and van Rensburg, P. (2012)	Nonlinear hedonic pricing: a confirmatory study of South African wines
	Spahni, P. (1998)	Swiss Wine Market Report
	Wittwer, G. And Anderson, K. (2009)	Global wine markets 1961 to 2003: a statistical compendium

TABLE 9: FRAMEWORK III, WINE ECONOMICS

Considering the cost of producing wine, several factors can influence the winery economics. There is uncertainty in the production as a frost or hail event can reduce notably the needed grapes or reduce their quality in a way, that FW is not to be produced as previously planned. But on the other hand, although the production difficulties, once a wine is bottled and after a certain bottle aging placed on market, availability, reputation and ratings define its traded value.

The wine price for “normal wines” varies rather little, while FW can be influenced strongly by a third-party judgement. This seems to be caused by the scarcity of FW, which is - with some exceptions – not consumed regularly by the wine drinkers, released with a time delay and properly retained by the producers and retailers to increase the value, as well as the drinkability of those ageable wines.

So, the value chain of wines is given by the intrinsic qualities, reputation and scarcity. These attributes are perceived by the costumers by own taste in the case of consumption, or due the third-party evaluation during wine competitions or ratings. Consumers will likely follow a “best-buy” advice. In rare cases, scarcity will drive the price, when e.g., a wine lot lost will increase the value of the remaining bottles. Basilar is the ability to age and the ability to be “drinkable” for a given timeframe, which for certain wines can be valued in a frame of 10 up to 50 years after the release on the market.

### 2.2.3. Framework IV: wine investment

	Author	Argument / Title
Investment	Aytaç, B., Hoang, T. And Mandou, C. (2015)	Wine: To drink or invest in? A study of wine Asian investment asset in French portfolios
	Barber, N. and Donovan, J. (2010)	From under the shadows: developing awareness in a conventional market with a product less recognized
	Brückner, M. (2009)	Champagner, Wein & Co.: Flüssige Werte als Kapitalanlage
	Bocart, F. and Hafner, C. (2015)	Fair re-valuation of wine as an investment
	Bouri, E. et al. (2018)	Is wine a good choice for investment?
	Chu, P.K. (2014)	Study on the Diversification Ability of Fine Wine Investment
	Coffman, A. (2009)	Wine: The Illiquid Liquid Investment Asset
	Czupryna, M. and Oleksy, P. (2015)	Rational Speculative Bubbles in the Fine Wine Investment Market
	Milton, F. (1994)	Money Mischief
	Sokolin, David, et al.(2000)	Investing in Liquid Assets : Uncorking Profits in Today's Global Wine Market
	Fama. E. and French, K. (1992)	The Corss-Section of Expected Stock Returns
	Fogarty, J. (2007)	Rethinking Wine Investment in the UK and Australia
	Greis, R. B. (2015)	Investment in Wine - An Empirical Analysis of the Return of Fine Wine from 1978 to 2014 and its Diversification Benefit
	Johns & Storchmann (2001)	Wine market prices and investment under uncertainty: an econometric model for Bordeaux Crus Classés
	Jureviciene, D., Jakavonyte, A. (2015)	Alternative Investments: Valuation of Wine as a Means for Portfolio Diversification
	Lucey & Devine (2015)	Was wine a premier cru investment?
	Masset, Ph. And Henderson, C. (2009)	Wine as an alternative asset class
	Masset, P. and Weiskopf, J. (2010)	Raise your Glass: Wine Investment and the Financial Crisis
	Masset, P. and Weiskopf, J. (2015)	Wine Funds: An Alternative Turning Sour?
	Masset, P. et al. (2016)	Analyzing the risk of an illiquid asset The case of fine wine
Masset, Ph. and Weiskopf, JP. (2010)	Wine Investment: Impact of the Crisis and Outlook	
Outreville, JF. And Le Fur, E. (2019)	The price of wine as consumer good or investment plan: a survey	
Sanning, L.W., Shaffer, S. and Sharratt, J.M. (2018)	Bordeaux Wine as a Financial Investment	
Zimberoff, L. (2018)	Investing in Fine Wine is more Lucrative than Ever	

TABLE 10: FRAMEWORK IV: WINE INVESTMENT

Wine as an investment vehicle enjoys a particular popularity. It isn't attributed only by the positive moods towards wine generally. Wine as a hedonistic product will be consumed as well, so there could be a dual benefit. There is also volatility and a relatively stable value increase during longer investment periods. Furthermore, investing in wine is greenish, while it supports agricultural work, and socially acceptable as it doesn't influence in others' resources or reduce others wealth. In any case, wine investments can be seen as an investment in luxury as e.g., clocks or cars.

The risk of investment will be repaid in returns; the riskier, the more the resulting revenue, once a successful investment is sold. In the case of FW, the risks that could occur, can reduce notably the traded value. Summarizing some of the risks e.g., loss of the good, depreciation, bad ratings would be disastrous during an investment period.

The investment funds, that offer a range of items diversify the risk in assessing several producers and several production years. It is observed that FW has a constant increase of its value during time, but for this reason is even a stable investment with rather reduced risk. The final consumer of the traded good – FW – attributes the value based on his desire to eventually consume that good. Wines with several decades of ageing are rather common in this kind of investment. Additionally, it increases their value, because of the increasing of scarcity and of presumed drinkability.

In the following chapter, the literature findings will be explained in a more exhaustive way.

## **2.3. The Fine Wine Investment**

### **2.3.1. Production cost**

In the first instance there is the cost of producing FW. Like in most cases certain elements are kind of overlooked until they become critical. One such example is the cost of cropland. Not many wine producing countries and regions suffer from a lack of cropland. Yet Japan with its high-density population and scarce valuable cropland has not been able to develop a vibrant wine growing industry. The high price of their cropland has prevented this.

Marone et al. (2017) examine the cost of wine making in Tuscan Italy, which is a country producing significant volumes of wine but are not well represented in the category of FW.

They categorised the production chain of wine making into four phases:

- Phase 0: Production (from the vineyard to the grape)
- Phase 1: Processing I (from the grape to the fermented wine)
- Phase 2: Processing II (from the fermented wine to the aged wine)
  - o Sub-phase: Aging wine in wood
  - o Sub-phase: Bottling
  - o Sub-phase: Aging wine in bottle
- Phase 3: Marketing (selling activities)

the production factors are defined in the following table:

Item	Description
<b>Family labour</b>	Labour cost for members of the owner's family
<b>Non-family labour</b>	Labour cost for employees
<b>General costs</b>	Rents, administration, energy, insurance, consulting, training, financial costs, maintenance
<b>Depreciation</b>	For buildings, agricultural machinery, cars, trucks, vinification and bottling equipment, tanks, barrels, vineyard planting
<b>Variable costs</b>	Pest management, fertilisers, vineyard equipment and tools, subcontracting, fuels, commercial and distribution costs, packaging, DO certification
<b>Land opportunity cost</b>	Calculated as an annual interest on the value of land, net of vineyard planting cost

TABLE 11: WINE PRODUCTION FACTORS, SOURCE ADAPTED FROM MARONE ET AL. (2017)

Marone et al. (2017), came up with the following timeline diagram in which he explains that “The applied model considers that the winemaking production phases are considerably differentiated and in each of them it is possible to have the product of the previous phase, or one acquired externally as inputs”:

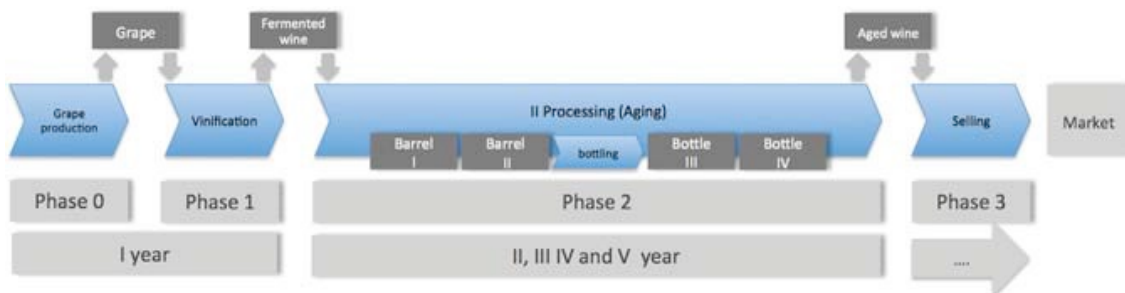


FIGURE 14: WINE PRODUCTION TIMELINE, SOURCE MARONE ET AL. (2017)

According to another point of view of FW trader Cult Wine (2020), Bordeaux wine has a similar timeline, with some regional adaptations, due to the particular “en primeur” sales option, which corresponds to a stock sale, before the good is even available.



FIGURE 15: BORDEAUX 2020 VINTAGE AVAILABILITY TIMELINE, SOURCE CULT WINE (2020)

The findings of the Hierarchical Cluster Analysis (HCA) came to elucidating findings:

- In a two-group setting, the production cost for wineries of standard quality and top-quality wine production differed significantly
- In terms of production phases, the costs of the first three phases (grape production, vinification and ageing) for the high-quality group are more than double those of the standard quality wineries
- In terms of production factors, the high-quality group shows higher values in all the categories, especially for common costs, depreciation, and non-family labour

The data show, that the high-quality group has a lower yield per hectare and a higher share of DO wine production in their portfolio, indicating a stronger attitude toward high-quality.

The production factor costs split the two groups into finer categories to come to the same conclusions.

Characteristics	Group 1	Group 2	Group 3	Group 4
	<i>"No Brand"</i>	<i>"Average Brand"</i>	<i>"Top Brand"</i>	<i>"Elite"</i>
n. of wineries	20	22	20	9
cost per bottle	4.39	4.20	7.33	11.21

TABLE 12: PRODUCTION FACTORS COSTS PER CATEGORY OF WINERY, SOURCE MARONE ET AL. (2016)

The main conclusion of the study is that the territorial aspect was found to have a pervasive influence on the cost structures of wineries. Thus, the territorial reputation linked to specific DOs goes far beyond being a contextual issue, as a specific localisation determines the quality of the final product, but also that the production of high-quality or FW, is crucially impacted in a negative sense by the phase factor costs i.e., the costs are much higher.

Then there is the link between the higher production costs and the accretion of value justifying such investment.

We have already mentioned that not all wines are suitable for investment, as their taste and value does not improve over time. Thus, wine quality is of utmost importance in availing wine that will prove to be a good investment as a FW. Jones and Storchman (2000) in their econometric study of Bordeaux wines examine the relationship between factors, that influence wine quality and those that influence price. Amongst the influencing factors they consider:

1. Climate influences on grape composition (acid and sugar levels)

2. Influence of grape composition on market prices
3. Subjective quality evaluations
4. The effects of age of wine on market prices.

The study related to Bordeaux wines specifically. We do believe there is more general validity in their finding that:

*"Aging has a positive effect on Bordeaux wine pricing. This is due to the increasing maturity as well as the increasing absolute scarcity. Absolute scarcity of product is expressed by the size of the property, with small properties producing less per vintage and therefore having less in the market."*  
*Jones (2000)*

This aspect will be reviewed in further detail in the next section. Possessing generations of traditional knowledge and being good at grape growing and winemaking are necessary and admirable, but not sufficient for survival in the new international wine marketplace. Mastering the formation of alliances with quality marketers and distributors is also essential, as is searching out and developing new markets in such places as East Asia, as affirmed by Anderson (2004)

### **2.3.2. Fine Wine as an Alternative Investment**

The market for FW, largely driven by the original French wines from the Bordeaux and Bourgogne regions has steadily and continuously grown since 1855. That year introduced a powerful marketing tool through its classification system, operating as an external recognition of corresponding quality of wine to be expected.

Expert connoisseurs and professional tasters of wine have built a system of classification of wines and vintages, that has contributed to today's functioning and pricing of the FW market.

Anderson (2004) observed, that in the last few decades this market has expanded to other regions in the world, including the USA California, Australia, South Africa, and Central Europe. Indeed, better production technologies have enabled those regions to produce high quality wine capable of competing with the wines emanating from the old world, namely France, Spain, Italy. Many of the brands produced in the new regions have truly become FW, investment in which does produce fruitful results.



Our research will be focussed in the next chapter on how to encroach further on the dominance of the French wines.

### 2.3.3. Attributes

FW are often mentioned in the company of other alternative investment vehicles like coins, stamps and paintings, and are considered to have a lot in common with those alternative investment vehicles.

We are of the opinion, that there still is a major distinction to be made. Firstly, from a purely hedonic point of view the three examples usually cited appeal to the visual sense to derive satisfaction. However, wine derives its hedonic value from the sense of taste, and perhaps a trifle from our olfactory sense. The implication is though that in the first set of alternative investments, the experience is repeatable “ad infinitum” without any diminishment in the value of the asset. Tasting a specific high-value wine on the contrary cannot be repeated infinitesimally. The experience leads to the destruction of the asset as an investment vehicle.

Secondly, the FW is not static in all its characteristics. Taste and composition do change over time with the uncertain tipping point where the perceived improvement of taste and quality reaches its peak, and no such further improvement is experienced or advised.

In a broader sense, this destructive experience increases the scarcity and adds value to the remaining bottles of the same FW. In the extreme, the investment in a certain wine would become a pure investment with no intention of consumption at all. With the complete unknown of the exceptional quality of the content is also associated the risk of not knowing. A case in point is the 1945 Romanée-Conti auctioned for 558,000 USD in 2018.

This phenomenon is alike to what is described in Milton Friedman’s “Money Mischief” from WH Furness III’s book “The Island of Stone Money”. Their “minted coins” for exchange consisted of large, solid, thick stone wheels, some too heavy to carry around. Being accepted as a medium for exchange, the possession and physical location became dissociated. The stones became a symbolic “Store of value”. The frequent trading on the basis of possession of stones constitutes a big difference with the Romanée-Conti wine, which is not an underlying asset of trade exchanges. The much-debated bitcoin does possess that feature and does not have a tangible or symbolic underlying asset, as the custodian of the store of value.

In our further analysis we will not revert to this extreme case. Most FW are considered an investment for later consumption, the reward of the investment being a willingness by the market (purchasers) to pay a higher price for the aged wine, offering a return to the investor and heightened a presumed hedonic pleasure to the consumer.

#### 2.3.4. The price of wine

The inherent quality of the wine appealing to the sensory satisfaction of its consumption will always be the cornerstone to building a FW and a corresponding price. However, in today's world that is not enough. Many other branding and marketing factors do influence the price of wine. Oczkowski and Priilaid (2012) observe that, unlike objective wine characteristics such as cultivar and vintage, a wine's quality is difficult to assess dispassionately and precisely. Terroir for one is a matter of significant importance the French know and understand very well. Châteaux ranks up there with terroir and for high value investment wines provenance and packaging condition. We mentioned that the New World, benefiting less from high volumes and long-standing trading at auctions is however gaining traction. Good-quality wine from new regions such as California, Australia and South Africa are supported by increased online sales and rankings by professional tasters.

This isn't uncommon, when one is familiar with Kahneman et al (1982) ground-breaking work "Judgment under uncertainty. Heuristics and Biases" about the fallacies of expert knowledge:

*"It is a common observation that psychologists who conduct selection interviews often experience considerable confidence in their predictions, even when they know of the vast literature that shows selection interviews to be highly fallible."*

While Weil (2001) in "Parker v Prial: The Death of the Vintage Chart" submits expert tasters to distinguish wines of and appalling and excellent vintage:

*"The 240 wine drinkers on whom I've systematically tested Prial's hypothesis cannot distinguish between wines of good and bad vintages, except for Bordeaux, and even when they can distinguish, their preferences and the chart's do not match better than a random process would imply. ...while 55 percent of 170 testers could distinguish the Bordeaux 1991 from the 1994, only 55 percent of those preferred the higher-rated 1994."*

Regardless of this puzzling finding, wine ranking by reputable tasters does have a significant influence on the value of wine. They are supported by other novel rating technologies. For instance, the prediction of wine quality using text reviews. Mandy Gu (2019) produces with some success a table of words and the frequency of their use in reviews as predictors of wine quality.

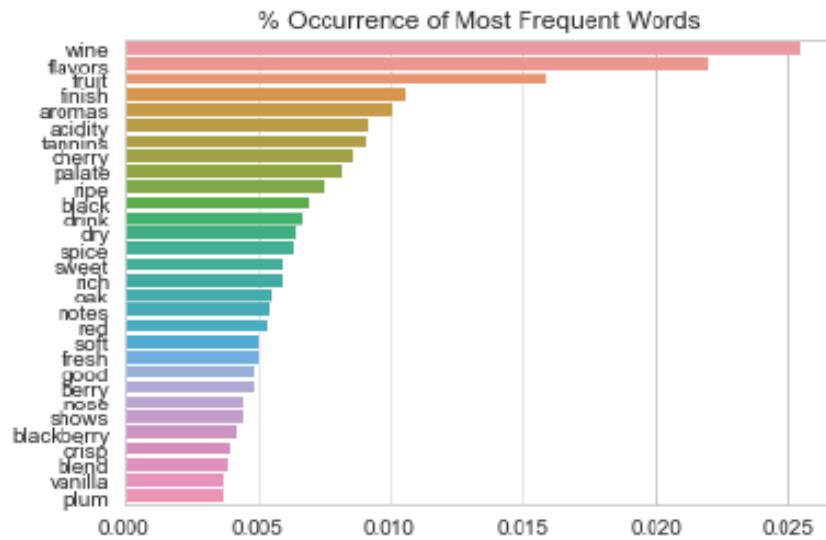


FIGURE 16: TABLE OF OCCURRENCE OF WORDS FOR THE DETERMINATION OF WINE QUALITY, SOURCE MANDY GU (2019)

The body of expertise in recognising quality wine outside of the extreme conditions of blind testing, should also not be underestimated. The value add from reputable ranking experts do greatly influence pricing. In a separate study by Ali (2005), “The impact of gurus: Parker grades and *en primeur* wine prices”, an in-depth analysis is made of the influence of Parker grades on wine pricing in terms of ATET.

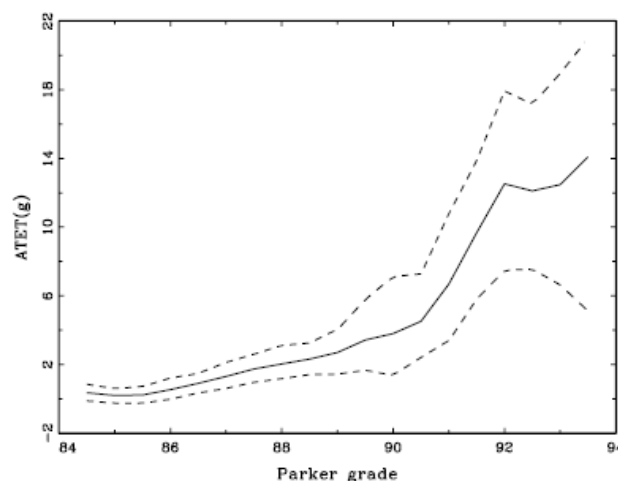


FIGURE 17: ESTIMATION OF ATET AND 95% POINT-WISE CONFIDENCE BAND, SOURCE ALI (2005)

It is clear and according to the study, especially for high quality wines, that the raking does have a significant effect on pricing. As an aside, it was expected that low quality

wines would get a negative ATET but did not, which was interpreted that the low in price and low-quality wines in the sample were in reality still good wines. An interesting alternative view was developed by Priilaid and van Rensburg (2012), where they do analyse customer facing price-value and the importance of ratings. Besides pricing and branding, the South African “John Platters wine rating” was included in the quest for mismatching of prices. Amidst the conclusions of relevance are that consumers end up selecting fairly priced wines and producers knowing the market have an opportunity to price their wines from loss-leaders to premium brands, providing a means of repricing strategies. Market forces will eventually move wines within range of fair value. Priilaid and van Rensburg (2012) map many South African wines along the fair value regression line and shows how the majority fall close to that line.

