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Distribution velocity in wine retailing

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Abstract. Little is known about the relationship between distribution and market share in the wine category. Understanding the influences of product and distribution characteristics at the SKU-level and incorporating them into marketing strategy and planning has important managerial and academic implications. Sales of 3,524 wine SKUs across 4,218 stores in 4 states in the US over one year of observation are analyzed. We use an established distribution velocity model (Reibstein & Farris 1995) to estimate the relationship between distribution and market share. We then use the market share deviations from the expected values and apply a secondary robust regression to investigate possible relationships between various product- and distribution characteristics and those market share deviations. The results show that the distribution velocity in wine retailing is convex and increasing, in line with previous findings for other consumer-packaged goods in the marketing literature. Beyond distribution breadth, we find that overall parent brand performance (above), unit price (above), packaging type (above), country-of-origin, grape variety, sales consistency (above) and store specialization (below) are associated with above or below expected market share of wine SKUs.

Keywords: distribution, velocity, wine, retail, channel, strategy.

1. INTRODUCTION

Despite the recent successes of e-commerce and direct-to-consumer sales in the wine industry, "brick-and-mortar" retail sales of wine are important and growing. This trend can be followed in emerging markets as well as in mature markets like the US, which represents the most important wine market globally by total value and import volume [1,2]. According to Euromonitor [3,4], "brick-and-mortar" wine sales in the US grew by 19.1% to 2,609 million liters in a decade from 2009 to 2019. Over this period e-commerce of wine grew by 272.8% to 116 million liters. Even with this strong growth,

e-commerce still only represents 4,3% of all off-trade sales in 2019. For wine brands to be sold and grow in the market, they need to be made available especially in traditional retail channels where most consumers shop. Retail distribution is one of the most important drivers of a brand's market share [5]. However, decisions aimed at increasing market share usually involve a range of marketing strategies besides increasing distribution breadth (i.e., number of stores). This especially applies to the wine category with its naturally limited and varying production levels. Usually only a few large-scale producers can supply enough volume to reach near full distribution or even grow volume substantially as demand increases.

This highlights the need for wine brands to leverage additional strategies to grow in the market. In this study we investigate the role of distribution velocity in wine retailing by analyzing the relationship between distribution breadth and market share for wine. We delve deeper to specifically examine the influence of product and distribution characteristics on market share over- and underperformance, beyond expected market share based on distribution breadth.

We find that despite the huge fragmentation of wine brands, the typical convex and increasing distribution velocity curve also exists in the wine category. In addition, results show that wine brands overperform when they are available across a variety of different retail channels, as opposed to single-channel distribution. Wine brands also benefit from high in-store presence and sales consistency. However, store specialization in the wine category (more brands on offer) is associated with underperformance (below expected market share), relative to a wine brand's distribution coverage (breadth). This may be related to higher levels of in-store intra-category competition in specialized wine stores. But, individual wine SKUs from strong parent brands have excess market share (overperform), which indicates the power of brand size and halo effects from relatively big parent brands. Also, country-of-origin, the grape variety, the packaging type, and not surprisingly price, can each be associated with market share beyond expected distribution velocity.

The findings have implications for academia, suppliers and retailers. Practical implications are specifically related to product and portfolio management, supply chain management and retailer category management. Beyond that, the findings provide needed benchmarks – knowing what to expect – which add comparability and predictability for wine brand managers and retailers.

2. LITERATURE REVIEW & RESEARCH QUESTIONS

Research into the relationship between distribution and market share (distribution velocity) identifies a convex and increasing curve pattern that consistently appears across categories and markets [6,7,8,9,10,11]. This relationship is bi-causal. Higher distribution will increase brands' exposure in the market, growing market share. On the other hand, brands which create consumer demand will be attractive for retailers to stock and therefore may result in increased distribution. This interdependency is explained by the push-and-pull dynamics in the market [6]. Marketing-mix inputs influence consumer behavior (pull) as well as trade behavior (push), both affecting market share. Changes in market share further induce pull effects perceived by trade, which also affects trade behavior.

Previous research on the relationship shows that even at relatively low distribution levels, brands differ in their market share; some are high- or overperformers (above the curve) and others are market share "laggards" or underperformers (below the curve), given their distribution. Beyond distribution breadth, theory offers a complex and incomplete picture of possible causes for over- and underperforming brands at SKU-level [7][1]. This is also acknowledged by Wilbur and Farris [11] who express the need to continue studying the causes and consequences of best- versus worst-performing SKUs. A brand's market performance depends on many possible factors, partly the product offering (e.g., brand, price, packaging) and the nature of its distribution.

Another dimension of distribution which may be related to above or below expected market performance is distribution depth [12]. While distribution breadth entails a brand's presence across outlets, distribution depth involves a more qualitative dimension, for example the length of a brand line offered in-store, the in-store prominence or sales support. Both concepts may influence market performance and are therefore important factors for marketing management. Studies suggest that some product-related characteristics of SKUs may be associated with their position above or below the distribution velocity curve (e.g., [13]). In this context, examining the distribution velocity pattern of the wine category, and empirically investigating the role of individual SKUs' product and distribution-related characteristics in above- or below expected market performance, will advance knowledge in this area.

In this study, we first explore whether the convex

[1] This research was a broader examination by some of the same authors across multiple categories. It was not investigating a specific category as done in this study by utilising additional category-specific variables.

distribution exists in the wine category. The examination is important for a number of reasons. Wine is one of the most fragmented food and beverage categories, where even the largest SKUs do not enjoy market shares over 5% (Table 2). This characteristic could impact the curve pattern of distribution velocity. On the other hand, even in the highly fragmented wine environment, a few big, popular brands (whose SKUs are likely positioned at the right side of the curve) do have the volume capacity to distribute to many stores (high distribution coverage) but also experience high consumer demand (pull). In combination with marketing investments (push), as well as bargaining power for better price negotiations, those market-leading brands ultimately could generate better sales per point of distribution than their competitors. So, compared with the rest of the market this may cause the distribution velocity curve to be convex rather than linear. This brings us to the first question:

RQ1: Does the convex distribution velocity curve exist in the wine category?

2.1 Product characteristics

Prior literature suggests that various product characteristics may be associated with above or below expected market performance of consumer-packaged goods, regardless of how widely these are distributed. For example, Hirche et al. [14] show that product price, brand (private label v. national brand) and packaging size are associated with market share deviations of SKUs from the distribution velocity curve. Based on their findings we would expect wines with higher unit prices, private label wines, and wines with bigger packaging sizes to be overperforming, which means they have excess market share based on what distribution velocity would estimate.

The type of packaging may affect consumer choice and market share outcomes in the wine category [15]. It is possible that packaging types with bigger packaging sizes, such as bag-in-box, are listed and sold in fewer large stores but with high sales frequencies, potentially making them overperforming SKUs.

When reviewing brand equity research, we find strong indications that the reputation of a parent brand influences its sub-brands [16]. Also, the variety of a brand's offering has an effect on consumer choice [17]. Both, the strength of a parent brand as well as the brand's number of different variants may result in market share above expectations.

Focusing on the wine category, it is a widely accepted finding that country-of-origin (COO) is an important cue for consumers when choosing wine [18,19]. With regard to grape varieties, Jarvis, Rungie & Lockshin [20] highlight that some consumers exercise variety seeking, however, some grape varieties enjoy excess loyalty in a market, which may also result in overperforming wine SKUs with above average market share. Literature also suggests that wines labelled "organic" enjoy increased preference over conventional wines, including a consumer acceptance of price premiums for organic-labelled wine [21]. All these concepts could be related to sales above or below expected market share; in other words, over- or underperformance of predicted distribution velocity.

2.2 Distribution characteristics

Expanding a brand's sales across multiple retail chains and channels is an effective strategy to grow a brand's market share [22]. However, over-distribution may cause high retailer competition and cannibalization effects, which put pressure on the price (margin) and may result in lower distribution depth [12]. High distribution exposes SKUs to more local competition across retail chains and channels, which ultimately affects store performance and market share [23]. We therefore expect wine SKUs with increasing numbers of channels and chains to show market share values below distribution velocity estimates (underperformance).

Another important aspect of retail distribution is store size which typically affects retailers' stocking decision-making due to limited shelf space and budget. Small stores with less available shelf space have a small assortment of SKUs and change this assortment more frequently, likely in response to consumer preference over time [24]. Larger stores may benefit from logistic efficiencies and experience better turnover and sales consistency compared to small stores. The consistency of sales may also depend on out-of-stock (OOS) situations, which are inherently linked to supply chain and inventory management problems [25]. Therefore, one could argue that wine SKUs with a higher sales consistency, and hence higher in-store presence, would experience above expected market share (overperformance), regardless of how widely they are distributed.