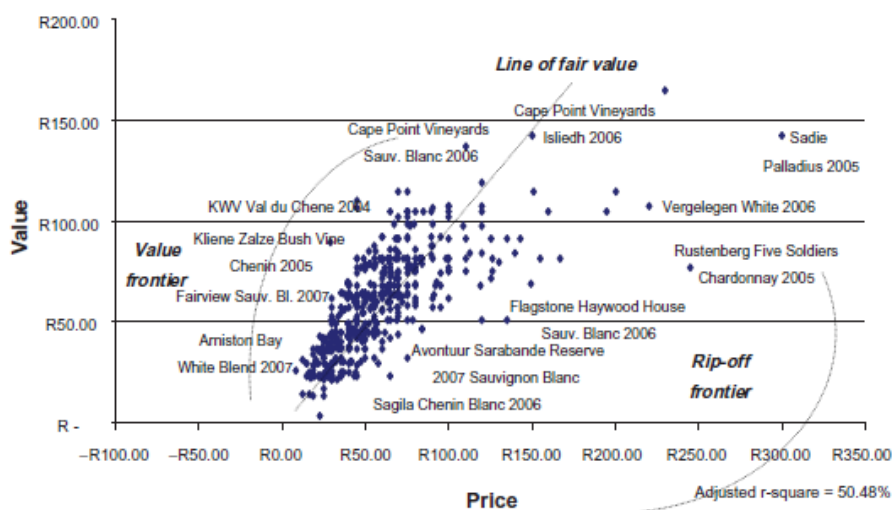


FIGURE 18: FAIR VALUE ESTIMATE OF SOUTH AFRICAN WINES, SOURCE PRIILAIID & VAN RENSBERG (2012)

In conclusion, Bombrun (2003) summarises some observations of the value of attributes in her research on Californian wines. She comes to the conclusion that the variables, such as score, age at release, grape vintage, and the label designations, as vineyard, estate, and reserve, explain 72% of price variations, and that a higher score, meaning tasting score, results in a higher weighted average price.

### 2.3.5. Wine as an investment vehicle

With the remarkable progress of publicly traded FW in regular prestigious auctions, and repeat sales of the same wine, a true market of investment in FW has developed. Due to the nature of FW and its peculiar characteristics, one cannot yet, and probably will never be able to compare to the classic and comparatively huge stock markets of equities, bonds, commodities and derivatives. FW has however grown to volumes and

trade records that enabled it to carve a niche in the investors' playground, and large enough to have spawned plenty research in FW as an investment vehicle. The handicap remains that individual FW is not traded electronically every second of a trading day. Auctions are the main source of establishing a market value for a given FW; it also implies that a sufficient number of repeat sales materialise over time to establish progress and variability of the price of a FW. Measurement adaptations of existing models are prevalent. Selected articles will review the growth in value of FW, the correlation of the "alternative investment vehicle" with the traditional investment instruments, the issue and impact of relative illiquidity, another look at what are the constituent elements of creating value for a FW and finally the influence and benefits of the dominant French wine in this segment on other wine producing regions. The majority of growth focussed papers and research have in common that the growth numbers are good, compared to other investment instruments. Different results are obtained for different wines, different time periods and different measurement methods for the alternative investments. A general view on returns on wine investment is illustrated in the following graph, where interestingly the gold price shows some exceptional fluctuation post the 2008 financial crisis. As part of a flight into "safe haven" investment reaction, FW values also showed a noticeable upward trend, but less so than gold, demonstrating in fact a lower volatility in turbulent times. The generality is derived from the method used by Aytaç et al. (2015), using Liv-ex indices and WineDex, the latter being proposed by iDealwine, an online platform for wine investment in France:

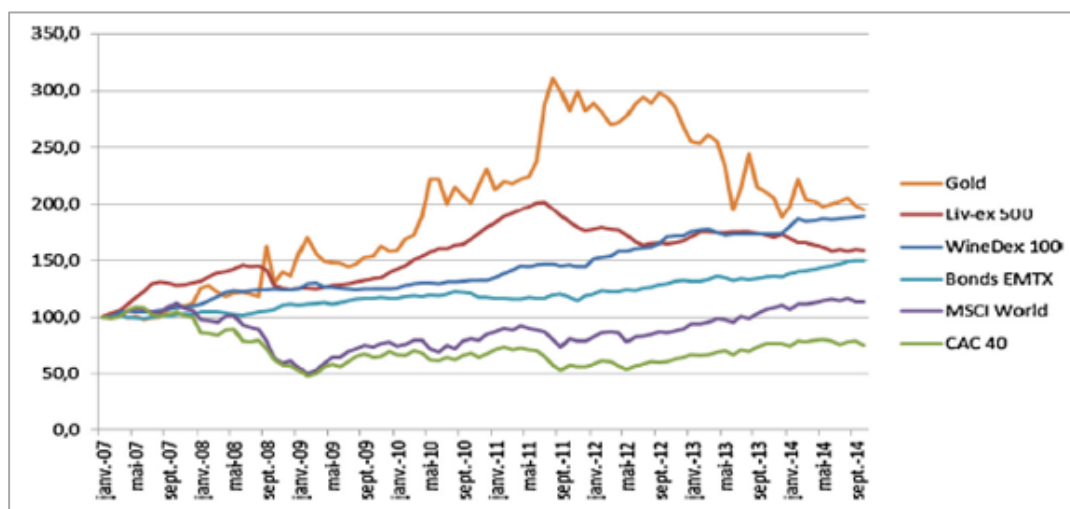


FIGURE 19: DYNAMICS OF WINE, GOLD, STOCK AND BOND PRICES FROM JAN 2007 TO OCT 2014, SOURCE AYTAÇ ET AL. (2015)

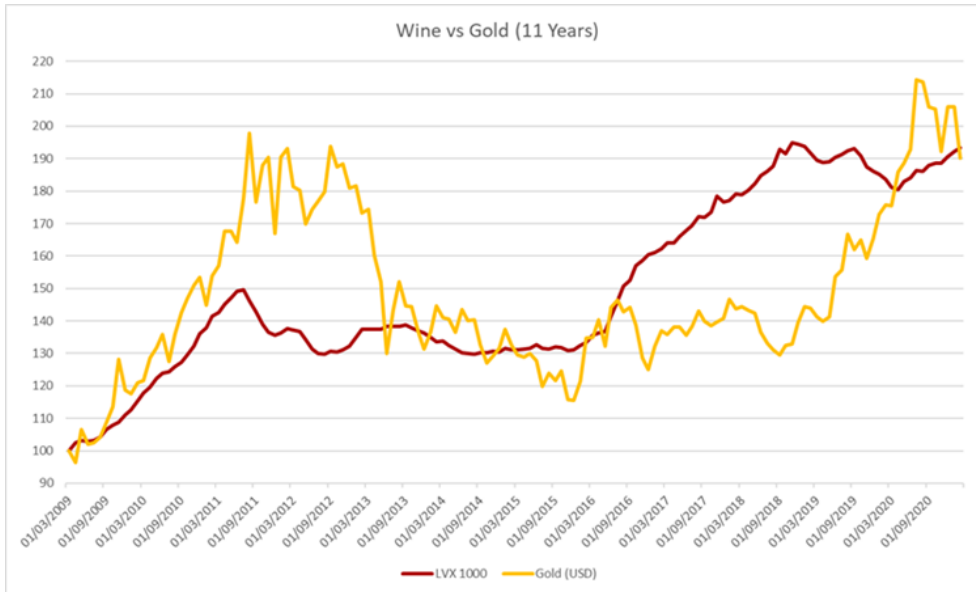


FIGURE 20: STABILITY OF WINE INVESTMENTS COMPARED TO THE GOLD PRICES IN A RECENT 11 YEAR PERIOD, SOURCE CULT WINE (2020)

The illustrations above show the fairly stable and yet performing investment in wines as borne out by wine indexes. In another study of relevance in this context, the alternative presentation of the performance of investment in FW shows exceptional returns for this class of investment:

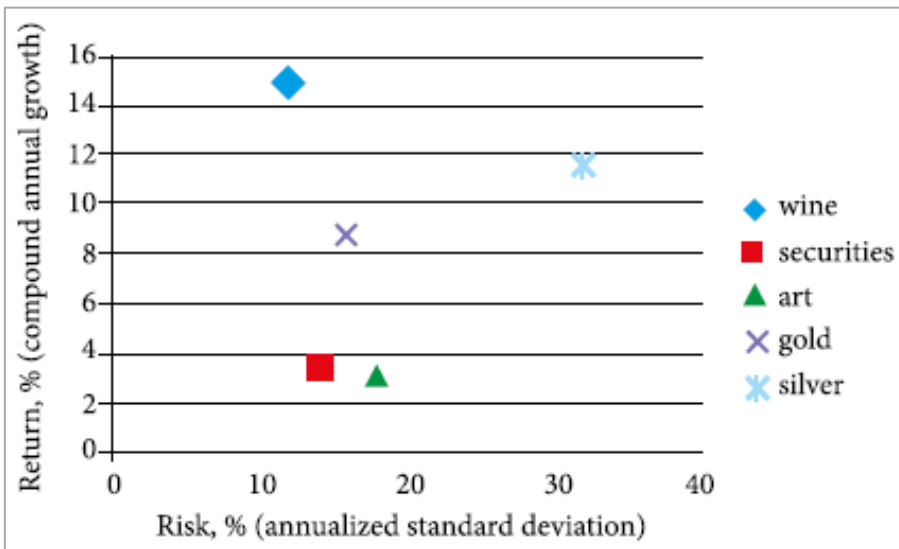


FIGURE 21: RISK AND RETURN OF ALTERNATIVE INVESTMENTS AND STOCKS DURING 1992-2011, SOURCE JUREVICIENE (2015)

The risk, within the domain of risks identified for traditional investment classes e.g. poor price performance, lack of buyers etc., for FW is generally found to have a low risk profile as indicated in Jureviciene:

The name of an investment tool	Return (%)	Risk (%)
Wine (Fine Wine Investable index)	13.47	12.00
Equities (S&P 500 index)	6.05	15.39
Bonds (US 20-Year treasury constant maturity rate/ DGS20)	5.29	1.29

TABLE 13: RETURN AND RISK OF SELECTED INVESTMENTS, SOURCE JUREVICIENE (2015)

Just for information about the relevance of data selection, a graph illustrating the wine index against the Dow Jones:

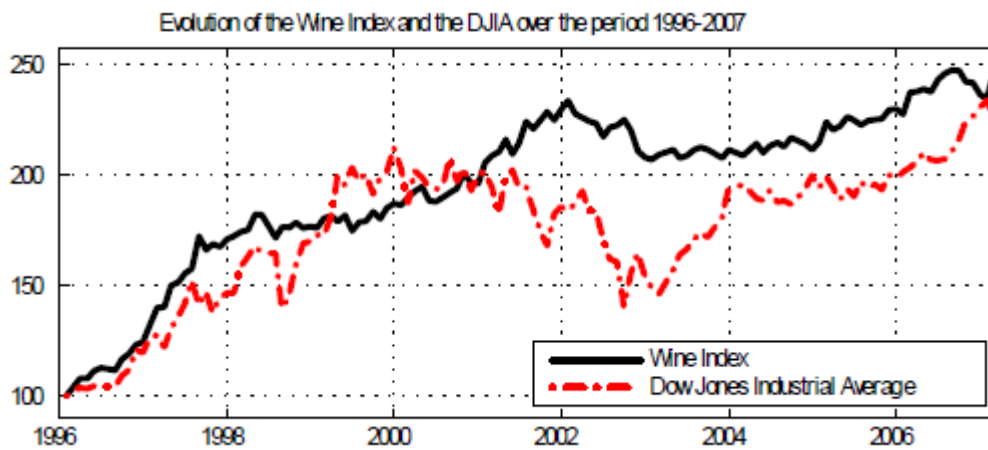


FIGURE 22: COMPARISON INVESTMENT INDICES, SOURCE MASSET (2009)

On the basis of the above the return on wine investment - in the 1996-2006 period- did not outperform the stock market in the US, as Masset (2009) identified.

Accepting the findings of lower risk, FW has the added advantage to have been found to have a low correlation with stock market movements.

*“The correlation analysis obtained between Fine Wine Investable and S&P 500 indexes shows a weak correlation of 0.46 and proves that wine could be used for portfolio diversification.”*  
*Jureviciene (2015)*

This offers tremendous scope for better performing investment portfolios FW is part of the assets.

### 2.3.6. Risk elements

No risk in absolute terms does not exist for any asset class including government bonds and so on. FW does carry some risks of its own that are not found in the traditional stock and bond assets. Experience has enabled traders to recognise those risks and find remedial actions to counter the advent of such risks. An example of specific wine risks is illustrated here.

*“Of course, in the world of collectibles there are risks. Famously, there was the cataclysm that befell WineCare, a storage business in New York City that flooded during Hurricane Sandy in 2012.”  
Zimberoff (2018)*

The advice given is to have appropriate insurance. Make sure the assets are stored in a sophisticated, static, temperature-controlled facility inside a government-bonded warehouse, which keeps the wine exempt from taxes and duties, and includes an insurance policy that covers up to 110 percent of the market value. Each bottle has a “passport,” like a bar code, that’s recognized within the FW trade and ensures it has been checked for provenance and condition. The implication is, that there is a non-trivial cost associated with the storage and provenance tracking of FW. One key consideration of Warren Buffet’s advice on investing is low cost. Low cost compared to traditional investments is a challenge for the FW asset class.

The factors of influence are:

- a need for specific knowledge
- low liquidity
- high dependence on climatic conditions
- difficulty in establishing the real price, and, due to transactions made not in the auctions or exchanges
- a lack of publicly available recorded data.

The table below summarises the most important comparative characteristics:



Advantages	Disadvantages
Little correlation with traditional investment instruments	Requires some funds and knowledge
Higher return than of traditional investment instruments	Difficult to determine the current market price
Wide range of investments	Rather illiquid
Accessible emotional satisfaction (in some cases)	Alternative markets are less informative than those of traditional tools
	No periodic income

TABLE 14: RETURN AND RISK OF SELECTED INVESTMENTS, SOURCE JUREVICIENE (2015)

Bouri (2018) in “Is wine a good choice for investment?”, reaches a similar conclusion in respect of the risk reward composition of wine investment in his research, finding that wine has amongst the highest return but also amongst the highest standard deviation, stating that “Wine prices are highly volatile”.

### 2.3.7. Improving illiquidity and Wine Investment funds

Illiquidity is increasingly recognised as a negative influence on prospective performance of an investment. The perception of risk associated with illiquidity, increases expected returns and affects the profile of investment in such assets.

Several researchers have applied the “Sharpe-Lintner Black-Sholes Capital Asset Pricing Model” and the “Fama-French three factor CAPM Model” to test, how wine investment would fit. Most did find positive alpha, and or attractive risk-return profiles. (Sanning (2008) and Masset (2010) exemplify the findings:

*“The practical aspects of illiquidity are:*

- *A lack of liquidity directly affects asset returns and their statistical features. Many wines do not trade on a regular basis and, hence, their prices often remain constant for several weeks*
- *Fine wines, similar to other illiquid assets, also tend to react much less rapidly to new information than stocks or bonds*
- *Illiquidity may also result in substantial direct costs (due in particular to the bid–ask spread) and price-impact costs (due,*

for instance, to wine funds having to unwind some of their positions) for investors. Consequently, investors expect compensation for investing in illiquid assets

- Apart from direct and indirect costs, illiquidity may also result in a “liquidity risk premium.”

The extensive paper by Masset et al (2016) concludes, that the limitations caused by illiquidity of FW in comparison to traditional stock and bond investments cannot entirely be overcome. However, knowing the higher risk, appropriate returns are associated with the investment.