It appears that consumers pay no attention to the size of assortments, as long as the perceived attractiveness of the options is high [26]. But, Oppewal and Koelemeijer [27] have found that adding items to an assortment is evaluated more positively by consumers, regardless of attribute variety or if the assortment contains individually preferred alternatives. Also Tan and Cadeaux [28] confirm a positive relationship between category sales and

assortment size. However, a broader assortment of a category in-store also increases category competition. While a broader category assortment may increase category sales overall, it could diminish returns per SKU.

We test the above-mentioned concepts of product and distribution characteristics in this study to see if they are indeed associated with the over- or underperformance of individual wine SKUs, i.e. having above or below expected market share relative to distribution velocity estimates. We investigate the following distribution characteristics of wine SKUs: the number of channels and retail chains, store sizes, sales consistency, and specialization in the category. The product related variables tested involve: the price, parent brand performance, the number of different variants and packaging sizes of the parent brand, the packaging type, country-of-origin, grape variety, and organic label or not.

Consequently, the two final research questions are as follows:

RQ2: What product characteristics are associated with individual wine SKUs having above or below expected market share based on the distribution velocity curve?

RQ3: What distribution characteristics are associated with individual wine SKUs having above or below expected market share based on the distribution velocity curve?

3. METHODS

We analyze the sales of 3,524 stock-keeping units (SKUs) of imported dry table wine[2] across 4,218 stores in four US states for the year 2014. As in a previous study on distribution velocity [7], we sample the stores from California, New York, Texas, and Wisconsin, which have a relatively high store coverage and are geographically well dispersed. The study employs weekly retail store scanner data provided by Nielsen©.[3] Rigorous data cleaning, deduplication, transformation and aggregation prepared the data for statistical analysis. The metrics for distribution and market share are calculated as weekly averages for the year. Market share is based on sales value, and distribution is reflected as All-Commodities-Volume (ACV)[4], a metric that counts and weights each store by its total revenue in which at least one item of the SKU was sold. We then apply the distribution velocity model based on Reibstein & Farris [9] to estimate the relationship between distribution and market share of the sampled wine SKUs, as shown in equation (1).

$$MS_i = \frac{\beta_0 * ACV_i{}^{\beta_1}}{(100 - ACV_i)^{\beta_2}}$$

$$\text{where } MS,\ ACV \in [0,100];\ \beta_0,\ \beta_1,\ \beta_2 \in \mathbb{R}_+ \tag{1}$$

The market share (MS) for every i^{th} SKU equals the parameter β_0 multiplied by the SKU's weighted distribution (ACV) raised to the power of parameter β_1, divided by the subtraction of 100 minus weighted distribution (ACV) raised to the power of parameter β_2. Market share and weighted distribution are restricted real numbers between 0 and 100, and all parameters are non-negative real numbers. The resulting market share estimation is the foundation for the secondary regression analysis: the market share deviations from the modelled distribution velocity estimates. The dependent variable for the secondary regression is the deviation between predicted and observed market share (market share deviation MSD) as shown in (2).

$$MSD_i = \hat{u}_i = MS_i - \frac{\hat{\beta}_0 ACV_i^{\hat{\beta}_1}}{(100 - ACV_i)^{\hat{\beta}_2}} \tag{2}$$

The secondary regression tests for associations between the SKUs' product and distribution characteristics, and the market share deviation from the average market share predicted by the distribution velocity model. All variables can be found in Table 3. Independent variables with ordered levels (e.g., low to high) are based on quartiles of the original metric variable. The regression equation (3) states:

$$\begin{aligned} MSD_i = {} & \beta_0 + \beta_1(Private\ Label)_{1i} + \beta_{2\text{-}4}(Unit\ Price\ Level)_{2\text{-}4i} + \beta_{5\text{-}6}(Private\ Label \times Unit\ Price\ Level)_{5\text{-}6i} \\ & + \beta_7(Brand\ Performance)_{7i} + \beta_8(Variants\ of\ Brand)_{8i} + \beta_9(Pack\ Sizes\ of\ Brand)_{9i} \\ & + \beta_{10\text{-}12}(Packaging\ Type)_{10\text{-}12i} + \beta_{13}(Organic)_{13i} \\ & + \beta_{14\text{-}22}(COO)_{14\text{-}22i} + \beta_{23\text{-}31}(Grape\ Variety)_{23\text{-}31i} + \beta_{32}(Channels)_{32i} + \beta_{33}(Chains)_{33i} \\ & + \beta_{34\text{-}36}(Share\ Store\ Sizes)_{34\text{-}36i} + \beta_{37\text{-}40}(Sales\ Consistency\ by\ Store\ Size)_{37\text{-}40i} \\ & + \beta_{41\text{-}44}(Specialisation\ by\ Store\ Size)_{41\text{-}44i} + u_i \end{aligned} \tag{3}$$

[2] We excluded domestic table wine so that SKUs remain comparable in the category with regard to the investigated product- and distribution characteristics.