Wine funds go a long way towards improved liquidity and a practical tool towards investment class diversification. Investment funds offer their services in advising, consult, trade and administer the stock of the pursued wines in dedicated warehouses in order to offer the best conditions for aging. It is common use to offer diversified wine portfolios, where French wines are dominantly present, following the overall global demand, but recently other wine producing areas are offered as investment worthy ones. We can list rather known brands from Italy, Spain, USA and amongst other new entities, GW have been listed recently and subsequently offered actively. It took several decades to note this development. Below is a graph of various wine funds and how they perform:

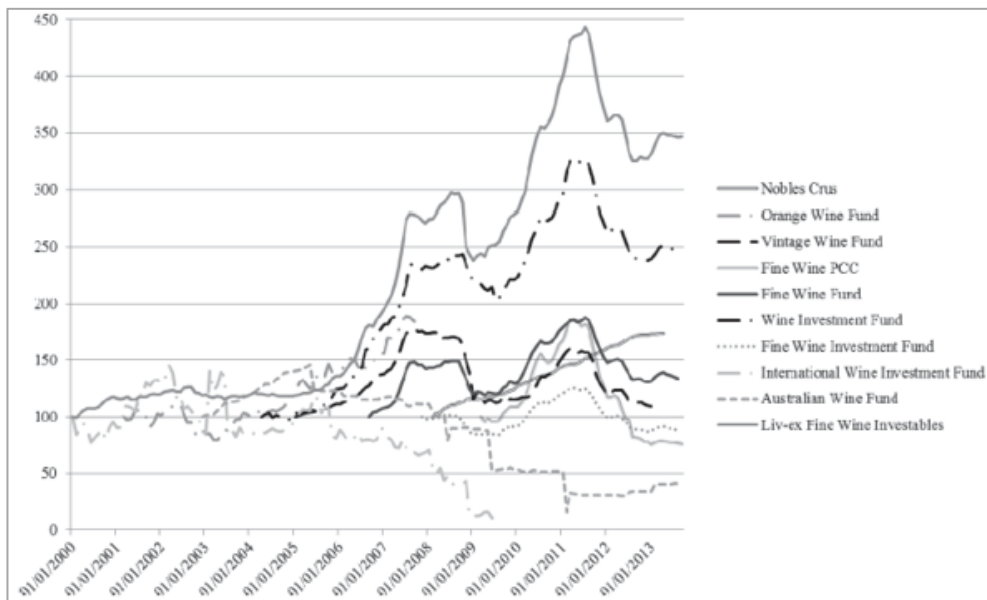


FIGURE 23: EVOLUTION OF NINE WINE FUNDS IN LOCAL CURRENCY AND THE LIVE-EX INDEX FOR JAN 2000 TO SEP 2013, SOURCE MASSET & WEISSKOPF (2015)

## 2.4. Markets for Fine Wine

It may be intriguing that Germany and Austria have not prominently featured in the literature review. In a speculative sense we posit, that this may be that the German and Austrian region is seen as an established region for well-known white wines, e.g., Riesling and Grüner Veltliner. Also compared to the classic Western Europe wine region, namely France, Italy Spain and Portugal, its per capita consumption is much lower as well as, its exports which by the looks of it, are limited to Western European countries. Austria and Germany are both listed under WEN. For reference, the full table as in Anderson's book is listed here:

		Vine area ( <sup>'000</sup> ha)	Wine production ( <sup>'000</sup> hl)	Wine consumption ( <sup>'000</sup> hl)	Wine consumption (l/capita)	Wine exports ( <sup>'000</sup> hl)	Wine exports (US\$ mill)	Wine imports ( <sup>'000</sup> hl)	Wine imports (US\$ mill)	Wine exports (US\$/litre)	Wine imports (US\$/litre)
WEE	France	915	58740	35072	59.4	17125	5696.5	6618	483.9	3.32	0.73
	Italy	908	53125	30732	53.3	19336	2471.0	695	203.4	1.28	2.98
	Portugal	260	7189	5044	50.1	1845	487.8	2015	125.9	2.65	0.64
	Spain	1175	35514	14430	36.6	10237	1349.0	858	103.0	1.34	1.59
	Total WEE	3258	154567	85279	78.6	48544	10004.3	10187	916.2	2.06	0.90
WEN	Austria	50	2493	2415	29.8	409	40.9	592	116.3	1.04	1.97
	Belgium-Lux.	1	167	2575	24.1	242	87.1	3213	787.2	3.72	2.45
	Denmark	0	0	1552	29.1	159	41.8	1840	373.2	2.68	2.05
	Finland	0	0	387	7.5	2	0.7	439	88.9	3.80	2.04
	Germany	104	10292	19453	23.7	2492	393.8	13669	2050.5	1.58	1.50
	Greece	127	3946	2789	26.4	465	59.3	333	24.9	1.31	1.20
	Ireland	0	0	419	11.1	8	1.4	473	145.0	2.07	3.07
	Netherlands	0	0	3643	22.9	185	78.4	3997	786.1	4.24	1.98
	Sweden	0	0	1200	13.5	24	5.4	1320	272.6	2.56	2.08
	Switzerland	15	1254	2953	41.2	21	34.8	1956	635.8	17.94	3.25
	United Kingdom	1	14	9597	16.1	270	125.5	11365	2617.1	4.65	2.31
	Other WEN	20	548	581	9.3	259	13.0	691	165.8	0.50	2.40
	Total WEN	318	18713	47563	17.1	4536	882.2	39889	8063.4	1.95	2.02
	CEF	Azerbaijan	46	335	402	5.0	24	0.4	2	0.3	0.19
Bulgaria		112	2042	1748	21.4	854	76.7	18	1.4	0.88	0.76
Croatia		59	2026	2013	45.7	107	9.8	33	3.3	0.92	1.12
Georgia		66	1060	786	15.2	168	24.7	6	0.4	1.51	1.42

TABLE 15: SUMMARY OF THE WORLD'S WINE MARKETS 1996-2001 – PART I, SOURCE ANDERSON (2004)

	Vine area ( <sup>0</sup> 000 ha)	Wine production ( <sup>0</sup> 000 hl)	Wine consumption ( <sup>0</sup> 000 hl)	Wine consumption (l/capita)	Wine exports ( <sup>0</sup> 000 hl)	Wine exports (US\$ mill)	Wine imports ( <sup>0</sup> 000 hl)	Wine imports (US\$ mill)	Wine exports (US\$/litre)	Wine imports (US\$/litre)	
	Hungary	103	3913	3028	30.0	803	66.8	38	3.9	0.83	1.05
	Moldova	130	1771	522	12.2	1874	123.3	21	0.8	0.66	0.58
	Romania	249	5655	7230	32.2	331	20.2	33	2.6	0.62	1.24
	Russia	68	2935	11067	7.6	13	1.0	2435	192.7	0.87	0.79
	Ukraine	116	673	413	0.8	125	14.8	100	11.7	1.18	1.66
	Uzbekistan	126	1354	1453	5.9	69	3.6	0	0.1	0.52	3.00
	Other CEF	273	6008	10821	8.4	550	30.9	2481	184.0	0.70	0.74
	Total CEF	1347	27772	39483	11.4	4918	372.3	5168	401.1	0.76	0.78
ANZ	Australia	137	9289	3868	20.2	3146	844.1	168	61.7	2.72	3.73
	New Zealand	13	578	639	16.7	183	75.6	315	60.1	4.12	1.93
	Total ANZ	150	9867	4508	19.6	3329	919.7	482	121.7	2.79	2.53
USC	Canada	7	465	2550	8.3	23	7.4	2344	577.3	3.38	2.46
	USA	407	22050	21486	7.7	2762	518.5	5195	2074.3	1.88	4.01
	Total USC	415	22515	24036	7.7	2784	525.9	7539	2651.6	1.89	3.53
LAC	Argentina	208	13507	12895	34.8	1092	161.6	139	20.0	1.52	1.49
	Brazil	61	3298	3293	1.9	74	4.2	297	88.8	0.56	2.99
	Chile	162	5742	2696	17.7	2703	588.3	51	5.4	2.18	1.23
	Mexico	40	51	187	0.2	48	5.5	227	55.7	1.14	2.52
	Uruguay	11	1070	1073	32.2	29	6.2	96	11.4	2.13	1.20
	Other LAC	20	236	966	0.5	9	1.6	922	184.3	1.81	2.00
	Total LAC	501	23904	21110	4.0	3955	767.4	1732	365.7	1.94	2.11
AME	South Africa	116	8326	3952	9.2	1487	224.7	81	10.5	1.53	1.31
	Turkey	566	313	246	0.4	50	6.2	6	3.0	1.28	5.47
	North Africa	204	1254	1198	1.0	180	16.0	47	8.5	0.92	2.07
	Middle East	6	115	1392	0.2	10	0.9	1458	121.1	1.62	0.85
	Other Africa	495	272	228	0.1	27	11.5	102	33.9	4.52	3.48
	Total AME	1386	10280	7016	0.7	1754	259.3	1695	176.9	1.50	1.06
APA	China	268	5717	5783	0.5	47	6.5	294	27.4	1.38	1.03
	Japan	22	1270	3295	2.6	7	2.3	2096	770.4	3.40	3.69
	Other NE Asia	36	0	344	0.5	10	6.3	322	113.9	6.07	3.55
	South east Asia	4	0	196	0.0	41	66.9	358	154.8	16.23	4.36
	Other APA	65	4	686	0.1	19	0.9	200	52.0	1.15	2.64
	Total APA	394	6991	10305	0.3	125	82.9	3271	1118.3	6.90	3.42
World		7769	274610	239300	4.0	69946	13813.9	69961	13815.1	1.98	1.98
Memo	EU-15	3541	171479	129309	34.4	52800	10838.7	47429	8178.1	2.05	1.72
	NWWG	1061	61027	49159	11.4	11425	2426.4	8388	2820.7	2.13	3.37

TABLE 16: SUMMARY OF THE WORLD'S WINE MARKETS 1996-2001 – PART II, SOURCE ANDERSON (2004)

There is another table in the book worthy of noting as it sheds light on the advances in wine exports by the New World countries:

	Top 5's share of national wine production (%)	Average wine sales of top 5 firms (US\$ million)
Old World		
France (excl. Champagne)	13	330
Italy	5	125
Spain	10	190
New World		
United States	73	750
Australia	68	310
New Zealand	80	na
Argentina	50	97
Chile	47	90

TABLE 17: FIRM CONCENTRATION WITHIN THE WINE INDUSTRY IN 2000, SOURCE ANDERSON (2004)

To be noted is a very high concentration of wine production in the New World countries especially in New Zealand, which however produces relatively small quantities.

The last table, we wish to reproduce before commenting is a table about the network of international trades in wine. These companies are besides the auctioneers and online sales organisations. Their influence is not negligible though. Of note is, that there is a German company among the lists.

Company name	Turnover (€ million)
LVMH (France)	1783
E. & J. Gallo (USA)	1710
Foster's Group-Beringer class (Australia, USA)	915
Seagram (Canada)	899
Constellation Brands (USA) <sup>a</sup>	793
Southcorp-Rosemount (Australia)	747
Castel Brothers (France)	701
Diageo (UK)	656
Henkell and Söhnlein (Germany)	595
Mondavi (USA)	564

*Note:* <sup>a</sup> Constellation purchased Australia's BRL Hardy during 2003, which made it the world's largest wine company.

*Source:* Centre Français du Commerce Extérieur.

TABLE 18: MAJOR MULTI-COMPANIES INVOLVED IN INTERNATIONAL WINE TRADE, SOURCE ANDERSON (2004)

Austria and Germany have a long history of producing quality white wines, less so for red wines, but have not emerged as "wine country" the way France and Italy have. Austria and Germany have also not grown their wine industry, the way a number of New World countries have. California in the US, Australia and Chili for instance, have managed to overtake Germany.

The New World countries have focused on new markets. Indeed, as the standard of living increased in Asian countries, their wine consumption has more than proportionally increased, exactly the way it went in Europe from the late 19<sup>th</sup> century. It has nevertheless not been without its risks. Wescott (2021) reported Australia, who over a decade carefully invested in and build market share in China to \$840 million exports by 2019, its biggest market, lost that market in 2020, due to political disagreements between the countries; sales have effectively come down to zero according to Tabhblik Winery.

As for Austria, it is noted that wine consumption declined for 2 years in a row:

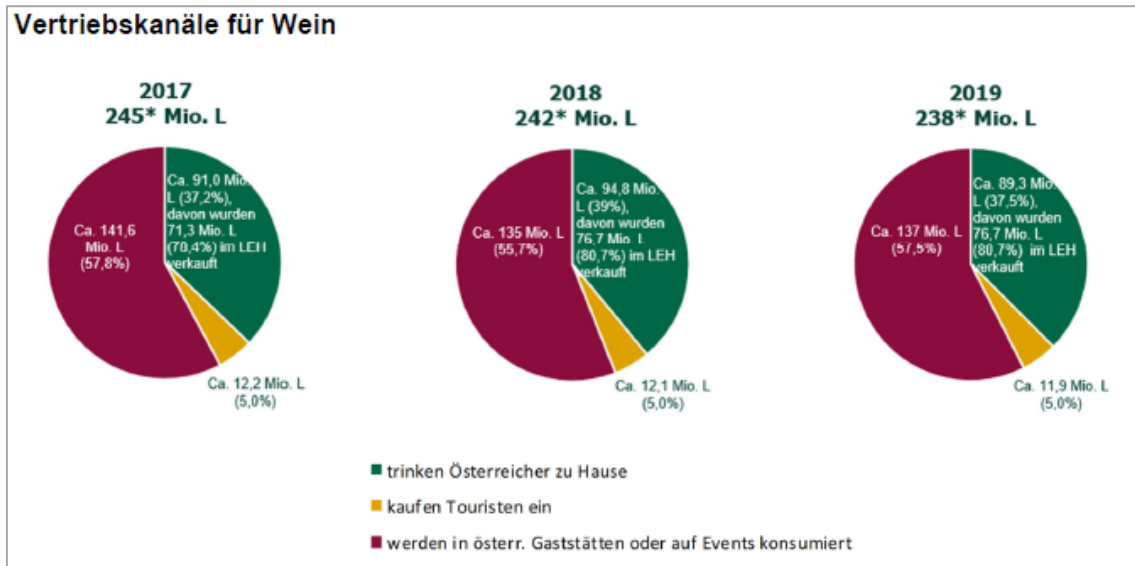


FIGURE 24: DISTRIBUTION CHANNELS AND VOLUMES FOR AUSTRIAN WINE 2017 – 2019, SOURCE ÖWM (2020)

This is against the trend in very many other countries. The purpose of the thesis intends to make a contribution to the reversal of this trend.

Austria and Germany have indeed all needed factors to succeed in the intent, to be part of the international FW trade. FW could be an important vehicle for the overall wine sales of CEWI.

## 2.5. Summary

The functioning of the investment world, with its risks and rewards, as far as FW is concerned, should be borne in mind when a stronger push is made by AW and GW to gain a far bigger market share in that environment. While it is clear that FW investment is rewarding, the risks of for instance price fluctuations and many other wine specific risk factors, should not be ignored. Activating latent demand for FW is still dependent on price range, most likely higher cost of production and many exogenous factors such as reputation associated with provenance, expert wine taster ratings and recognition of vintage years. The German and Austrian FW market, although longstanding, has not reached the level of sophistication and volumes of trade it could achieve. A thorough understanding of the functioning of international markets, price determinations and wine as an investment class are a prerequisite to develop a successful strategy to gain a meaningful representation in the FW market and at the international scene.

The wine market for FW is thriving and growing. Consumption keeps increasing most notably in New World countries. The demand is sustained even though it was noted that in Germany and Austria themselves growth was not there in the last year on record. The view prevails, that FW is a rewarding investment vehicle, where growth in value outperforms alternative traditional investments, and is recommended, the higher risk profile notwithstanding. In a more professional investment environment, it is especially recommended as an excellent asset class for the purpose of investment portfolio diversification, FW showing low to very low correlation with traditional investment classes of stock and bonds. An illustration of the world markets in wine, highlights that Austria and Germany, given their own long history of quality wines are possibly under-represented in the trade of FW. It also seems, Austria and Germany have lagged in the drive to gain market share in the new markets, where consumption growth is much higher than in the traditional markets. Better performance in sourcing and selling FW by Austria and Germany certainly falls within the ambit of the possible. Through an investigation of players in the wine market, the thesis aims to gain a better insight into the thinking and aspirations of the operators.

In the next chapter we investigate by way of an elite survey, how opportunities in the quality aged wine and wine as an investment class with aspirations for a larger share in the international FW markets are viewed.

## **3. METHODOLOGY**

In the literature review various aspects were examined, the production cost, the price of wine and briefly the market statistics of wine production, consumption and exports. By far the strongest interest in the literature focuses on FW, in other words high-quality wine. It is reasonable to infer, that high-quality wine is where differentiation and profitability prevail. To approach to the information, which can help to answer the research questions, several instruments are discussed in the following sections.

### **3.1. Selection of methodology**

The intention of the research is the gain insight, into what and how interviewees think about the wine industry. These interviewees are segmented in three categories i.e. wineries, gastronomy and retail. Each category might develop different views on how to progress the CEWI. Wineries would have a strong interest in wider and deeper market access, gastronomy might have look to diversification and high-quality wines to offer for consumption and obviously retail's interest would possibly be slanted towards value for money perception to improve sales. A form of multi-dimensional scaling, as we believe, will bring some insight into the fundamental dimensions that determine decision making in wine investment and consumption.

#### **3.1.1. Research design**

In the figure below, Strang (2015) describes eloquently the design typology and the research cycle from ideology to techniques, which type of data lend themselves to which type of analysis. We are also guided by this overall figure in the selection of research design:



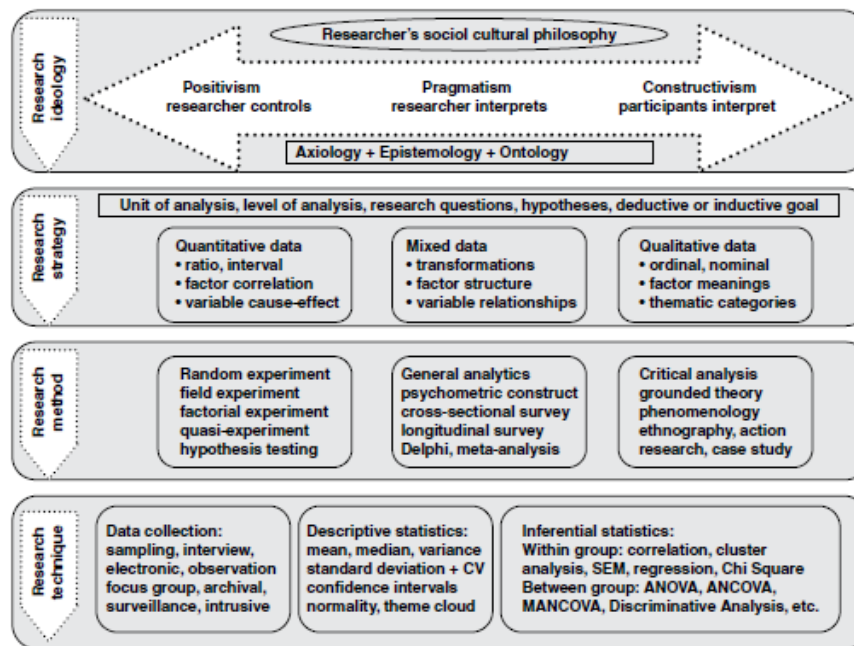


FIGURE 25: RESEARCH DESIGN TYPOLOGY FULL MODEL, SOURCE STRANG (2015)

In order, to perform some statistical analysis, a suitable sample design becomes a prerequisite. We do accept, that a small sample will have limitations but may nevertheless produce some interesting dimensions in the thinking of the interviewees. Whilst we recognise the limitations of a small qualitative sample, we believe that a review of sample design, will help us obtain some results. Sample design is a procedure for selecting a sample from a population in a specific fashion. We are relying on Van Belle (2008) distinction, discussed in more detail later, between accuracy of validity, depending on design and precision, which depends on quantity. Pfeffermann & Rao (2009) cites several examples of sampling design with a statistical focus:

- simple random sampling with and without replacement
- random sampling with unequal probabilities, again with and without replacement
- systematic sampling with equal or unequal probabilities
- stratified sampling, in which the population units are first classified into groups or “strata” having certain properties in common
- two-phase sampling, in which a large sample is drawn at the first phase and a subsample from that large sample at the second phase
- multistage sampling, usually in the context of area sampling, in which a sample of (necessarily large) first-stage units is selected first, samples within those first-

stage sample units at the second stage, and so on for possibly third and fourth stages

- permanent random number sampling, in which each population unit is assigned a number, and the sample at any time is defined in terms of the ranges of those permanent random numbers that are to be in sample at that time

The parameters of the sampling procedures are clarified and useful:

- A sample estimate is a statistic produced using sample data that can give users an indication as to the value of a population quantity.
- A sample estimator is a prescription, usually a mathematical formula, indicating how estimates of population quantities are to be obtained from the sample survey data.
- An estimation procedure is a specification as to what sample estimators are to be used in a given sample survey.
- A sample strategy is a combination of a sample design and an estimation procedure. Given a specific sample strategy, it is possible to work out what estimates can be produced and how accurately those estimates can be made.

We derive the selection approach from the more detailed description of the sampling types, with a brief explanation of the type, their advantages and disadvantages from Miller (2002). He describes many possible approaches: Simple random, Systematic, Multistage random, Stratified and Proportionate, Optimum Allocation, Cluster, Stratified Cluster, Judgment to name some. All are considered appropriate and justified in “social measurement.” Evaluating the research strategy, the stratified and judgment approaches are selected. To be clear, we quote Miller (2002) in respect of the “Judgment” approach: “Select a subgroup of the population that, on the basis of information, can be judged to be representative of the total population, take a complete count or subsample of this group.” We strive to have a sample as representative as possible of the three sub-categories of interviewees, while we are mindful of the notion of spurious accuracy in statistics. According to Van Belle (2008) work “Sample size determines precision not accuracy. The selection process determines accuracy or validity”, the size determination of a sample depends in the main on differences of the mean; a sample mean compared to another sample mean or a single sample mean compared to a standard, and the variability in observations.

A plain explanation is found in Sullivan (2021). She includes using experience as a method of sampling, just warning, that it may lead to a relatively wide confidence interval. Her illustration offers a clear visual:

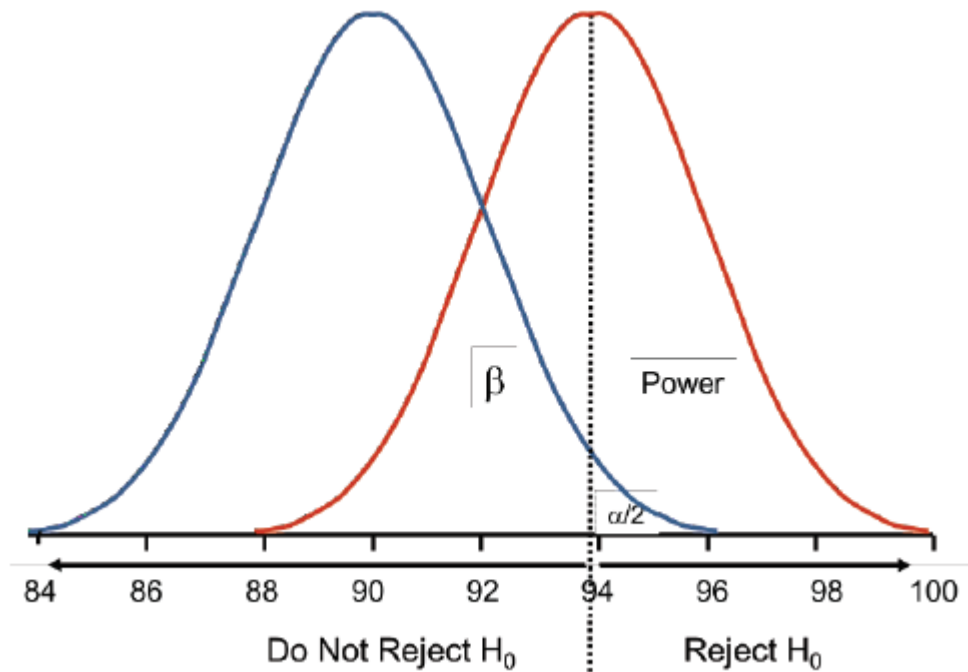


FIGURE 26: POWER AND SIZE DETERMINATION, SOURCE SULLIVAN (2021)

A basis of the rule to determine sample size, is the following statistical formula:

$$n = \frac{2 (z_{1-\alpha/2} + z_{1-\beta})^2}{\left(\frac{\mu_0 - \mu_1}{\sigma}\right)^2}$$

For  $\alpha = 0.05$  and  $\beta = 0.20$  the values of  $z_{1-\alpha/2}$  and  $z_{1-\beta}$  are 1.96 and 0.84, respectively; and  $2 (z_{1-\alpha/2} + z_{1-\beta})^2 = 15.68$ , which can be rounded up to 16, producing the rule of thumb:

$$n = \frac{16}{\Delta^2} \quad \Delta = \frac{\mu_0 - \mu_1}{\sigma} = \frac{\delta}{\sigma}$$

Where,

It is noted that in the use of the rule of thumb, the numerator of 16 is replaced by 8 in the case of a single sample.

Van Belle (2008) produces a summary table for sample determination:

Type II Error $\beta$	Power $1 - \beta$ Power	Numerator for Sample Size Equation (2.3)	
		One Sample	Two Sample
0.50	0.50	4	8
0.20	0.80	8	16
0.10	0.90	11	21
0.05	0.95	13	26
0.025	0.975	16	31

TABLE 19: NUMERATOR FOR SAMPLE SIZE FORMULA, EQUATION (2.3); TWO- SIDED ALTERNATIVE HYPOTHESIS, TYPE I ERROR,  $\alpha = 0.05$ , SOURCE SULLIVAN (2021)

It is therefore proposed that for each category a number of 4 is aimed for to allow for meaningful statistical inference. The draft questionnaires are attached in the appendices.

### 3.1.2. Pilot tests

There are several thousands of wineries, restaurants and retail partners within CE, as well as consumers and trade partners outside the designated area, which matter and could contribute to a better understanding. Anyway, even a large number of participants could not be statistically satisfying. With the short timeframe and budget of this research, it was not possible to extend the interviews and process them automatically. Hence, it was preferred for this work, to investigate at a reduced number of the listed participants. With this opportunity, usable insights are delivered and projected to deliver a reliable response to the research questions. For this reason, a common pilot test was chosen to achieve the mentioned goals. The data acquisition through an elite survey, where the participants could interact and gain precious quality replies, attribute an essential value to this type of test.

### 3.1.3. Selection of study site

As referred previously, the term CEWI could potentially include several wine producing countries. The area under investigation is limited to Austria and Germany solely. In this study site, all the selected interviewees are located as also most of the genuine consumption is taking place. For instance, this will deliver a better information of the current market for those wines. According to the DWI (2020) data about 11% of the produced German wine is sold outside the country, mainly to USA, Netherlands and Great

Britain. Austria performs similarly with 28% with the first three export countries in order Germany, Switzerland and USA according to ÖWM (2020). We will investigate therefore the current CEWI performance and its appeal.

#### 3.1.4. Survey and Questionnaire design

What concerns the retrieving of data, the needed information isn't currently available, so a questionnaire is the most feasible instrument. We conducted a survey with the chosen sample. The sample is composed of acclaimed professionals, which will lead us to an approach known as "elite interview". This sample will deliver not only some statistical relevant quantitative data, which once processed will deliver relevant results, but furthermore the professionals are able to explain some relationships, permit insights in the topic and open their network for the investigation. The sample selection procedures will be explained and assessed further in a dedicated section.

In the words of Mc Dowell (1998) this group of professional "elite" will be defined as "highly-skilled, professionally competent and class-specific". As described by Harvey (2011) in his "strategies for conducting elite interviews", elites are persons of exceptional knowledge and influence or in his words

*"... these people have significant decision-making influence within and outside of the firm and therefore present a unique challenge to interview"*

and need a dedicated attention and strategy to avoid pitfalls in questioning.

Further Harvey (2011) explicates

*"Over the course of interviewing many elite subjects, for example, I have found myself falling into a number of traps which could have been avoided."*

Following his experience, it is essential to approach with caution to the survey. The questionnaire has to reflect that potential pitfall and therefore following considerations leads to the proposed questionnaire design as in the appendix no.3:

- interviewers need to gain the trust of their respondents in order to collect high quality data, Harvey (2011)
- build a rapport with elite subjects from the moment they first contact them to the interview itself and beyond the interview, Ostrander (1993)

- transparency in providing respondents with information as who is conducting the investigation, nature of the research, how long the interview will take, how the data will be used, where the results will be disseminated and whether the information will be attributed or anonymous. Harvey (2011)
- During the interview researchers must show that they have done their homework because often elites might consciously or sub-consciously challenge them on their subject and its relevance. Zuckerman (1972).
- Let feel the interviewees as comfortable as possible in order to obtain high-quality responses. Harvey (2011)

We designed the questionnaire as mentioned in the appendices and managed to conduct them in a timeframe from 30 min up to one hour. Time is important to interviewees and as Harvey (2011) suggests that “too much time demand would cause a refusing in participation, while too less time would lead to a severe limitation in terms of provided quantity and quality data”. Hence, the survey has to be conducted in a rather clear and structured way, so that the respondent can follow the questioning and contribute timely. We came up with the following structure shown in this figure.

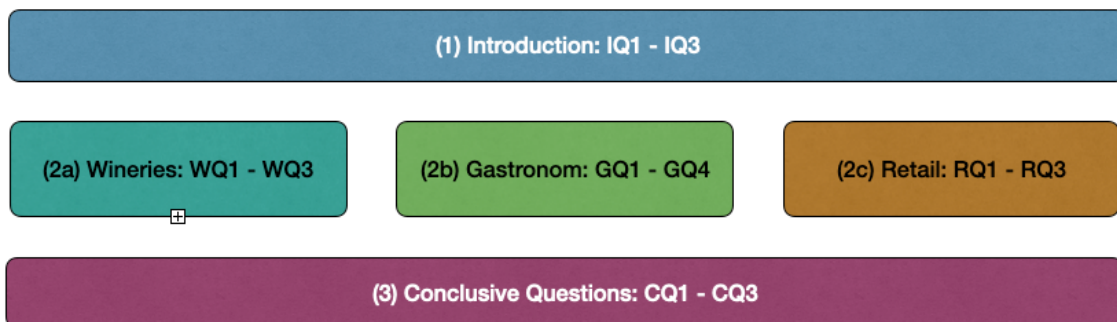


FIGURE 27: THE QUESTIONNAIRE DESIGN

Initially there is an introduction questioning, where we will ask common questions, or as we named (1) “Introduction Questions” or IQ from 1 to 3 and build up trust and prepare the interviewees to their contribution, which they will be asked for in the second section of the questionnaire. Here we differentiate between the area of competence of the elite sample. The different knowledge leads necessarily to a different approach. For this reason we could split up the sample in three category related question groups, namely (2a) “Wineries Questions” or WQ from 1 to 3, (2b) “Gastronomy Questions” or GC from 1 to 4 and finally (2c) “Retail Questions” or RQ from 1 to 3. The last section (3) “Conclusive Questions” or CQ from 1 to 3, is similarly to the introduction part, again a broader field and focuses on the appeal of AW and GW as a FW investment vehicle. We designed the questions as closed-ended ones, with some multiple-choice options

in order to structure the interview. However, it was stated since the beginning of the interview, that the interviewees are allowed to comment or to specify anytime if the proposed answer would not satisfy them.

It resulted in a “mixed method” data collection, even if the design of the questionnaire would suggest a typical quantitative survey.

We have been able to collect very precious comments in that way, as the professional “elite” would like to share their view and insight knowledge and articulate it in their own way instead to be forced merely in closed-end options. Dealing with high-skilled and knowledgeable groups is challenging, so the interviewer needs to be well prepared.

*“During the interview researchers must show that they have done their homework because often elites might consciously or sub-consciously challenge them on their subject and its relevance”.*  
Zuckerman (1972).

Initially the survey was designed as a face-to-face elite interview, but it has to be changed in a phone interview as the Covid-19 pandemic took out the option of traveling and attending personal meetings. Accordingly to Harvey (2011), the elite respondents appreciate flexibility of interviewing over a phone call because the low costs in terms of time and expenses, when a re-arrangement has to be organised and further

*“Stephens (2007) rightly argues that telephone interviews can be more time efficient for the interviewer and interviewee, particularly when they are located in different regions. Holt (2010) agrees that telephone interviews are an effective method, and she further argues that they should not be seen as a ‘second-best’ option to face-to-face interviews and in certain circumstances they should be considered as more favourable. One of the obvious advantages of telephone interviews is they are less limited by geography which can help to increase participation.”*  
Harvey (2011)

This applies even to our survey, where several interviewees needed to reschedule due incumbent work appointments. The vast area of DACH, where the survey takes places, has been covered time-effectively through the phone interviews, not neglecting the advantages of a personal chat of typical face-to-face interview.

Some of the contacted elite asked, if there was a need to prepare something for the interview. For that occurrence, we decided to deny any preparatory work or formular, since it could influence the quality of an elite interview. The respondent will have enough time and knowledge to reply to the questions during the interview. Conducting

the interview, the questions have been explained step by step, to permit a respondents' reflection and a calm response. We decided not to record the phone calls as Harvey (2011) reported in his paper "respondents feel uncomfortable in such a practice, mainly because the position of responsibility they cover normally let them avoid being recorded, in occasion of possible legal repercussions". We used our computer device during the call, to type in the closed-end answers as well as the qualitative contributions and asked again, before we passed to the next question, if the written content corresponds to the said. In this way we collected the data and could sagely manage the interaction with the interviewees.

The questionnaire results is complemented with qualitative content and, depending on the assessment of the content, decide whether and how to include this in the statistical treatment of the results. If critical information is revealed in the qualitative part, they are commented on separately. The statistical analysis treatment of the results consist of a factor analysis of the question results, which is interpreted in accordance with guidelines and knowledge gained of wine industry. The statistical techniques we are proposing, fall into the category of "Classification and Data Reduction methods". We will run several of them to ensure consistency in the interpretation of the results. It will be explained in more detail later in this work.

### 3.2. Sampling procedures

Amongst the wine industry, we individualised experts and trade professionals, who dispose of enough product and market knowledge, in order to deliver valuable contributes. Following three categories has been found, which reflect the necessary knowledge and experience: (1) wineries, (2) gastronomy, (3) retail. All three categories present a deep understanding of their costumers and the market from different perspectives: (a) the production, (b) trade and (c) consumption of FW. For this reason, the questionnaire design refers to those different approach and contribute to the needed knowledge for the research question.

	<b>(1) Wineries</b>	<b>(2) Gastronomy</b>	<b>(3) Retail</b>
<b>(a) production</b>	X		
<b>(b) trade</b>	X		X
<b>(c) consumption</b>	X	X	X

TABLE 20: SAMPLE PROPRIETIES



	Wineries	Gastronomy	Retail	Total
<b>Regions</b>	6	7	3	
<b>Interviewees per region</b>	5	6	10	
<b>Sample size</b>	<b>30</b>	<b>42</b>	<b>30</b>	<b>102</b>

TABLE 21: SAMPLE SIZE OF THE SURVEY CATEGORIES

	Wineries contacts	Response	Gastronomy contacts	Response	Retail contacts	Response
<b>Interviewees</b>	30	6	42	2	30	2
<b>Response rate</b>		<b>20%</b>		<b>5%</b>		<b>7%</b>
	Total Contacts		Response		Response rate	
<b>Overall</b>	102		10		10%	

TABLE 22: SAMPLE RESPONSE RATE DURING THE PERIOD OF JANUARY TO JUNE 2020

Generally, higher response rates are surely to prefer, although according to Fan & Yan (2010), in some cases, lower response rates do allow accurate measurement compared to surveys with higher response rates. However, the particular situation during the spread of the 2020 pandemic, resulted in a significant drop of the participants. The majority of those who replied denying any further interaction, motivated this decision with the distressing condition they have been confronted with. It would be of interest, to re-do the survey in a more comfortable interviewees' condition. The proposed timeline of this work did not permit any further delay.

The samples of the mentioned three categories, have been selected according to the criteria of:

- Ability to produce, trade or to propose to consumption FW
- In order to avoid a bias, all samples are "premium" CEWI, wineries, retailers and gastronomy members according to a public listed rating as eventually Fallstaff (2020)
- The samples reside within Austria, Germany and Switzerland, where most of the consumption and trade is reported according to DWI (2020) and ÖWM (2020)
- All samples declare to have a knowledge of FW, in particular AW and GW as asked at the first contact and later confirmed during the survey

### 3.2.1. Wineries

The wineries have been selected in order to reflect the high-end and the said, according to the company “Fallstaff”, ability to produce wines with aging potential. We refer to the annually published list of awarded wineries.

Source: wine, gastronomy and retail rating company “Fallstaff Austria”, as retrieved on the 11<sup>th</sup> January 2020 <https://www.falstaff.at/f/winzer/>

Selected Wine regions:

- AW: Leithaberg DAC / Eisenberg DAC / Wachau DAC
- GW: Rheingau / Franken / Baden

Contacted wineries: 30, which correspond to five per wine region

Response rate: 20 %

The survey participants opted for their anonymity, as stated in the Appendix 2 “Consent Form”. Therefore, they will not be listed.

### 3.2.2. Gastronomy

Fine restaurants and FW bars make part of this category and have been selected in order to reflect the high-end ones. We refer to the annually published list of awarded restaurants.

Source: wine, gastronomy and retail rating company “Fallstaff Austria”, as retrieved on the 11<sup>th</sup> of January 2020 <https://www.falstaff.at/f/restaurants/>

Selected cities: Vienna / Graz / Innsbruck / Berlin / Munich / Wiesbaden / Zurich

Contacted gastronomy enterprises: 42, which correspond to six per city

Response rate: 5 %

The survey participants opted for their anonymity, as stated in the Appendix 2 “Consent Form”. Therefore, they will not be listed.

### 3.2.3. Retail

The retail enterprises are selected in order to reflect the high-end ones. We refer to the annually published list of awarded wine retailers.

Renown retailers, particularly for FW are selected for the CE countries, namely Austria, Germany and Switzerland.

Source: wine, gastronomy and retail rating company “Fallstaff Austria”, as retrieved on the 11<sup>th</sup> January 2020 <https://www.falstaff.at/f/weinbars/> and <https://www.falstaff.at/f/vi-notheken/>

Contacted enterprises: 30, which correspond to ten per country

Response rate: 7 %

The survey participants opted for their anonymity, as stated in the Appendix no.2 “Consent Form”. Therefore, they will not be listed.

## 3.3. Data reduction method

### 3.3.1. Data typology and measurement characteristics

Classification methods focus on listing a subject into one class or another depending on its attributes. We are interested in testing the general attitude of interviewees towards the CEWI and what it is to find important in terms of expectations and hindrances to see progression in that industry.

The level of measurement in this research will be of an ordinal nature. For clarity, the types of measurement are:

- *Nominal*: Variables are labelled with no ordering and no numerical value attached to them such as place of birth
- *Ordinal*: Variables with descriptive quality and ordered, but not scaled, such as the level of satisfaction
- *Interval*: Order and difference between variables is known, but have no absolute zero e.g. temperature Celsius or Fahrenheit?
- *Ratio*: Variables have order, known differences and a true zero. Ratio variables are capable of multiplication and division.

### 3.3.2. Factor Analysis

When faced with a several categories (Wineries, Gastronomy and Retail) and a number of questions, it very quickly becomes unwieldy to extract relevant informative summary results. Factor analysis attempts to make sense of sets of intertwined data and points to interesting relations that might not be obvious from examining all the input data. Factor analysis resembles multiple regression analysis. It is based on the same principle of least squares in multiple regression, explaining (regressing) the variances. Unlike multiple regression which has one regression line and one set of explained variance and one set of residual variances, factor analysis has several „factors“ (a predicted dependent variable). Thus a second factor will perform a regression on the residual variances of the variables in a second dimension. In principle, there will be as many factors as there are variables. However, if there are significant relations among the observed variable in the data set, a much smaller number of factor might be able to capture and explain most of the variances, satisfying a given target level of confidence.