[3] Researcher(s)' own analyses calculated (or derived) based in part on data from Nielsen Consumer LLC and marketing databases provided through the NielsenIQ Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business. The conclusions drawn from the NielsenIQ data are those of the researcher(s) and do not reflect the views of NielsenIQ. NielsenIQ is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein.

[4] For the ACV-weighted distribution metric in this study, we limit the universe of stores to all sampled stores that have sold any wine SKUs in the year of investigation.

Counteracting a non-constant variance of the error term, a robust regression is employed that involves a robust error term [29].

4. RESULTS

The dominant channel for retail sales of imported dry table wine in this study are food stores (i.e., food retailers, supermarkets) followed by mass merchandisers, drug stores and liquor stores (see Table 1).

Table 2 presents some descriptive statistics of the imported wine sample by country of origin. The country that offers the most individual wines (SKUs) is Italy, followed by France and Australia. Chile and Australia have the highest average brand range in the market, with 4.2 and 3.8 SKUs per brand respectively. The overall share of private label brands, brands that are owned and exclusively sold by individual retail chains, is very low with 1.8% of all SKUs. South Africa, New Zealand and Chile have the highest shares of wines with some form of "organic" label. Due to the very high number of wine brands offered in the market, the maximum market share of the best performing SKU is 3.1%, a 750 ml bottle of Pinot Grigio from Italy. In total, less than 25 of all wines have a market share above 1%, illustrating the very high degree of fragmentation in the wine market.

The non-linear robust regression of distribution velocity results in an R-squared value of 0.767 at the 99% confidence level. With reference to research question RQ1 (Does the convex distribution velocity curve exist in the wine category?), Figure 1 demonstrates the convex and increasing relationship between distribution and market share for wine. The vast majority of wine SKUs is bundled at the lower ends of the scales. The graph also shows how individual data points deviate from the model estimate. These deviations are of interest in the secondary analysis, testing possible associations of product- and distribution characteristics with those market share deviations. The results of the secondary robust regression are presented in Table 3.

Table 1. Number of stores and wine sales share by channel.

	Stores Count	Stores %	Sales of imported wine (% of $)
Food	1941	46.0	88.2
Drug	1719	40.8	4.7
Mass Merchandise	510	12.1	6.6
Liquor	48	1.1	0.6
Total	4218	100.0	100.0

Modelling the market share deviation across 3,524 wine SKUs resulted in a statistically significant regression ($F(44, 3479) = 2.670$; Prob. < 0.01; R-squared = 0.094; Root MSE = 0.073). The results provide some indications of relevant associations between SKUs' product and distribution characteristics and the over- or underperformance of wine SKUs from the distribution velocity curve. It is important to remember that the associations discussed go beyond distribution breadth, i.e. disregarding how widely a wine SKU is distributed. Some wine SKUs appear above the curve (overperforming and under-distributed), and others below the curve (underperforming and over-distributed).

The results answering research question RQ2 show that the deviation of wine SKUs from the distribution velocity curve are associated with the following product-

Table 2. Sample statistics for imported dry table wine.

Country of Origin	SKUs		Brands Count	SKUs per Brand Average Count	Private Label SKUs Share (%)	Labelled Organic Share (%)	Max Market Share of SKU % of $ s	Max Distribution of SKUs % ACV	Median Unit Price $US/Litre
	Count	Share (%)							
Italy	866	24.6	396	2.2	1.5	1.1	3.1	61.3	13.63
France	541	15.4	326	1.7	1.3	1.3	0.6	25.5	17.41
Australia	469	13.3	123	3.8	2.8	0.0	2.6	75.5	10.46
Argentina	435	12.3	183	2.4	2.3	2.1	2.2	68.6	12.99
Chile	402	11.4	95	4.2	1.7	3.0	0.7	37.8	11.43
Spain	294	8.3	207	1.4	2.0	1.7	1.1	46.5	14.23
Germany	198	5.6	92	2.2	2.0	0.0	0.4	30.2	12.61
New Zealand	116	3.3	76	1.5	0.9	3.4	2.6	67.6	16.38
South Africa	95	2.7	46	2.1	2.1	5.3	0.0	2.4	12.65
Other	108	3.1	77	1.4	0.0	0.0	0.0	5.1	14.01
Total Sample	3524	100.0	1621	2.2	1.8	1.4	3.1	75.5	13.39