Whilst the outcome in terms of number of factors to acceptably explain the relations, if there is are reasonable underlying relationships in the data set, 2 to 4 factors should emerge and explain the majority of the variances. It is then up to the researching to interpret the factors and correctly describe what they fundamentally represent.

### 3.3.3. Multidimensional scaling (MDS)

MDS is a data reduction procedure, that can be used on a direct similarity or dissimilarity matrix, or on one derived from rectangular data with correlations (Systat 2000). It means that i.e., non-metric (ordinal) variables can be mapped on a lower or 2-dimensional scale. If an object A is regarded as more similar to object B, than to any other object, then these two objects should be closer together in the space, generates by the non-metric scaling program. In other words, MDS is a procedure for fitting a set of points in a space, such that the distances between points correspond as closely, as possible to a given set of dissimilarities between a set of objects. The benefit of non-metric multidimensional scaling, compared to the other methods such as factor analysis, is that it can fit an appropriate model in fewer dimensions. Moreover, it does not assume a linear relationship between distances and dissimilarities, and yet it provides a “simple synoptic dimensional model”, appealing to visual perception. The main statistical method we intend using for the research is MDS or known as multi-dimensional scaling.

Alongside factor analysis, intuitive interpretation of the two dimensions will be inferred on the basis of the qualitative responses and the general knowledge of the CEWI.

## 4. RESULTS

### 4.1. Data analysis

In the first instance, we will relate the quantitative aspects of our survey and proceed to the qualitative aspects revealed by the respondents. In the next chapter we will then discuss the results and link the findings to the valuable insights, gained from the literature review.

#### 4.1.1. Quantitative data

For the statistical analysis of the survey's original results, some transformations were executed and explained here. As is clear from the survey questionnaire, as to be seen in the Appendix no.3, there are essentially three categories of questions, which are related to the three categories of professional elite surveyed. Firstly, the overall questions in common to all interviewees, then the questions specific to each category and finally questions relating to the critical questions of trade, consumption and investment in quality wines shared by all. In order to make the transformations suitable for statistical treatment, the first set of transformations entailed a categorisation of the responses into seven ordinal measurements, i.e., from extremely low to low moderately low, neutral, moderately high, high and extremely high. The second transformation takes into account the number of questions in the three and converts the numbers to equal weights. This will have the effect, that responses within the various categories do not overwhelm other categories by sheer numbers of responses. Statistical analysis will be performed on the table. The third transformation applied, is to allocate a numerical value to the ordinal categories, so as to create an increasing value for numbers classified from low to high in the valuation choices. The results of this table are recorded here:

Item		Strongly Disagree	Disagree	Mod Disagree	Neutral	Moderate Agree	Agree	Strongly Agree	Total
More Exp Justif	C1	0	0	21	20	15	0	0	56
A/G aged wines offers OK	C1	0	0	0	0	60	18	0	78
Elder Vintages offer is good	W	0	4	0	0	40	0	0	44
WarehouseCapacity OK	W	0	0	9	0	35	0	0	44
Effort justified	W	0	0	0	0	0	0	70	70
Age wine sourcing OK	G	0	0	15	0	0	30	0	45
Customer Disposi OK	G	0	0	0	0	0	0	70	70
Tainted sometimes	G	0	0	0	0	0	60	0	60
Age wine trade = Bus	R	0	0	0	0	0	60	0	60
A/G wines trade	R	0	0	0	0	0	60	0	60
Demand Intense	R	0	0	0	0	25	0	35	60
Trade age wines=Loyalty	C2	0	0	0	0	0	0	28	28
Trade age wines=Sales	C2	0	0	0	0	0	18	0	18
Trade age wines=non A/G	C2	0	0	0	0	0	18	0	18
Personal aged wine Cons	C2	0	0	0	0	0	0	70	70
Invest in A/G aged Wine	C2	0	4	6	0	0	36	0	46
Total		0	8	51	20	175	300	273	

TABLE 23: SURVEY RESPONSES: WEIGHTED FREQUENCY INTO VALUE OF 7 SCALE FROM LOW TO HIGH

The rows in column one denotes in abbreviation the question of the survey. In the instance of the question relating to the purpose of trading in aged wines, had three options, which led to ungrouping the question in three sub-items with a one third weight each. In respect of the sub-groups, the following positive disposition totals were obtained, giving an indication that retail are probably the most eager to engage in aged quality wines, perhaps because they have so far been the least exposed to that segment:

- Wineries 158
- Gastronomy 175
- Retail 180

The transpose of the above table produces the following correlation matrix:

Item		VAR2	VAR3	VAR4	VAR5	VAR6	VAR7	VAR8	VAR9	VAR10	VAR11	VAR12	VAR13	VAR14	VAR15	VAR16	VAR17
More Exp Justif	VAR2	1.00															
A/G aged wines offers OK	VAR3	0.24	1.00														
Elder Vintages offer is good	VAR4	0.29	0.94	1.00													
WarehouseCapacity OK	VAR5	0.47	0.91	0.96	1.00												
Effort justified	VAR6	-0.31	-0.19	-0.17	-0.19	1.00											
Age wine sourcing OK	VAR7	-0.03	0.04	-0.25	-0.14	-0.23	1.00										
Customer Disposi OK	VAR8	-0.31	-0.20	-0.17	-0.20	1.00	-0.23	1.00									
Tainted sometimes	VAR9	-0.31	0.15	-0.17	-0.20	-0.15	0.88	-0.16	1.00								
Age wine trade = Bus	VAR10	-0.32	0.15	-0.18	-0.20	-0.16	0.88	-0.16	1.00	1.00							
A/G wines trade	VAR11	-0.32	0.15	-0.18	-0.20	-0.16	0.88	-0.16	1.00	1.00	1.00						
Demand Intense	VAR12	-0.08	0.42	0.47	0.43	0.78	-0.35	0.78	-0.24	-0.24	-0.24	1.00					
Trade age wines=Loyalty	VAR13	-0.35	-0.22	-0.19	-0.21	0.99	-0.24	0.99	-0.17	-0.17	-0.17	0.77	1.00				
Trade age wines=Sales	VAR14	-0.37	0.11	-0.20	-0.23	-0.18	0.85	-0.18	0.97	0.98	0.98	-0.27	-0.16	1.00			
Trade age wines=non A/G	VAR15	-0.37	0.11	-0.20	-0.23	-0.18	0.85	-0.18	0.97	0.98	0.98	-0.27	-0.16	1.00	1.00		
Personal aged wine Cons	VAR16	-0.32	-0.20	-0.18	-0.20	1.00	-0.23	1.00	-0.16	-0.16	-0.16	0.78	0.99	-0.17	-0.17	1.00	
Invest in A/G aged Wine	VAR17	-0.28	0.08	-0.22	-0.22	-0.21	0.93	-0.21	0.98	0.98	0.98	-0.33	-0.22	0.97	0.97	-0.22	1.00

TABLE 24: SURVEY RESPONSES: CORRELATION MATRIX

The cells filled in colour, indicate high correlations between the attribute intended with the question. One notices that the high correlations are found in the retail and business common items. Two explanations might be ventured.

Firstly, in retail there is not great distinction between the underlying motive for selling aged wines. It is probably considered one of the many products which are sold for profit in the end also regardless of origin. Regarding the common personal and business experiences, these are indeed closely related to the implied quality of wines. Lesser but also highly correlated, are the questions specifically related to aged wines per se, not how customers view the wines. We are referring to the sourcing, trade and associated quality of wines. We do use factor analysis to reduce the number of dimensions and see which commonality the main dimensions have, and come up with the following result:

Variance Explained by Components			
	1	2	3
	7.382	4.627	2.997
Percent of Total Variance Explained			
	1	2	3
	46.136	28.920	18.733

FIGURE 28: FACTOR ANALYSIS OF THE THESIS' DATASET

What this means, heuristically, is that whilst a regression analysis with one regression line would have had 53.864 “residual variance” ( $1.000 - 46.136$ ), by adding dimensions, additional variance is explained by the factors, or dependent variables. Adding these factors captures 93.7% of the variance, which can be considered a good result.

The visual expression of the results, show that five dimensions explain as good as all variance, whilst the steep drop confirms the table that 93% of variance is explained by three dimensions. We excluded the dimensions with minor variance for better interpretation of the findings.

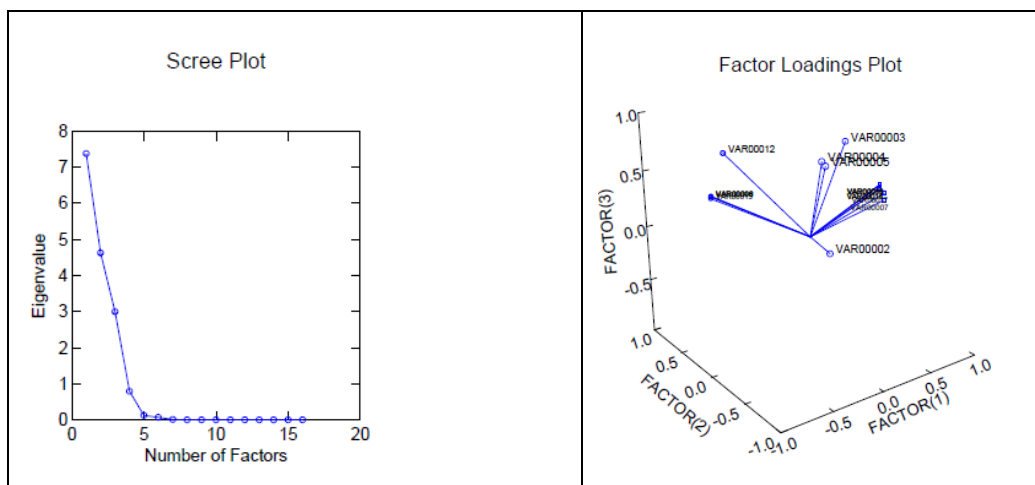


FIGURE 29: MULTIDIMENSIONAL RESULTS OF THE THESIS' DATASET

The very high and high correlations responses are clearly visible in the factor loadings plot. The intuitive question to answer, would be to find the best definition of what those three dimensions represent.

The component loadings per variable gives direction in this matter:

Component loadings			
	1	2	3
Var2	-0.229	-0.575	0.111
Var3	0.059	-0.379	0.915
Var4	0.233	-0.468	0.834
Var5	-0.233	-0.514	0.810
Var6	-0.428	0.876	0.188
Var7	0.893	0.119	0.088
Var8	-0.428	0.878	0.186
Var9	0.946	0.238	0.193
Var10	0.948	0.239	0.190
Var11	0.948	0.239	0.190
Var12	-0.520	0.492	0.698
Var13	-0.427	0.883	0.163
Var14	0.946	0.239	0.152
Var15	0.946	0.239	0.152
Var16	-0.429	0.880	0.181
Var17	0.966	0.194	0.119

TABLE 25: COMPONENT LOADINGS PER VARIABLE

The component loadings reflect the importance of each variable. Just like in stepwise multiple regressions where the F-value statistic, as contribution of each variable to the regression based on variance explanation, calculates which variable contributes most to the regression, or connection between independent and dependent variable, the component loading reflects the contribution of that variable to the factor, dependent variable predictability. It signals the correlation of the variable with the factor. As expected, a variable scoring high on one factor will score very low on another. Differently it can be stated that the variable factor loading portrays a degree to which the individual variable represents the factor. In summary the main constituent variables per factor are:

Factor 1	Factor 2	Factor 3
CQ3: Would you invest your funds in aged Austrian and/or German wines?	GQ1: Do you usually list aged wines?	IQ3: How do you evaluate the offer of aged Austrian and/or German wines?
WQ1: Do you trade with aged Austrian and/or German wines?	CQ2: Do you personally consume aged Austrian and/or German wines?	GQ2: Are you able to source aged wines regularly?
CQ1: What are your expectations about the trade with aged wines?	IQ1: Do your customers have a demand for aged Austrian and/or German Wines?	RQ3: How is your customer's demand regarding aged Austrian and/or German wines?

TABLE 26: COMPONENT LOADINGS FACTORS OVERVIEW

We highlighted the variables with an important value. It has to be noted that several variables still do have a positive result as namely no 5, 7, 9, 10, 11, while they clearly



distinguish their value in their positive loadings. Further some negative component loadings indicate the different direction of the variable value and is shown in the factor loading plot and still gives us insight in the respondents' thoughts, which we will explain briefly.

It is clear, that the first dimension is overwhelmingly determined by investment and trade in aged wines. The second dimension relates much more to the personal appreciation of aged wines, as loyalty, personal consumption of aged wines and general customer disposition towards aged wines. The third dimension in turn - as suggested - is probably defined by a value for money attribute, including some understanding that better quality supports higher pricing. These tentative indications are a representation of people's perception of aged wines across all the categories and do in fact corroborate generally well accepted knowledge about aged wines.

Ancillary to the above analysis, we produce here a POSAC and MDS scale in respect of the attributes implied by the questions:

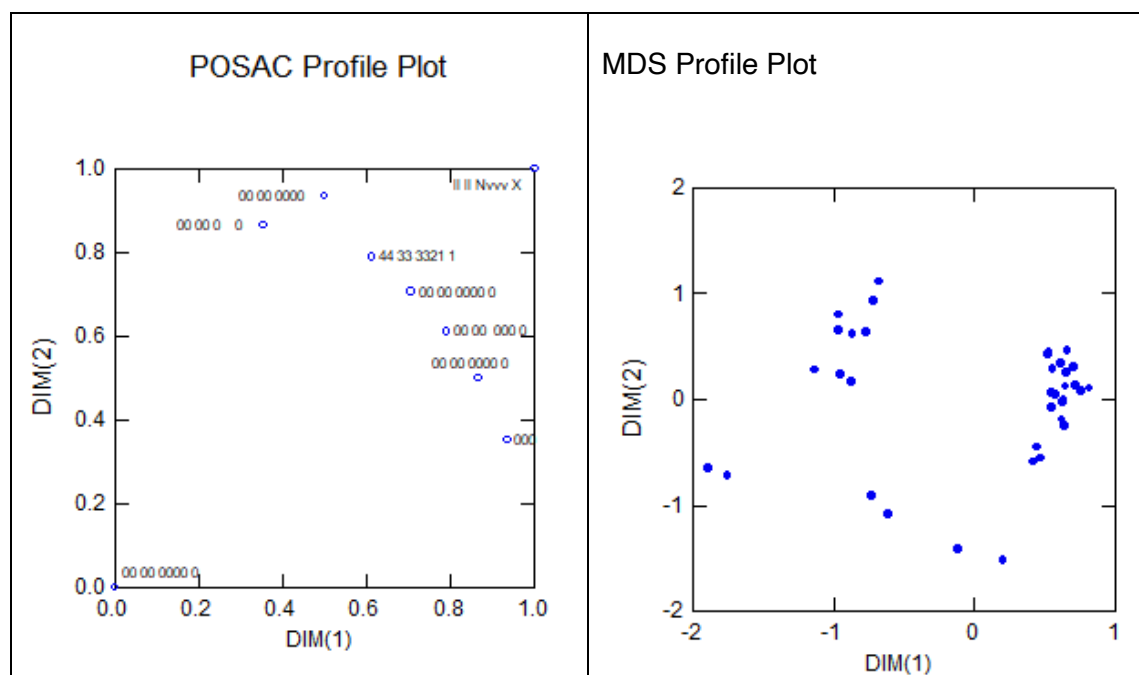


FIGURE 30: PROFILE PLOT ANALYSIS

We believe that the factor analysis was satisfactory and the two-dimensional downscaling into POSAC and MDs does not produce any additional insights into the quality aged wine landscape as perceived by the interviewees. The POSAC analysis produces the expected diamond shape and therefore substantiated the validity of the research. Validity, as in Van Belle (2008) "Statistical Rules of Thumb", meaning that the design of the research resulted in an outcome that can be relied upon as insightful and correctly reflecting underlying opinions.

Undeniable, a larger number of participants would be necessary, to enable a validation of the current findings. Considering the aims and research question, the pilot test, that sourced an opportunity sample, delivered an important contribution to explain some mechanism in the CEWI scene. We could understand the acceptance of aged FW and demonstrate the CEW fulfilling of the needed characteristics to be considered fully FW. AW and GW have the potential and the acceptance to be amongst the notable foreign wines traded at the Liv-ex Stocks in London and further. The interviewed professionals agree that the research question is corresponding to their current perception of the CEW FW market, as their sentiment and responses have been strongly positive and confirmative

#### 4.1.2. Qualitative data

In view of the relatively small data set, the qualitative results of the survey add valuable information about the research question. We will review the qualitative input along the three main dimensions identified in the quantitative analysis and add further considerations as applicable. The qualitative research was successful. It covered a wide spectrum of answers from critical to positive about the quality aged CEW and thus reflected honest and unbiased personal opinions of the interviewees.

(3) Common Questions - CONCLUSIVE QUESTIONS CQ1 to CQ3		Replying Options Interviewees				
<b>Introduction CQ1</b>		Costumer loyalty	Sales improve	An addition to the portfolio	No expectation	Negative effects
<b>What are your expectations about the trade with aged wines? (multiple choice)</b>		8	5	7	0	0
	<b>Qualitative responses CQ1</b>	(a) It is a important tool for the core business and marketing, (b) it underlines the winery's style as well as the winemaking and the grape variety's stylistic, (c) sales improve, due a better reputation, but limited stock doesn't improve really the overall sales performance, (d) Costumer loyalty, as it shows wine competence and proves the own wines ageing potential, (e) it is useful for the strategic brand development, (f) There is a gain on the reputation, it is the producers duty to plan the demand, in the last decade ist has been noted by the producers, (g) a larger offer allows an advantage on the market				
<b>Introduction CQ2</b>		Yes	No	No experience		
<b>Do you personally consume aged Austrian and/or German wines?</b>		10	0	0		
	<b>Qualitative responses CQ2</b>	(a) Exclusively, (b) with some surprisingly good ones, (c) Definitely				
<b>Introduction CQ3</b>		Yes	No	No, I would prefer to invest in French or other ones	No opinion	
<b>Would you invest your funds in aged Austrian and/or German wines?</b>		6	2	2	0	
	<b>Qualitative responses CQ3</b>	(a) Yes if it would be a transparent business regarding storage, calculation, transparency and guaranty of original wines directly from the producers , (b) diversified from different wine nations, (c) I prefer to invest in my own winery , (d) No, I would prefer to invest in French or other ones, as there is no offer for German wines, but if there would be one, I would invest in German wines , (e) Yes - it's a emotional answer, but at this time it isn't economical, as the demand ist too low to gain value, (f) No, I would prefer to invest in French or other one and eventually in German wines. These wine regions do have enough experience and therefore competence in their offer and in trading professionally. Price increases of some French wines are rationally not justifiable, while for German wines there is a greater potential to note. Austrian wines have a limited margin, (g) No, because nowadays the gastronomy can only age wines to a limited extent, due to costs and storage capacity, similar to that of dealers. The focus is on selling wine quickly. It is best if producers regularly hold back wines and then market them, if possible with a certain systematic. It's not a question of cost, but of service, as it doesn't make a difference in my business. It is extremely attractive to me, when a retailer offers availability of small quantities of aged wines on demand, (h) yes, but not in every produce, (i) Yes, but in some few selected ones				

TABLE 27: QUALITATIVE ANSWERS IQ3 – IQ3

After the introduction, a different questioning has been applied to the three subcategories. This procedure is a direct consequence to their different role in the FW value market chain, as shown previously. Beginning with (2a) the wineries, their response was rather limited concerning the qualitative responses.

(2a) Category - WINERIES, WQ1 to WQ3	Replying Options Interviewees		
<b>Introduction WQ1</b>	Yes	No	In planning
<b>Do you offer elder vintages?</b>	5	1	0
<b>Qualitative responses WQ1</b>	(a) There is a demand of experience costumers, which look for them actively		
<b>Introduction WQ2</b>	Yes	No	In planning
<b>Do you dispose on enough warehouse capacity for that propose?</b>	4	2	0
<b>Qualitative responses WQ2</b>	(a) it will be provided as it matters, (b) there is but limited to the current quantity,		
<b>Introduction WQ3</b>	Yes	No	No opinion
<b>Is the effort to age wines, justified?</b>	6	0	0
<b>Qualitative responses WQ3</b>	(a) Yes but less from the financial perspective than of reasons of image to show the ability to age well of the offered wines		

TABLE 28: QUALITATIVE ANSWERS WQ1 – WQ3

On the other hand, the subcategory (2b) gastronomy holds an important function in the sales to costumer and divulgation of the FW culture. Their qualitative response enables to discover important B2C insights.

(2b) Category - GASTRONOMY GQ1 to GQ4	Replying Options Interviewees			
<b>Introduction GQ1</b>	Yes	No	In planning	
<b>Do you usually list aged wines?</b>	2	0	0	
<b>Qualitative responses GQ1</b>	(a) I do offer wines from 5 top to 19 years age, on request up to 70 years			
<b>Introduction GQ2</b>	Yes	No	I do need a reliable supplier	
<b>Are you able to source aged wines regularly?</b>	1	0	1	
<b>Qualitative responses GQ2</b>	(a) often, there is a lack of guaranty concerning the originality and few dealer's competence, (b) I do list lots of unconventional wine, as „natural wines“ ones and others. Therefore it is very difficult to obtain			
<b>Introduction GQ3</b>	Positive	Neutral	Negative	No reaction
<b>How is the reaction of your costumers towards aged wines? (multiple choice)</b>	2	0	0	0
<b>Qualitative responses GQ3</b>	(a) positive, as it offers a diversification of the offer products. Depending on their mood, situation and wine knowledge, costumers do appreciate the offer, (b) it depends on the sales interaction			
<b>Introduction GQ4</b>	Yes	No	Sometimes	
<b>Do aged wines occasionally have some taint?</b>	2	0	0	
<b>Qualitative responses GQ4</b>	(a) eg. a high valued wine didn't have an obvious taint, but it was enough to influence the consumption amusement. It doesn't happen to me very often to discover wine taints, but it happens. The incidence of wine taints is in my opinion constant, when the vintage isn't a good one. The overall quality is determinant. For this reason there are wine, who can age and other not, (b) also young wines can occasionally have taints			

TABLE 29: QUALITATIVE ANSWERS GQ1 – GQ3

At the least the subcategory (2c) retail, develops similarly a direct approach to the costumers and builds therefore a tight relationship with any demand and market dynamics. As supplier of the gastronomy and the final costumers as well, retailers seem to use a sensible approach towards FW demand.

(2c) Category - RETAIL RQ1 to RQ3		Replying Options Interviewees			
<b>Introduction RQ1</b>		More likely as a service	More likely as a business	Neither ... nor	
<b>Do you consider the trade with aged wines more likely as a service or as a business?</b>	0	2	0		
<b>Qualitative responses RQ1</b>	(a) More likely as a business, therefore there is a gain of competitiveness, but the scarcity of wines is a thread, so a good handling of the bottle quantity is needed to succeed				
<b>Introduction RQ2</b>	Yes	No	In planning		
<b>Do you trade with aged Austrian and/or German wines?</b>	2	0	0		
<b>Qualitative responses RQ2</b>					
<b>Introduction RQ3</b>	Very intense	intense	moderate	No demand	
<b>How is your customer's demand regarding aged Austrian and/or German wines?</b>	1	0	1	0	
<b>Qualitative responses RQ3</b>	(a) Moderate, depending on the producer and brand, generally speaking ist seems intense, tendency is growing, (b) On the totality of the customer very intense, singularly it is moderate				

TABLE 30: QUALITATIVE ANSWERS RQ1 – RQ3

The conclusive questions investigate, how the overall perception of the wine professionals is towards FW.

(3) Common Questions - CONCLUSIVE QUESTIONS CQ1 to CQ3		Replying Options Interviewees				
<b>Introduction CQ1</b>		Customer loyalty	Sales improve	An addition to the portfolio	No expectation	Negative effects
<b>What are your expectations about the trade with aged wines? (multiple choice)</b>	8	5	7	0	0	
<b>Qualitative responses CQ1</b>	(a) It is a important tool for the core business and marketing, (b) it underlines the winery's style as well as the winemaking and the grape variety's stylistic, (c) sales improve, due a better reputation, but limited stock doesn't improve really the overall sales performance, (d) Customer loyalty, as it shows wine competence and proves the own wines ageing potential, (e) it is useful for the strategic brand development, (f) There is a gain on the reputation, it is the producers duty to plan the demand, in the last decade ist has been noted by the producers, (g) a larger offer allows an advantage on the market					
<b>Introduction CQ2</b>	Yes	No	No experience			
<b>Do you personally consume aged Austrian and/or German wines?</b>	10	0	0			
<b>Qualitative responses CQ2</b>	(a) Exclusively, (b) with some surprisingly good ones, (c) Definitely					
<b>Introduction CQ3</b>	Yes	No	No, I would prefer to invest in French or other ones	No opinion		
<b>Would you invest your funds in aged Austrian and/or German wines?</b>	6	2	2	0		
<b>Qualitative responses CQ3</b>	(a) Yes if it would be a transparent business regarding storage, calculation, transparency and guaranty of original wines directly from the producers , (b) diversified from different wine nations, (c) I prefer to invest in my own winery , (d) No, I would prefer to invest in French or other ones, as there is no offer for German wines, but if there would be one, I would invest in German wines , (e) Yes - it's a emotional answer, but at this time it isn't economical, as the demand ist too low to gain value, (f) No, I would prefer to invest in French or other one and eventually in German wines. These wine regions do have enough experience and therefore competence in their offer and in trading professionally. Price increases of some French wines are rationally not justifiable, while for German wines there is a greater potential to note. Austrian wines have a limited margin, (g) No, because nowadays the gastronomy can only age wines to a limited extent, due to costs and storage capacity, similar to that of dealers. The focus is on selling wine quickly. It is best if producers regularly hold back wines and then market them, if possible with a certain systematic. It's not a question of cost, but of service, as it doesn't make a difference in my business. It is extremely attractive to me, when a retailer offers availability of small quantities of aged wines on demand, (h) yes, but not in every produce, (i) Yes, but in some few selected ones					

TABLE 31: QUALITATIVE ANSWERS CQ1 - CQ3

We observe that the professionals overwhelmingly do have a positive attitude towards FW in this common questioning. Expectations, consumptions and willingness to invest in FW are an important matter to the interviewees.

## 4.2. Findings from the data analysis

### 4.2.1. Investment and trade of aged wines

From the literature review, we know that in the international investment and trade environment, the investment in quality wines pays off and some methods have been developed to address the typical cost and risk issues present in the quality aged wine trade and investment. Most notable amongst these are storage cost and provenance, besides the uncertain factor of vintage. The observations made by the interviewees echo similar concerns regarding aged quality wines in Germany and Austria. The first concern expressed by wineries touches on the ability to age wines. The impression one gains from the responses, is that on the one hand the wineries are confident they can produce quality wine suitable from ageing, but that on the other hand the German Austrian wines do not as yet have a reputation comparable to the French quality wines. The trend appears to be positive in that demand for aged German Austrian wines shows growth. There is uncertainty as to the volumes of aged wine, either to be produced in larger quantities or to maintain some level of scarcity for sustained pricing. From the consumers side some frustration is noted though that the quality aged wines are sometimes difficult to source. The target should be to enlarge the perceived small number of „loyal“ customers and broaden the appeal. One avenue to pursue would be, to enhance the reputation and certainty of provenance. The DAC labelling of wines is a laudable initiative that should be enhanced in reputation and reach to bolster the confidence consumers develop in aged wines marketed with the endorsement of that label. This is akin to the French „Cru“ classifications and is therefore deducted from the obtained responses. At the same time, looking more actively beyond the borders to the international markets will open up much larger demand and countenance the fear of saturation or lack of perceived scarcity to sustain pricing. Other non-traditional wine producing countries, such as USA, New Zealand and Australia, have made major strides in developing international markets for their wines, wines with a lesser history of quality and consistency.

In support of our interpretations, we reproduce some of the answers received:

*(a) Yes if it would be a transparent business regarding storage, calculation, transparency and guaranty of original wines directly from the producers , (b) diversified from different wine nations, (c) I prefer to invest in my own winery , (d) No, I would prefer to invest in French or other ones, as there is no offer for German wines, but if there would be one, I would invest in German wines , (e) Yes - it's an emotional answer, but at this time it isn't economical, as the demand is too low to gain value, (f) No, I would prefer to invest in French or other one and eventually in German wines. These wine regions do have*

*enough experience and therefore competence in their offer and in trading professionally. Price increases of some French wines are rationally not justifiable, while for German wines there is a greater potential to note. Austrian wines have a limited margin, (g) No, because nowadays the gastronomy can only age wines to a limited extent, due to costs and storage capacity, similar to that of dealers. The focus is on selling wine quickly. It is best if producers regularly hold back wines and then market them, if possible, with a certain systematic. It's not a question of cost, but of service, as it doesn't make a difference in my business. It is extremely attractive to me, when a retailer offers availability of small quantities of aged wines on demand, (h) yes, but not in every produce, (i) Yes, but in some few selected ones.*

As AW and GW move up in the ranking of aged quality wines, competition with French wines is inevitable. But generally, there is a strong belief that AW and GW of excellent quality are produced and that they offer a definite pricing advantage over French wines for instance. The pricing advantage reflecting a lower income per wine bottle is not a determining factor to affect the viability of ageing AW and GW.

#### **4.2.2. Wine quality and hedonic appreciation**

Overall, the responses in terms of aged wine quality of AW and GW origin were positive. Yet there was a comment that “the incident of wine taints is ... a constant”. It is difficult to establish whether this is a rare exception of a real connoisseur who does wine rankings, or from a more pedestrian consumer who still has a strong affinity of aged quality wines. Nevertheless, such comments should also not be discarded. The very essence of quality aged wine derives from, as the attribute goes, its sensory “quality”. One way of securing near perfect consistency of the perceived and actual quality label in the various labelling of quality aged wines would be, to upsurge for instance DAC labelling and / or broaden, strengthen and give more prominence to expert ratings. This would also enable to make a distinction between the different vintages. Continuing on from the acquisition of customers touched upon in the previous section, we would encourage additional marketing efforts to extend the reach beyond the existing “loyal” possibly longstanding and predominantly local customers. As one respondent argued, high-quality AW and GW would bring a diversification of the products on offer.

### 4.2.3. Pricing and perceived value

The judicious objective is always to find the right price points for any product, and wines are no exception. And as Porter professes there are two sides to the coin. On the one hand there is the drive towards least cost producer, and on the other hand the quest for premium income derived from diversification. Various research studies were conducted into the impact of size of wineries on the overall cost of producing aged quality wines. It was generally found that estates or wineries producing a higher proportion of quality wines, showed higher operational costs, separate from the storage and time value accretion. This was ascribed to the higher intensity of producing the necessary quality. It is almost always offset by the higher pricing of the differentiating “high-quality“ of the produced wines. Another example of the consequences of the lowest cost driver, was the new techniques used for ageing of wine, with wood chips rather than in proper oak barrels, objected to be the very high premium wine makers. Technological innovation does not stop, however. The newer methods of capping wine bottles, e.g., known also as screwcap closures, is a much more visible change to consumers, and initial resistance is mellowing certainly for up to a certain category of wines. Thus, wineries should always keep abreast of new developments especially in the segment of the aged wines. They have proven to be a worthwhile investment meaning the pricing on average rewards the investors above market related rates in other classes of investment. Yet again in respect of pricing, the provenance issue, authenticity and traceability of a quality wine, remains a critical aspect for by a customer to make the investment in hedonic consumption of the wine. Lastly, in Austria and Germany, the price and regular price increases are considered within line by most consumers. The main criticism is thus not so much the price as the availability and accessibility of quality AW and GW. Work needs to be done on improving distribution channels of quality wines both countries, as it would definitely increase consumption as there is „latent demand“ according to responses.

Some verbatim comments:

*Costumers accept the price increase, (b) there is a progressive price increase, sometimes there is a comprehensible price increase due scarcity and stronger demand, commonly the price for aged wines is in line with the current producers release, more expensive only in some cases, (c) Not necessarily, the price begin to increase from a certain vintage, (d) yes, a difference between producers and dealers is notable, the producers propose moderate price adjustments, while dealers charge up to twice the price. The cause of this could be found in the dealer's higher warehousing costs as the storage effort is significant during the wine ageing (e) the purchasing prices are*

*passed on the final customer, without abusing, (f) If there is quality, then the ability to age is given, so there are more expensive*

Further

*(a) It seems to be unstructured and randomly organised; the high-end gastronomy does offer, retail doesn't offer at all because they obey only to the demand, there is a latent demand, there aren't any guaranty on vintage and traceability, (b) here are some specialised dealers, but that isn't offered for a large audience, (c) Generally Fair, in my personal case I'm specialised in aged wines*



## 5. CONCLUSIONS

The research findings were confirmatory in the sense that general knowledge and experience in the region was not contradicted rather the opposite. However, the result highlights that more can and needs to be done for the promotion of AW and GW, not only locally but also internationally.

The Research questions,

**(1) Is there a latent demand for aged Central European Wines?**

**(2) Is the current offer satisfying the demand?"**

has been investigated and resulted in a corroboration of the questions. There is indeed a latent demand in CEW and the current offer does not completely satisfying the demand. The qualitative research corroborated the inkling, that there is latent demand for quality aged wines in the CE region. Such information is instructive for the commencement of a more elaborate drive to activate this latent demand. The current findings draw on the overall review of literature and results of the research to infer some logical conclusions to lead to recommendations how to take advantage of it. The risk reward positioning of FW has ample scope for shifting into a higher risk class without defeating the attractiveness of FW as an investment. All research in fact produced a positive impact of FW investment as a lowly correlated item with other investment classes. The results give a clear and strong indication that there is a lot of potential for players in the CEWI, and perhaps also that the timing is right for, what needs to be stressed, a consolidated effort to promote more visibly the range of high-quality aged wines being produced in the region. The quantitative and qualitative survey's results merge nicely, and no contradictions did show up. The general gist of the findings is furthermore in line with prevailing knowledge and experiences in the aged quality wine segment.

The literature review was an eye-opener for its depth and richness of publications and research into the FW industry. The history revealed that impactful organisational capacity does create competitive advantage which has benefited France for centuries, an advantage that remained carefully cultivated. As the world is becoming rapidly a global village, the French DO is becoming eventually untenable by the year. New wine producing countries have had a field day and conquered new markets where improved standards of living have generated high demand for wine consumption. Neither Germany and Austria nor other CEW countries, have paid sufficient attention to these developments and need to catch up; internationally besides reading the market a bit better locally, so that no repressed demand is diverted to extra-regional FW, e.g., French. From the literature review, it is accepted that the CEWI has not done enough to improve the standing of their industry in broader markets, even though the high-quality of

aged wines from the region meets international standards. The absence of a strong “labelling” and compliance authority and insufficient investment in distribution channels and availability of quality aged wines offers “low hanging fruit”. Such investment would improve the sales considerably and improve the ranking and recognition of other quality wines from the region. The financing per se of ageing of wines has not be identified as a major stumbling block to proceed with a larger investment in facilities enabling the process of ageing. The availability of storage coupled to some fear of saturation of the market with quality aged wines came to the fore. Our contention, supported by the respondents, is though that the market for aged quality wines is buoyant and there is a latent demand. This combined with a drive towards greater internationalisation into new markets, should remove any doubt of its success especially given that the price-value perception of AW and GW is favourable compared to the competition.

In the next section we will spell out some of the measures we believe will pave the way towards such expanded market for CEW.

## **5.1. Discussion of the results**

### **5.1.1. How to satisfy the latent demand**

The evolution of overall demand for wines has stagnated in the last two years in Germany and Austria. The graphs shown earlier, illustrate the consumption deficit in that millennials representation in the total wine consumers has substantially grown but they do consume way less than the Boomers.

That said, the latent demand identified in the research is attached to the high-quality aged wine segment. From this knowledge it can be inferred that this segment is still a growing market. The most obvious shortcoming in the AW and GW wine industry, is quite clearly the absence of an effort to create new markets for CEW. As an example, New Zealand was able to conquer such new markets from nowhere in terms of reputation within one generation, as its wine industry reportedly started notably in the 1980'. The disclosed difference is that New Zealand has a consolidated government support to achieve it. Hence the recommendation that a similar consolidated action plan will be put in place through industry associations to promote CE high-quality aged wines.

### **5.1.2. Expectations of the Customers**

Some more work needs to be done to ensure consistent high-quality of the aged wines. The research, as reported, has revealed that high-quality wines need more care and

consequently have superior associated production costs. At the same time, these wines command better prices, which more than offset the higher costs. It combines favourably with the finding, that FW are sought after and in demand. This calls for a more effective approach to marketing such wines e.g., a revised business model.

### 5.1.3. Approach to a business model

As an approach to an integrated business model essential steps and plans are discussed here.