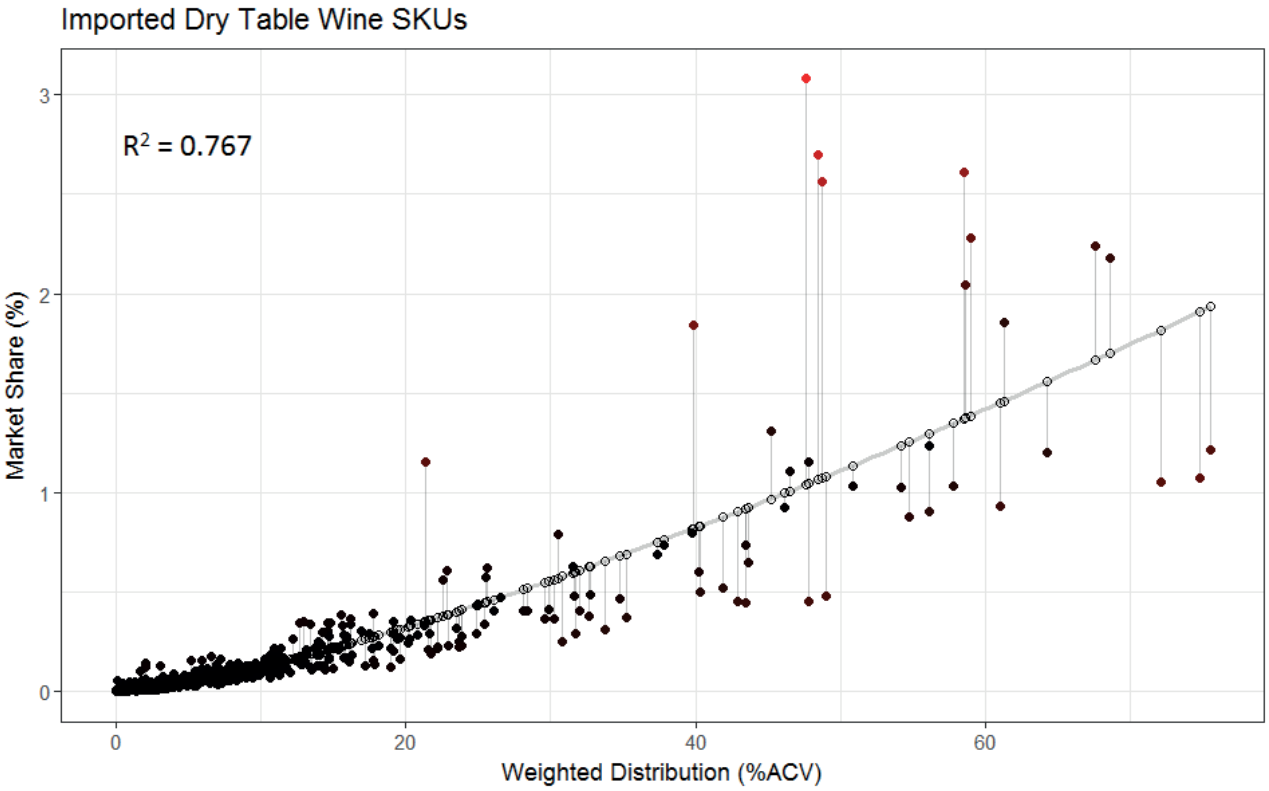

Figure 1. Distribution velocity curve. We validate that the model curve is monotonic increasing and fully convex, i.e. does not contain any concave intervals. The monotonicity criteria for a monotonic increasing interval of the function is for the interval [0, 100]. Since the RF model represents a twice-differentiable function, the criteria for convex function intervals is . If the second differentiation results in one single positive value, the function is declared fully convex.

related characteristics: price, parent brand performance, country-of-origin, grape variety[5], and packaging type. Distribution-related characteristics (RQ3) that are associated with over- or underperforming wine SKUs are: sales consistency and store specialization in the wine category. We discuss below the influence of product- and distribution-related SKU characteristics based on our modelling.