The first requirement, as deduced from the research, is that an improved model needs to be developed to ensure presence in all phases and places of the different distribution channels. Availability of high-quality aged wines is clearly insufficient and needs to be upgraded sufficiently to meet up demand. This would be one of several steps to improve market share and wine consumption in the existing local market. The table showing, that CEW alongside all other wine producing countries have a 3% market share in the international FW business needs a more forceful drive towards greater participation. It is imperative for this, to materialise that strengthening the DO labelling is put into effect so that DO either increases influence and impact and gains international reputation and recognition. DO must then ensure more precise and stronger label compliance terminology on quality wines, in the vein of the French labelling. Authenticity and provenance are ubiquitous worries in the wine industry worldwide. DO evidently cannot achieve this on its own. The CEWI associations need to improve and deepen collaboration with expert wine tasters and publications on quality wines to broaden local markets and extend in a significant way into international markets. The collaboration with financial institutions to create an EFT of AW and GW is another way to increase awareness of quality aged CEW and move more to top of mind with potential consumers. The structure and composition of the present niche market for high-quality aged wines is such, that a lot of potential is identified in the enhancement of market share both locally and internationally and this via all distribution channels, the wineries as producers, gastronomy, retail and also online trade plus lastly wine exchanges. Many initiatives are ready to be implemented. It just needs the right amount of collaboration with regulatory bodies like DO, as eg., the Austrian DAC, and within the industry associations to put the right plans in place and execute.

## **5.2. Impact of the findings**

### **5.2.1. Contribution to knowledge**

The novelty of our research does not lie in the exploration of new frontiers in wine making or marketing, but rather, as what was reported in one of the literature review researches, to establish from the ground up, what people in the industry, from wineries through gastronomy and retailers, think about the CEWI and where it would have to be headed. The research confirmed that these views are largely aligned with the more macro investigations and available statistics.

### **5.2.2. Implications for relevant stakeholders**

The implications for relevant stakeholders, fall mainly on the producers and traders of quality FW. It became apparent, that more can and needs to be done to optimise quality wine production, marketing and the building of insights into the expectations of consumers of this type of wine. Then also, to act on those insights for improved wine consumption and wider markets.

### **5.2.3. Future research**

Future research would be slanted towards the view and reception of high-quality aged wines from the CE in international markets and with international traders and exchanges. Insights from this type of research, would greatly assist in developing the right strategies for penetration of these trading channels and to create a visible presence with a wide range of high-quality aged AW and GW in international markets, more so than is presently the case. Analysing what made the USA - California, Australia and New Zealand successful international players in new but fast-growing markets, is another topic that warrants further research.

# BIBLIOGRAPHY

## Books

Anderson, K. (2004), "The World's Wine Markets – Globalization at Work", USA MA, Edward Elgar Publishing Ltd.

Ashenfelter et al. (2018), "Handbook of the economics of wine: (In 2 volumes) Volume 1: Prices, finance, and expert opinion Volume 2: Reputation, regulation, and market organization", World Scientific Publishing Co. Pte. Ltd.

Brückner, M. (2009), "Champagner, Wein & Co.: Flüssige Werte als Kapitalanlage", München: Finanz Buch.

Bruwer, J. et al. (2016), "9th Conference of Wine Business Research Conference", Australia, University of South Australia Ehrenberg-Bass, Institute for Marketing Research | Academy of Wine Business Research

Capitello, R, Charters, S., Menival, D. And Yuan, J. (2017), "The Wine Value Chain in China", YSA MA, Chandos Publishing - Elsevier

Flint, D.J., Signori, P. and Golicic, S.L. (2016), "Contemporary Wine Marketing and Supply Chain Management – A global perspective", UK, Pelgrave Macmillan

Gaeta, D. and Corsinovi, P. (2014), "Economics, Governance, and Politics in the Wine Market – European Union Developments", USA NY, Pelgrave Macmillan

Hall, C.M. and Mitchell, R. (2008), "Wine Marketing - a practical Guide", USA MA, Butterworth-Heinemann – Elsevier

Kahneman et al (1982) 'Judgment under Uncertainty: Heuristics and Biases', Cambridge University Press, UK

Miller, D.C. and Salkind, N.J. (2002), "Handbook of Research Design & Social Measurement", 6th Ed, UK: Sage Publications.

Milton, F. (1994), "Money Mischief", USA NY, Harcourt Brace & Company

Pfeffermann, D. and Rao, C.(2009), "Handbook of Statistics Sample Surveys: Design, Methods and Applications", The Netherlands, Elsevier B.V.

Resnick, E. (2008), "Wine Brands – Success Strategies for New Markets, new Consumers and New Trends", USA NY, Pelgrave Macmillan

Sigala, m. and Roninson, R.S. (2019), "Management and Marketing of Wine Tourism Business – Theory, Practice and Cases", Australia Brisbane, University of Queensland

Sokolin, David, et al. (2000), "Investing in Liquid Assets : Uncorking Profits in Today's Global Wine Market", Simon & Schuster.

Spahni, P. (1998), "Swiss Wine Market Report", UK Cambridge, Woodhead Publishing Ltd.

Strang, K. (2015), "The Palgrave Handbook of Research Design in Business and Management", New York USA: Palgrave Macmillan.

Systat (2000), "SYSTAT 10", SPSS Inc., Chicago USA

Tuccille, J., (2009), "Gallo be thy Name – The inside Story of how One Family rose to dominate the U.S. Wine Market", USA CA, Phoenix Books, Inc.

Van Belle G (2008), "Statistical Rules of Thumb" (second Ed), J Wiley & Sons Inc, NJ USA

Wittwer, G. And Anderson, K. (2009), "Global wine markets 1961 to 2003: a statistical compendium", Australia Adelaide, The University of Adelaide Press

## Journals

Adelsheim, D et al. (2016), "Climate Change: Field Reports from Leading Winemakers", Journal of Wine Economics, Volume 11, Number 1, 2016, Pages 5–47

Aiassa, P et al. (2018), "Successful Wine Cooperatives: Field Reports from Cooperative Managers in Austria, Italy, and Germany", Journal of Wine Economics, Volume 13, Number 3, 2018, Pages 243–259

Ali, H., Lecocq, S. and Visser, M. (2005), "The impact of gurus: Parker grades and *en primeur* wine prices", JEL codes: C21, D89, L15

Almaraz, P. (2015), "Bordeaux wine quality and climate fluctuations during the last century: changing temperatures and changing industry", Climate Research Vol. 64: 187–199, 2015

Anderson, K. (2016), "How might climate changes and preference changes affect the competitiveness of the world's wine regions?", ScienceDirect, Wine Economics and Policy 6 (2017) 23–27

- Anderson, S., Damasio, H. and Damasio, A. (2005), "A neural basis for collecting behaviour in humans", *USA IA, Brain* (2005) 128, 201-212
- Annunciata, A. et al. (2019), "Health warnings on wine labels: a discrete choice analysis of Italian and French Generation Y consumers", *ScienceDirect, Wine Economics and Policy* 8 (2019) 81e90
- Arikha, N. (2007), "Wine psychology", *Tacuinum Vitineum: Philosophy of Wine*, 1 (2007) 1-7
- Ash, T. (1990), "Mitteleuropa?", *Daedalus*, 119 (1), 1-21.
- Ashenfelter (2010), "Predicting the quality and prices of Bordeaux wine", *Journal of Wine Economics* (5) 40–52
- Ashenfelter & Storchmann (2010), "Measuring the economic effect of global warming on viticulture using auction, retail and wholesale prices", *Rev. Ind. Organ.* (37) 51–64.
- Lucey & Devine (2015), "Was wine a premier cru investment?", *Research in International Business and Finance* (34) 33-51.
- Aytaç, B., Hoang, T. And Mandou, C. (2015), "Wine: To drink or invest in? A study of wine: Asian investment asset in French portfolios", *ScienceDirect, Research in international Business and Finance* (2015) 1-24
- Barber, N. and Donovan, J. (2010), "From under the shadows: developing awareness in a conventional market with a product less recognized", *International Journal of Wine Research* 2010:2 45–53
- Bargain, O., Cardebat, JM. And Vognolles, A. (2017), "Crowdfunding Wine" *Journal of Wine Economics*, Vol 13, Number 1, pp 57– 82
- Barham (2003), "Translating 'terroir': the global challenge of French AOC labelling". *Journal of Rural Studies* (19)127-38.
- Bazala, B., Knoll, M. and Derndorfer, E. (2015), "Perception and Acceptance of White Wines by Consumers belonging to Different Age Groups", *J. Int. Sci. Vigne Vin*, 2015, 49, 217-230
- Bèrard & Marchenay (1995), "Lieux, temps et preuves: la construction sociale des produits de terroir", *Terrain* (24) 153-64.
- Bitter, C. (2017), "Wine Competitions: Re-evaluating the Gold Standard", *Journal of Wine Economics*, Volume 12, Number 4, 2017, Pages 395–404

Bocart, F. and Hafner, C. (2015), "Fair re-valuation of wine as an investment", Belgium Leuven, Université Catholique de Louvain

Bombrun, H. and Sumner, D. (2003), "What Determines the Price of Wine?", University of California, AIC Issues Center Number 18 Jan 2003 1-6

Bouri, E. et al. (2018), "Is wine a good choice for investment?", Pacific-Basin Finance Journal 51 (2018) 171-183

Calvo-Porrà, C., Lévy-Mangin, JP. And Ruiz-Vega, A. (2020), "An emotion-based typology of wine consumers", Elsevier, Food Quality and Preference 79 (2020) 103777

Caracciolo, F., Embalo, L. and Pamrici, E. (2010), "The hedonic price for an Italian grape variety", University of Naples pp 1-18

Carloto, A. (2017), "Wine quality ratings versus price in the wine enthusiast magazine", Portugal Escola Superior Agraria

Cassar, G. (2003), "The financing of business start-ups", Elsevier, Journal of Business Venturing 19 (2004) 261–283

Castellini, A and Samoggia, A. (2018), "Millennial consumers, wine consumption and purchasing habits and attitude towards wine innovation", ScienceDirect, Wine Economics and Policy 7 (2018) 128–139

Castro, D., Giraldu, D and de Oliveara, J. (2018)", Construction and operationalisation of sectorial brands: The case of the Brazilian winemaking sector from the perspective of different stakeholders", ScienceDirect, Wine Economics and Policy 7 (2018) 153–164

Caverzasi, E. and Tori, D. (2018), "The Financial Innovation Hypothesis: Schumpeter, Minsky and the sub-prime mortgage crisis", Scuola Superiore Sant' Anna pp 1-33

Chu, P.K. (2014), "Study on the Diversification Ability of Fine Wine Investment", Macao, University of Macau

Cicchetti, D. and Cicchetti, A. (2009), "Wine rating scales: Assessing their utility for producers, consumers, and oenologic researchers", International Journal of Wine Research 2009:1 73–83

Cicchetti, D. and Cicchetti, A. (2014)", Two enological titans rate the 2009 Bordeaux wines", ScienceDirect, Wine Economics and Policy 3 (2014) 28–36



- Coffman, A. (2009), "Wine: The Illiquid Liquid Investment Asset", *Journal of Financial Planning* Dec 2009 pp 61-70
- Correia, L., Gouveia, S. and Martins, P. (2019), "The European wine export cycle", *ScienceDirect, Wine Economics and Policy* 8 (2019) 91e101
- Czupryna, M. and Oleksy, P. (2015), "Rational Speculative Bubbles in the Fine Wine Investment Market", Poland. Cracow University of Economics, Financial Markets Department
- Crespo de Carvalho, J. (2013), "Buyer-seller conflict and cooperation in marketing channels: port wine distribution", *International Journal of Wine Research* 2013:5 9–21
- Davis et al. (2019), "The effect of climate on Burgundy vintage quality rankings", *Oen&One Vine and Wine Journal* (53)
- Deloiger et al. (2005), "Grapevine responses to terroir: a global approach", *J. Int. Sci. Vigne Vin*, 2005 (39) 149-162
- Demossier (2011), "Beyond terroir: territorial construction, hegemonic discourses, and French wine culture", *Journal of the Royal Anthropological Institute* (17) 685-705
- Deodhar, S., Singh, S. and Tank, N. (2019), "Grapevine or informed selection: Significance of quality attributes in India's emerging wine market", *ScienceDirect, Wine Economics and Policy* 8(2019)49–58
- Di Vita, G. et al. (2019), "Picking out a wine: Consumer motivation behind different quality wines choice", *ScienceDirect, Wine Economics and Policy* 8 (2019) 16–27
- Fama, E. and French, K. (1992), "The Cross-Section of Expected Stock Returns", *The Journal of Finance* Vol XLVII No 2 June 1992 pp 427-465
- Fang, W. & Yan, Z. (2010), "Factors affecting response rates of the web survey: a systematic review", *Computers in Human Behaviour* 26 (2010), pp 132-139
- Fogarty, J. (2007), "Rethinking Wine Investment in the UK and Australia", *American Association of Wine Economics, University of Western Australia, School of Economics and Commerce* pp 1-18
- Forbes, S., Fernandez, R. and Gilinsky, A. (2018), "Exploratory examination of philanthropy in the New Zealand, Spanish and US wine industries", *ScienceDirect, Wine Economics and Policy* 7(2018)35–44

- Galindro, A. et al. (2018), "Wine productivity per farm size: A maximum entropy application", ScienceDirect, *Wine Economics and Policy* 7 (2018) 77–84
- Gokcekus, O., Gokcekus, S. (2019), "Empirical evidence of lumping and splitting: Expert ratings' effect on wine prices", University of Florence, *Wine Economics and Policy*
- Goncharuk, A. (2017), "The Challenges of Wine Business in Research", Ukraine, International Humanitarian University
- Green, S. (2018), "The European Union and action on climate change, through the lens of the wine industry", ScienceDirect *Wine Economics and Policy* 7 (2018) 120–127
- Hammervoll, T., Mora, P. and Toften, K. (2014), "The financial crisis and the wine industry: The performance of niche firms versus mass-market firms", ScienceDirect, *Wine Economics and Policy* 3 (2014) 108–114
- Harvey, W. S. (2011), "Strategies for conducting elite interviews", *Qualitative Research*, 11 (4), 431–441
- Johns & Storchmann (2001), "Wine market prices and investment under uncertainty: an econometric model for Bordeaux Crus Classés", *Agricultural Economics* (26) 115–133
- Jureviciene, D., Jakavonyte, A. (2015), "Alternative Investments: Valuation of Wine as a Means for Portfolio Diversification", Lithuania, Vilnius, Technical University 2015 16(1): 84–93
- Li, H et al. (2018), "The worlds of wine: Old, new and ancient", ScienceDirect, *Wine Economics and Policy* 7 (2018) 178–182
- Kohr, C., Camanzi, L. and Malorgio, G. (2018), "Exploring structural and strategic correlates of difficulties in the internationalisation process of Italian wine SMEs", ScienceDirect, *Wine Economics and Policy* 7 (2018) 13–23
- Loose, S. and Pabst, E. (2017), "Current State of the German and International Wine Markets", Germany, *GJAE* 67 (2018) Supplement
- Lorenzo, J., Rubio, M and Garcés, S. (2018), "The competitive advantage in business, capabilities and strategy. What general performance factors are found in the Spanish wine industry?" ScienceDirect, *Wine Economics and Policy* 7 (2018) 94–108
- McDowell, L. (1998), "Elites in the City of London: some methodological considerations", *Environment and Planning A* 30: 2133-46.

- Magalhaes, P. and White, K. (2014), "The Effect of a Prior Investment on Choice: The Sunk Cost Effect", tal Psychology: Animal Learning and Cognition, American Psychological Association, Vol. 40, No. 1, 22–37
- Malfeito-Ferreira, M. Diako, C. and Ross, C (2019), "Sensory and chemical characteristics of 'dry' wines awarded gold medals in an international wine competition", Journal of Wine Research, VOL. 30, NO. 3, 204–219
- Marone, E. et al. (2017), "The cost of making wine: A Tuscan case study based on a full cost approach", ScienceDirect, Wine Economics and Policy 6 (2017) 88–97
- Masset, P. et al. (2016), "Analyzing the risk of an illiquid asset. The case of fine wine", Ecole hôtelière de Lausanne pp 1-40
- Masset, P. & Henderson, C. (2009), "Wine as an alternative asset class", JEL classification: C60; G11; Q11
- Masset, P. & Weisskopf, J. (2010), "Raise your Glass: Wine Investment and the Financial Crisis", USA American Association of Wine Economics, Working Paper 57 *Economics*
- Masset, P. & Weisskopf, JP. (2010), "Wine Investment: Impact of the Crisis and Outlook", American Association of Wine Economics & Australian Agricultural and Resource Economics Seda
- Masset, P. & Weisskopf, J. (2015), "Wine Funds: An Alternative Turning Sour?", The Journal of Alternative Investments 2015, 17 4: 6-20
- McIntosh, W. and Schmeichel, B. (2002), "Collectors and Collecting: A Social Psychological Perspective", Taylor & Francis Inc. *Leisure Sciences*, 26:85–97, 2004
- McIntosh & Schmeichel (2004), "Collectors and Collecting: A Social Psychological Perspective", *Leisure Sciences* (26) 85–97
- Menghini, S. (2018), "Designations of origin and organic wines in Italy: Standardisation and differentiation in market dynamics", ScienceDirect, Wine Economics and Policy 7 (2018) 85–87
- Newton, S., Gilinsky, A. and Jordan, D. (2015), "Differentiation strategies and winery financial performance: An empirical investigation", ScienceDirect, Wine Economics and Policy 4 (2015) 88–97

Ostrander, S.A. (1993), "Surely you're not in this just to be helpful. Access, Rapport, and Interviews in Three Studies of Elites", *Journal of Contemporary Ethnography* 22(1): 7-27.