5. DISCUSSION AND CONCLUSION

In this study we investigate the distribution velocity in wine retailing by analyzing the relationship between distribution breadth and market share for wine. We further examine the influence of product and distribution characteristics of wine SKUs on market share over- and underperformance, beyond expected values based on distribution breadth.

When modelling the distribution velocity for wine we identify a convex and increasing distribution velocity curve similar to those in previous studies [6,7,8,9,10,11]. This is an important finding because the distribution velocity model reflects the competitive landscape of the market in terms of distribution and market share, and therefore provides the potential to benchmark, assess, and improve the market outcomes of wine SKUs. A convex distribution velocity in the wine category implies increasing sales returns per point of distribution. But it also means that the objective of increasing an SKU's distribution (i.e., getting listed in retail stores) requires increasing efforts in marketing pull-effects (i.e., consumer demand).

5.1 Product characteristics

When analyzing over- and underperforming wine SKUs that deviate from the distribution velocity curve we identify associated product characteristics that relate to brand management. The analysis reveals that a strong

[5] To ensure independence of variables in the regression analysis, we opted to use grape variety (instead of wine type) as a more useful construct for managers.

Table 3. Results Robust Regression.

Independent variables	Robust			P > t	Beta
	Coef.	Std. Err.	t		
Constant	-0.014	0.009	-1.620	0.105	.
National Brand (ref)	–	–	–	–	–
Private Label brand	0.006	0.005	1.090	0.278	0.010
Unit price low (ref)	–	–	–	–	–
Unit price medium-low	0.012***	0.004	2.850	0.004	0.066
Unit price medium-high	0.017***	0.006	2.730	0.006	0.098
Unit price high	0.024***	0.008	2.880	0.004	0.139
PL x unit price low (ref)	–	–	–	–	–
PL x unit price medium-low	-0.013**	0.006	-2.170	0.030	-0.012
PL x unit price medium-high	-0.012	0.008	-1.440	0.151	-0.007
Performance other SKUs of brand	0.024***	0.006	4.380	0.000	0.246
Number of variants of brand	0.001	0.001	0.090	0.927	0.002
Number of different packaging sizes of brand	0.003	0.004	0.720	0.470	0.033
Glass (ref)	–	–	–	–	–
Plastic	-0.005	0.008	-0.580	0.564	-0.004
Box	0.008	0.005	1.520	0.129	0.006
Bag-in-box	0.034*	0.020	1.730	0.084	0.057
Organic label	0.001	0.003	-0.040	0.970	0.000
Other countries of origin (ref)	–	–	–	–	–
Argentina	-0.010**	0.004	-2.370	0.018	-0.043
Australia	0.001	0.003	0.160	0.872	0.002
Chile	-0.005*	0.003	-1.940	0.052	-0.022
France	-0.001	0.002	-0.690	0.489	-0.007
Germany	-0.003	0.003	-0.980	0.329	-0.008
Italy	0.001	0.002	0.300	0.767	0.003
New Zealand	0.028**	0.014	1.980	0.047	0.065
South Africa	0.001	0.002	0.390	0.694	0.002
Spain	-0.001	0.001	-0.580	0.565	-0.003
Other grape varieties (ref)	–	–	–	–	–
Chardonnay	0.013**	0.006	1.990	0.047	0.038
Moscato	-0.005	0.005	-1.060	0.289	-0.016
Pinot Gris	0.013	0.013	0.990	0.324	0.037
Riesling	-0.001	0.004	-0.420	0.677	-0.004
Sauvignon Blanc	0.019***	0.006	3.020	0.003	0.055
Cabernet Sauvignon	-0.006	0.005	-1.350	0.176	-0.020
Malbec	0.003	0.005	0.590	0.556	0.009
Pinot Noir	-0.005	0.004	-1.200	0.232	-0.013
Shiraz	-0.006	0.007	-0.980	0.328	-0.017

(Continued)

Table 3. (Continued).

Independent variables	Robust			P > t	Beta
	Coef.	Std. Err.	t		
Number of distribution channels	0.007	0.004	1.580	0.115	0.058
Number of different retail chains	-0.001	0.001	-0.930	0.353	-0.081
Share of distribution in small stores (ref)	–	–	–	–	–
Share of distribution in medium-small stores	0.001	0.001	-0.430	0.668	-0.010
Share of distribution in medium-large stores	0.001	0.001	-1.080	0.279	-0.054
Share of distribution in large stores	0.001	0.001	-1.290	0.198	-0.076
Sales consistency in small stores	0.001	0.001	0.480	0.629	0.026
Sales consistency in medium-small stores	0.001	0.001	0.420	0.674	0.014
Sales consistency in medium-large stores	0.001**	0.001	2.410	0.016	0.071
Sales consistency in large stores	0.001***	0.001	3.050	0.002	0.056
Specialization in wine in small stores	-0.001	0.001	-1.260	0.207	-0.038
Specialization in wine in medium-small stores	-0.002**	0.001	-2.180	0.029	-0.052
Specialization in wine in medium-large stores	-0.003	0.002	-1.550	0.120	-0.028
Specialization in wine in large stores	-0.001	0.002	-0.390	0.700	-0.005

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
(ref) = reference level omitted from main model.
Coef. = Deviation from the average market share predicted by the RF model.

parent brand, country-of-origin, the grape variety, packaging type, and price each are correlated with market performance with statistical significance. This may not be overly surprising but there is more to it in detail.

Individual SKUs will benefit from an overall strong parent brand (variable: performance other SKUs of brand). First, this result indicates that the umbrella branding approach is a good branding strategy in wine – a category which is very fragmented and needs those extrinsic quality cues, such as branding. Second, it shows the power of larger brands – in terms of their mental and physical availability, which SKUs can leverage under their umbrella brand. This further supports the argument that the reputation of a parent brand influences its sub-brands [7,16]. Overperforming SKUs may be under-distributed at the point in time of measurement. It is likely that wine SKUs under a strong parent brand have an advantage through consumer preference and demand, as well as through retailers' interest to list those SKUs in their stores. Especially in smaller stores with limited shelf space, SKUs from a strong parent brand have a competitive advantage. How many variants or packaging sizes the parent brand has, according to the results in this study, does not lead to above or below expected market share performance of individual wine SKUs.

Price is another major characteristic affecting choice, and one of the most important marketing functions. The analysis shows that a higher unit price, here above $19.50 USD per liter, is associated with market share overperformance (under-distribution). This is in line with previous findings [14]. Pricing is a very strategic decision and needs to be adjusted for competition and demand dynamics on the consumer and re-seller side. It is possible that wine SKUs with very low unit prices cannot generate enough revenue to overperform in terms of market share, or they tend to be over-distributed, being likely candidates for delisting from retail stores.

Even though consumers may accept to pay a premium for organic wines [21], we could not find any proof that "organic" labelled wine SKUs perform better than those not identified as such.

Not surprisingly, most wines come in 750 ml bottles. But bag-in-box wines seem to have excess market share compared to other packaging formats. This is likely due to their limited distribution - bigger packaging sizes, such as bag-in-box, are listed and sold in fewer large stores with high sales frequencies, and therefore are under-distributed and overperforming SKUs.

We also confirm that country-of-origin (COO) is associated with over- or underperformance of wine

SKUs. For this specific year of US sales data, wines from New Zealand saw strong sales in volume and value, whereas wines from Argentina and Chile significantly underperformed for their level of distribution. In some years it may be SKUs of other COOs over- or underperform. But the finding clearly indicates that COO plays a role in buying and listing decisions. This again may be related to the consumer demand and retail listing situation at the point in time of measurement. Temporary over- or underperformance may affect market developments in the immediate future, either increasing or decreasing distribution, or market shares may normalize to expected levels.

Looking at the results across the grape varieties tested, wines made from Sauvignon Blanc and Chardonnay performed better than we would expect based on distribution, specifically those where the grape variety is written on the label (not blends or regional designations). This confirms previous findings that some grape varieties enjoy excess loyalty in a market [20]. These also may change over time due to changes in consumer preference.

5.2 Distribution characteristics

There is a weak yet notable indication that wine SKUs being available in additional retail channels can benefit performance beyond distribution breadth. This is in line with previous findings [7]. Interestingly, the number of different retail chains as well as store size are just secondary factors and are not directly related to above or below average market performance, which stands in contrast to findings, that they relate to over-, in-line, and underperformance of packaged goods generally [7]. As a consequence, channel diversification and careful chain selection are strategies for suppliers that could lead to above average market performance of individual SKUs.