Pabst, E., Szolnoki, G. and Loose, S. (2019), "The effects of mandatory ingredient and nutrition labelling for wine consumers – A qualitative study", *ScienceDirect, Wine Economics and Policy* 8 (2019) 5–15

Pelegri, J., Gonzales-Menorca, C. and Meraz, L. (2019), "The influence of the emotions produced by the wine offer, winery visits, and wine news on wine purchase intent in tourists", *Spanish Journal of Agricultural Research* 17 (1), e0104, 14 pages (2019)

Pomarici, E. and Vecchio, R. (2019), "Will sustainability shape the future wine market?", *ScienceDirect, Wine Economics and Policy* 8 (2019) 1e4

Pomarici, E., Vecchio, R. and Naes, T. (2018), "Young consumers' preferences for water-saving wines: An experimental study", *ScienceDirect, Wine Economics and Policy* 7 (2018) 65–76

Priilaid, D. and van Rensburg, P. (2012), "Nonlinear hedonic pricing: a confirmatory study of South African wines", *International Journal of Wine Research*, Available at <https://www.dovepress.com>

Outreville, JF. And Le Fur, E. (2019), "The price of wine as consumer good or investment plan: a survey", *France Dijon, School of Wine and Spirits Business, BSB Dijon*

Rodriguez-Donate, M. et al. (2019), "Analysis of heterogeneity in the preferences of wine consumption", *ScienceDirect, Wine Economics and Policy* 8 (2019) 69–80

Sanning, L.W., Shaffer, S. and Sharratt, J.M. (2018), "Bordeaux Wine as a Financial Investment", *Journal of Wine Economics*, Vol 3, Number 1, Spring 2008, pp 51– 71

Santeramo, F. et al. (2018), "The benefits of country-specific non-tariff measures in world wine trade", *ScienceDirect, Wine Economics and Policy* 8 (2019) 28–37

Schaefer, R., Olsen, J. and Thach, L. (2018), "Exploratory wine consumer behavior in a transitional market: The case of Poland", *ScienceDirect, Wine Economics and Policy* 7 (2018) 54–64

Schamel & Anderson (2003), "Wine quality and varietal, regional and winery reputations: hedonic prices for Australia and New Zealand", *Economic Record* (79) 357–369

- Scozzafava, G. et al. (2018), "Reach for the stars: The impact on consumer preferences of introducing a new top-tier typology into a PDO wine", ScienceDirect, Wine Economics and Policy 7 (2018) 140–152
- Silva, A. and Rebelo, J. (2019), "Port wine, an established product a new market: A comparative analysis of perceptions of firms and consumers", ScienceDirect, Wine Economics and Policy 8 (2019) 59–68
- Skinner, P. (1993), "The Utilisation of a Central Wine Marketing Organisation in The Re-Marketing of Austrian Wine — Post - 1985", International Journal of Wine Marketing, Vol. 5 No. 4, pp. 4-14
- Snipes, M. and Taylor, D. (2014), "Model selection and Akaike Information Criteria: An example from wine ratings and prices", ScienceDirect, Wine Economics and Policy 3 (2014) 3–9
- Song, L, Wei, Y. and Bergiel, B. (2018), "Cognac consumption: A comparative study on American and Chinese consumers", ScienceDirect, Wine Economics and Policy 7 (2018) 24–34
- Storchmann (2012), "Wine economics", Journal of Wine Economics (7) pp 1–33
- Stranieri, S., Cavaliere, A. and Banterle, A. (2018), "The determinants of voluntary traceability standards. The case of the wine sector", ScienceDirect, Wine Economics and Policy 7 (2018) 45–53
- Szolnoki, G. (2018), "Geisenheimer Weinkundenanalyse - Repräsentativbefragung zu Kauf-und Konsumverhalten bei Wein", Germany, Hochschule Geisenheim
- Szolnoki, G. et al. (2018), "Using social media for consumer interaction: An international comparison of winery adoption and activity", ScienceDirect, Wine Economics and Policy 7 (2018) 109–119
- Tsakiris, A. et al. (2011), "Price estimation and economic evaluation of the production cost of red wines produced by immobilized cells on dried raisin berries", International Journal of Wine Research 2011:3 1–8
- Umpleby, S. (2006) , "Cybernetics", Prepared for the International Encyclopedia of Organization Studies pp 1-7
- Urso, A. et al. (2017), "Efficiency analysis of Italian wine producers", ScienceDirect, Wine Economics and Policy 7 (2018) 3–12

Wariishi, M. et al. (2016), "Sentiment Analysis of Wine Aroma", Japan Fukuoka, Kyushu University

Weil, R. L. (2001), "Parker v. Prial: The Death of the Vintage Chart", RLW VDQS for 21-May-01

Winfrey, J., McIntosh, C. and Nadreau, T. (2018), "An economic model of wineries and enotourism", ScienceDirect, Wine Economics and Policy 7 (2018) 88–93

Zimberoff, L. (2018), "Investing in Fine Wine is more Lucrative than Ever", Bloomberg 19 Juli 2018, 13:56 MESZ

Van Leeuen, C and Darriet, P. (2016) 'The Impact of Climate Change on Viticulture and Wine Quality' Journal of Wine Economics, Volume 11, Number 1, 2016, Pages 150–167

Zuckerman, H.A. (1972), "Interviewing an ultra-elite", The Public Opinion Quarterly 36: 159-75.

## **Dissertations**

Greis, R. B. (2015), "Investment in Wine - An Empirical Analysis of the Return of Fine Wine from 1978 to 2014 and its Diversification Benefit" unpublished dissertation, Copenhagen Business School

## **Articles from the Internet**

Anson J., "Wine trends in 2020: Bordeaux by the Numbers", Wine Scholar Guild (2020), <https://www.winescholarguild.org/blog/wine-trends-in-2020-bordeaux-by-the-numbers> , retrieved on 17<sup>th</sup> January 2021

Bèrard et al. (2005), "Biodiversity and local ecological knowledge in France", Paris: INRA, CIRAD, IDDRI, IFB. Available: [http://www.foodquality-origin.org/documents/BiodiversityTK\\_Iddri\\_2006EN.pdf](http://www.foodquality-origin.org/documents/BiodiversityTK_Iddri_2006EN.pdf) , retrieved on 30<sup>th</sup> August 2020

Bourgogne (2020) 'Key figures for the Bourgogne wine region' Available at [www.bourgogne-wines.com](http://www.bourgogne-wines.com) , retrieved on 17<sup>th</sup> March 2021

Bucher, T., Deroover, K. and Stockley, C. (2019), "Production and Marketing of Low-Alcohol Wine", Available at [www.intechopen.com](http://www.intechopen.com)

Cardebat, JM. And Figuet, JM. (2019), "The Impact of Exchange Rate on French Wine Exports" Available at <https://www.researchgate.net/publication/332931604> , retrieved on 30th August 2020

Chan, Y., Gu, K. and Yang, S. (2018), "Predicting Wine Points using sentiment analysis", Available at <http://jmcauley.ucsd.edu/cse158/projects/sp15/020.pdf>, retrieved on 5<sup>th</sup> June 2020

Cult Wines (2021), "German Fine Wine Investment Report", Cult Wines, Solutions for Fine Wine, Available at [www.wineinvestment.com](http://www.wineinvestment.com), retrieved on 30th August 2020

Cult Wines (2020), "Fact Sheet – Quarter 4 2020", Cult Wines, Solutions for Fine Wine, Available at [www.wineinvestment.com](http://www.wineinvestment.com), retrieved on 15th January 2021

Cult Wines (2018), "How to invest with Cult Wines", Cult Wines, Solutions for Fine Wine, Available at [www.wineinvestment.com](http://www.wineinvestment.com), retrieved on 30th August 2020

Deutsche Weininstitut (2018), "Deutscher Wein Statistik", Germany, Bodenheim, Deutsche Weininstitut GmbH, retrieved on 30th August 2020

Docherty, M. (2019), "Cult Wines – Solutions for Fine Wine", Available at [www.wineinvestment.com](http://www.wineinvestment.com) , retrieved on 30th August 2020

Dokumentation Österreich Wein (2020), "Wein- und Sektkonsum in Österreich", Dokumentation Österreich Wein 2019/2020 Stand: Februar 2021, retrieved on 26th February 2021

Gu, M. (2019), "Predicting Wine Quality using Text Reviews", Available at <https://towardsdatascience.com/predicting-wine-quality-using-text-reviews>, retrieved on 30th August 2020

Hospices de Beaune (2007), "The markets for Burgundy wines and their development: A situation in blanc that is driven by export", France, Bourgognes, Joint BIVB press conference, retrieved on 30th August 2020

Il Corriere Vinicolo (2019), "Wine by Numbers", Unione Italiana Vini Available at [www.winebynumbers.it](http://www.winebynumbers.it), retrieved on 30th August 2020

Passport (2019), "Wine in Germany", Euromonitor International, retrieved 30<sup>th</sup> June 2020

Suckling, J. (2018), "Top 100 German Wines of 2018", Available at <https://www.jamessuckling.com/wine-tasting-reports/top-100-german-wines-2018/>, retrieved on 30th August 2020

Suckling, J. (2018), "Top 100 Wines of Austria 2018" Available at <https://www.jamessuckling.com/wine-tasting-reports/top-100-wines-Austria-2018/>, retrieved on 30th August 2020

Ricardo, M. (2012), "The Case for Investment Grade Wine as a Strategic Alternative Asset Class", Available at [www.TrellisWineInvestments.com](http://www.TrellisWineInvestments.com), retrieved on 20<sup>th</sup> June 2020

Stimpfig, J. (2020), "Investment analysis: Fine wine trading platforms", available at [www.decanter.com](http://www.decanter.com), retrieved on 30th August 2020

Sullivan, L. (2021), "Power and Sample Size Determination", Boston University School of Public Health Available at <https://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS>, retrieved on 26th February 2021

Thomas Karbowiak, T. et al. (2019), "Wine aging: a bottleneck story", Nature Partner Journals Available at [www.nature.com/npjscifood](http://www.nature.com/npjscifood), retrieved on 30th August 2020

Vins de Bourgogne (2020), "Key figures for the Bourgogne wine region" [https://www.bourgogne-wines.com/shop/gallery\\_files/site/12881/13105/37629.pdf](https://www.bourgogne-wines.com/shop/gallery_files/site/12881/13105/37629.pdf), retrieved on 26th February 2021

Westcott, B (2021), "How China is devastating Australia's billion-dollar wine industry", USA CNN Business Available at: <https://www.cnn.com/2021/02/16/business/australia-china-wine-tariffs-dst-intl-hnk/index.html>, retrieved on 26th February 2021

Wikipedia (2020), "Central Europe", available at [https://en.wikipedia.org/wiki/Central\\_Europe](https://en.wikipedia.org/wiki/Central_Europe), retrieved on 23rd January 2020

WMC – Wine Market Council (2020), available at <https://winemarketcouncil.com>, retrieved on 26<sup>th</sup> February 2021



# APPENDICES

## Appendix 1: Information sheet



### Information Sheet for Potential Participants

My name is Sieghard Vaja and I am an MBA student from the Private University Modul in Vienna, Austria. Currently, I cover the Managing Director's position at „Weinbauzentrum Wädenswil AG“ Switzerland, where I lead a researching station of Viticulture and Oenology and its commercial winery. As part of my MBA program, I am undertaking a research project for my Master Thesis, referred to the following wine related topic :

#### **Finance and Fine Wine The rare Central European Fine Wine market as an alternative investment in the view of wineries, gastronomy and retail**

This study will explore the supposed latent demand of Central European aged fine wines. The findings of the project will be valuable, because it will permit to light on the value chain of the Central European Wine production. Further a model will be developed to list possible strategies to succeed in sell aged fine wines.

I am looking for volunteers as wine producers, retailers and gastronomy owners, to participate in the project. There are the following criteria for being included, with at least one correspondent:

- being an acclaimed wine producer of an selected wine region within Germany and Austria
- being a retailer specialised in wine only and dealing usually with rare fine wine
- running a fine gastronomy, which serves usually fine and aged wines to their costumers

If you agree to participate in the study, you will be asked to undergo an interview. The whole procedure should take no longer than 10 minutes. You will be free to withdraw from the study at any stage, you would not have to give a reason, and it will not affect you in any way.

All data will be anonymised as much as possible, but you may be identifiable from tape recordings of your voice. Your name will be replaced with a participant number, and it will not be possible for you to be identified in any reporting of the data gathered. All data collected will be kept in a secure place on a pc that is password protected, to which only me (Mr. Sieghard Vaja) has access. These will be kept till the end of the examination process, following which all data that could identify you will be destroyed.

The results may be published in a Master Thesis, in a journal or presented at a conference.

If you would like to contact an independent person, who knows about this project but is not involved in it, you are welcome to contact Dr Dimitris Christopoulos.

His contact details are given below.

Dr. Dimitris Christopoulos, Associate Professor MODUL University Vienna - Department of Sustainability, Governance, and Methods

E: dimitris.christopoulos@modul.ac.at P: +43 1 3203 555 603

If you have read and understood this information sheet, any questions you had have been answered, and you would like to be a participant in the study, please now see the consent form.

## Appendix 2: Consent form



### Research consent Form

Research topic:

**Finance and Fine Wine**  
**The rare Central European Fine Wine market as an alternative investment**  
**in the view of wineries, gastronomy and retail**

Private Modul University requires, that all persons who participate in research studies give their written consent to do so. Please read the following and sign it if you agree with what it says.

1. I freely and voluntarily consent to be a participant in the research project on the topic of Fine Wine Investment Proposal to be conducted by Mr. Sieghard Vaja, who is an MBA student at Private University MODUL Vienna.
2. The broad goal of this research study is to explore the supposed latent demand of Central European aged fine wines. Specifically, I have been asked to participate in an interview, which should take no longer than 10 min. to complete.
3. I have been told that my responses will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher.
4. I also understand that if at any time during the interview, I feel unable or unwilling to continue, I am free to leave. That is, my participation in this study is completely voluntary, and I may withdraw from it without negative consequences. However, after data has been anonymised or after publication of results it will not be possible for my data to be removed as it would be untraceable at this point.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the interview and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study. My signature is not a waiver of any legal rights. Furthermore, I understand that I will be able to keep a copy of the informed consent form for my records.

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

I have explained and defined in detail the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records.

\_\_\_\_\_  
Researcher's Signature- Dipl. Ing. (FH) Sieghard Vaja

\_\_\_\_\_  
Date

## Appendix 3: Questionnaire

### Questionnaire design

In order to collect data for the Master Thesis “Fine Wine Investment Proposal”, the following questionnaire will be sent to the three categories involved in the research:

- (a) Wineries
- (b) (b) Gastronomy
- (c) (c) Retail

The questionnaire will be written in German language for a better comprehension for the be interviewed professionals. Nevertheless, the questions are also translated into English due transparency.

The structure is proposed as following:

1. Common introduction for all the categories
2. Different design for the specific categories:
  - (2a) Wineries, (2b) Gastronomy, (2c) Retail
3. Common conclusion for all

The questions will be related to the research questions:

**Research question 1: There is a latent demand for aged Central European Wines.**

**Research question 2: Is the current offer satisfying the demand?**

## (1) Introduction - common questions, IQ 1 – IQ3

.....

Diese Umfrage dient zum besseren Verständnis des Bedarfs an gereiften mitteleuropäischen Weinen. Die erhaltenen Antworten werden anonym behandelt und ausschließlich zur Erarbeitung einer MBA Master Thesis Arbeit verwendet. Forschungsfrage: **“Es gibt eine latente Nachfrage an gereiften Weinen aus Mitteleuropa. Befriedigt das aktuelle Angebot diese Nachfrage?”**. Es werden Weingüter, Gastronomiebetriebe und Weinhändler befragt.

This survey will light up the demand for aged Central European Wines. The obtained answers will be handled anonymously and used solely for a research of a MBA Master Thesis. The Research Question is the following: **“There is a latent demand for aged Central European Wines. Is the current offer satisfying the demand?”** Wineries as well as gastronomic enterprises and wine retailers will be surveyed.

### IQ1

Haben Ihre Kunden einen Bedarf für gereifte Weine aus Österreich und/oder Deutschland?

Ja / Nein / Keine Erfahrung

[Do your customers have a demand for aged Austrian and/or German Wines?](#)

[Yes / No / No experience](#)

### IQ2

Ist ein gereifter Wein teurer, als ein jüngerer Jahrgang?

Ja / Nein / Nicht immer / Keine Erfahrung

[Is an aged wine more expensive, compared to a more recent vintage?](#)

[Yes / No / not necessarily / No experience](#)

### IQ3

Wie schätzen Sie das Angebot an gereiften Weinen aus Österreich und/oder Deutschland ein?

Ausgezeichnet / Gut / Gering / Kein Angebot / Keine Erfahrung

[How do you evaluate the offer of aged Austrian and/or German wines?](#)

[Excellent / Good / fair / no offer / no experience](#)

## (2a) Category Wineries, WQ1 – WQ3

.....

### **WQ1**

Bieten Sie Weine von älteren Jahrgängen an?

Ja / Nein / in Planung

[Do you offer elder vintages?](#)

[Yes / No / In planning](#)

### **WQ2**

Haben sie dafür genug Platz in Ihrem Betrieb?

Ja / Nein / in Planung

[Do you have enough warehouse capacity for that propose?](#)

[Yes / No / In planning](#)

### **WQ3**

Ist der Aufwand, Weine reifen zu lassen gerechtfertigt?

Ja / Nein / Keine Meinung

[Is the effort to age wines, justified?](#)

[Yes / No / No opinion](#)

## (2b) Category Gastronomy, GQ1 – GQ3

### GQ1

Haben Sie reife Weine gelistet?

Ja / Nein / in Planung

Do you usually list aged wines?

Yes / No / In planning

### GQ2

Ist es Ihnen möglich, gereifte Weine regelmäßig zu erhalten?

Ja / Nein / Ich benötige einen verlässlichen Zulieferer

Are you able to source aged wines regularly?

Yes / No / I do need a reliable supplier

### GQ3

Wie reagieren Ihre Kunden auf gereifte Weine? (Mehrere Antworten möglich)

Positiv / Neutral / Negativ / keine Reaktion

How is the reaction of your customers towards aged wines? (multiple choice)

positive / neutral / negative / no reaction

### GQ4

Haben gereifte Weine gelegentlich Fehltöne?

Ja / Nein / Manchmal

Do aged wines occasionally have some taint?

yes / no / sometimes

## **(2c) Category Retail, RQ1 – RQ3**

### **RQ1**

Betrachten Sie den Handel mit gereiften Weinen eher als Kundenservice oder als Geschäft?

Eher als Kundenservice / Eher als Geschäft / weder - noch

*Do you consider the trade with aged wines more likely as a service or as a business?*

*More likely as a service / more likely as a business / neither ... nor*

### **RQ2**

Handeln Sie mit gereiften Weinen aus Österreich und/oder Deutschland?

Ja / Nein / In Planung

*Do you trade with aged Austrian and/or German wines?*

*Yes / No / In planning*

### **RQ3**

Wie ist die Nachfrage Ihrer Kunden bezüglich gereifter Weine aus Österreich und/oder Deutschland?

Sehr groß / Groß / Mäßig / Keine Nachfrage

*How is your customer's demand regarding aged Austrian and/or German wines?*

*Very intense / intense / moderate / no demand*

### (3) Conclusion - common questions, CQ1 – CQ3

#### CQ1

Was erwarten Sie sich vom Handel mit gereiften Weinen? (Mehrere Antworten möglich)

Kundenbindung / Bessere Geschäfte / Eine Ergänzung des Portfolios / Keine Erwartung / Negative Auswirkungen

What are your expectations about the trade with aged wines? (multiple choice)

Customer loyalty / sales improve / an addition to the portfolio / no expectation / negative effects

#### CQ2

Trinken Sie selbst gerne gereifte Weine aus Österreich und/oder Deutschland?

Ja / Nein / Keine Erfahrung

Do you personally consume aged Austrian and/or German wines?

Yes / No / no experience

#### CQ3

Würden Sie Ihr Vermögen in gereifte Weine aus Österreich und/oder Deutschland investieren?

Ja / Nein / Nein, lieber in Französische oder andere / Keine Meinung

Would you invest your funds in aged Austrian and/or German wines?

Yes / No / No, I would prefer to invest in French or other ones / No opinion

#### Ending phrase:

Vielen Dank, dass Sie Ihre wertvolle Zeit zur Verfügung gestellt haben. Sie sind sehr hilfreich, eine Bedarfsanalyse von gereiften österreichischen und/oder deutschen Weinen zu ermöglichen.

Freundlichst, DI (FH) Sieghard Vaja - MBA Student

Many thanks for your kind help. We appreciate, that you took your precious time to light up a demand analysis of aged Austrian and/or German wines.

Best regards, DI (FH) Sieghard Vaja - MBA student