The data also shows that if stores and their distributers can assure a high sales consistency, it is more likely to achieve above average market share. The results are statistically significant for medium-large and large stores. Sales consistency may be reduced in smaller stores because of fewer and less frequent incidence of purchase, more frequent OOS situations, and lack of logistic efficiencies in supply chain and inventory management [25]. Larger stores may benefit from logistic efficiencies and experience better turnover and sales consistency compared to small stores.

Another interesting finding is that store specialization in wine (more brands on offer) has a significant negative relationship. An increased store specialization may be related to increased intra-category competition and individual brands may suffer from this. One could argue that getting listed in additional small retail stores with lower category competition (wine specialization) can be beneficial for wine SKUs. Indeed, past research has shown that this is the main reason for the convex curve pattern to occur – with growing distribution, being available in additional smaller stores with smaller assortments, hence lower level of competition in these smaller stores, leads to greater marginal sales increases [30].

These findings indicate that suppliers as well as retailers should consider a qualitative dimension of distribution (i.e., distribution depth) for their SKUs to gain competitive advantages and above average market share. The analysis of distribution velocity offers opportunities for benchmarking and competitive comparisons, but it may also serve as a trend indicator. Overperforming (underperforming) SKUs may be candidates for future new listings (de-listings) in retail stores. Equally, temporary overperformance (underperformance) may normalize over time, with market shares reverting to expected levels relative to distribution.

5.3 Practical implications

These findings lead us to recommend some practices that are likely to improve SKU market performance for a given level of distribution.

Supply and retail management have the opportunity to better benchmark and assess the competitive situation of their wine brands at SKU-level, by adding distribution velocity to the analysis. With regard to the identified convex distribution velocity pattern in the wine category, marketers can better evaluate potential effects of their marketing investments. Whether investments are aimed at increasing distribution, market share, or both, marketers can additionally consider a range of product and distribution characteristics to improve their brands' and SKUs' distribution velocity and market performance.

For suppliers of wine, a multi- and omnichannel strategy can be useful. This means that entering additional off-trade channels and thereby facilitating the buying process for consumers can improve market performance of individual SKUs. Adjusting from "brick-and-mortar" to "brick-and-click" is therefore a consequent channel strategy for long-term market success, even though research indicates that this may cause potential short-term cannibalization effects [31].

Standard grocery stores, as well as drugstores, mass merchandisers and warehouse clubs indisputably remain important channels. In addition, the quality of distribution (i.e., distribution depth) is an equally important distribution dimension for consideration. Hence, collab-

orating with retailers who run their logistics and inventory efficiently, thereby avoiding regular stock-outs, is an advantage. This can ensure a stable in-store presence and sales consistency, ultimately improving distribution velocity and market performance.

In this study we use US data and it is well known that market access to the US is a state by state affair, typically involving importers, distributors/wholesalers, and retailers (three-tiers). This complex and costly system requires thorough research as to which potential geographic market to aim for, and which importer/distributor adds the most value. Considering our research, it matters what distribution prospects a US wine distributor offers, i.e. the type of channels they have access to.

Adding to this, our research also indicates that the product offering in terms of the brand, price, packaging type, country-of-origin, or the grape variety, are important characteristics which can influence consumer and retailer demand, and therefore stimulate distribution velocity and overall market performance.

In conclusion, only very few businesses have the resources to pursue intensive distribution. The vast majority of SMEs in the wine industry would likely choose a more selective approach, by building relationships with a few importers/distributors serving a defined geographic market with a limited number of retail chains and stores. This highlights the need for marketing to compensate for limited distribution, by using effective distribution strategies and offering a product/brand that leverages consumer and trade demand. This research contributes to such efforts.

5.4 Future research

This research was limited to the US, globally the most important wine import market with a particular regulation (three-tier system). It also focused only on imported wines. Future research should aim to replicate the study and assess other wine markets. Those should also include markets with a strong domestic wine supply and few imports, such as Italy or France. It is an important question for international wine marketers if the general structure of distribution velocity as well as the characteristics associated with over- and underperformance can be generalized across markets. Furthermore, the temporal stability of over- and underperformance should be investigated by analyzing data sets over many years. It should be assessed whether such positive (negative) deviations in market share might be predictive for future growth (decline). In addition, seasonality effects may be tested in the context of distribution velocity of wine [32].

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