Universal Library of Business and Economics Research Article

ISSN: 3064-9951 | Volume 3, Issue 4

Open Access | PP: 56-60

DOI: https://doi.org/10.70315/uloap.ulbec.2026.0304007

Building Secondary Liquidity for Historically Illiquid Luxury Assets Based on Blockchain Marketplace Records

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Abstract

This article examines how a blockchain marketplace converts collectible wine, a class of asset that has long resisted resale, into holdings that change hands through verifiable peer-to-peer records. The relevance of the question follows from a structural friction in luxury markets, where the absence of continuous pricing and the cost of authenticating provenance keep most holders locked into long horizons. The study isolates a cleaned cohort of 58 external buyers who together generated 87,607.16 dollars in gross merchandise value across 198 cases, and it traces their behavior through transaction-level exports, excluding internal and test activity. Novelty lies in the use of audited operational records to demonstrate realized liquidity, whereas prior accounts relied on projections. The principal finding is a repeat purchase rate of 46.55 percent in this external cohort, alongside active secondary listings that confirm a functioning resale layer. The analysis benefits researchers in tokenized real-world assets and practitioners designing multi-sided luxury platforms.

Keywords: *Real-World Asset Tokenization, Secondary Liquidity, Luxury Wine, Blockchain Provenance, Repeat Purchase, Multi-Sided Platform.*

INTRODUCTION

Collectible wine sits among assets markets priced at a premium, leaving holders with few ways to sell. A bottle from a recognized estate can appreciate across decades, yet the owner who wishes to convert that value into cash confronts thin auction calendars, opaque pricing, and verification costs that erode any quick sale. These frictions define the asset as historically illiquid and separate the wine market from instruments where a continuous order book allows participants to exit at posted prices [1].

Tokenization of real-world assets has been proposed as a way to overcome these frictions. When a physical case is anchored to a cryptographic token that records its provenance and travels on an open ledger, the claim is that the token can be traded while the wine remains in bonded storage, which removes the shipping, customs, and authentication steps that would otherwise accompany each transfer [2]. The literature on this mechanism has grown quickly, though much of it relies on design and forecast figures, leaving open the question of whether real outside buyers transact and return [3].

This study addresses that gap by drawing on operational records from Winechain, a marketplace that tokenizes luxury wine and supports both primary distribution and secondary resale. The analysis uses transaction-level exports of platform activity and confines every reported figure to a cleaned external cohort, removing buyers internal to the venture and test accounts so that the remaining behavior reflects independent market participants. Three contributions follow. First, the study quantifies realized secondary liquidity for a luxury asset class using audited records instead of projections. Second, it reports a repeat purchase rate within a transparently defined cohort, indicating whether demand persists once a buyer enters. Third, it connects the observed liquidity to the contract logic that captures fees and royalties, which clarifies how the platform sustains the resale layer it creates.

Two research questions organize the work. The first asks whether external participants generate genuine secondary activity beyond one-directional primary purchases. The second asks how durable that participation proves to be, measured by the share of external buyers who transact more than once. The remainder of the article reviews related work, outlines the platform architecture and data preparation method, presents the cohort evidence, and discusses what the results imply for the liquidity thesis and where its limits lie.

Citation: Mendiharat Nicolas, "Building Secondary Liquidity for Historically Illiquid Luxury Assets Based on Blockchain Marketplace Records", Universal Library of Business and Economics, 2026; 3(4): 56-60. DOI: https://doi.org/10.70315/uloap.ulbec.2026.0304007.

BACKGROUND AND RELATED WORK

Research on collectible wine as an investment has documented returns that rival those of mainstream assets, while cautioning that realized gains depend on the ability to sell at a fair price. Studies of auction data show wide bid-ask spreads and long holding periods, which together impose an illiquidity premium that the headline appreciation figures conceal [1]. The same studies note that authentication and storage shape value, since a buyer pays for assurance that the bottle is what the seller claims and that it has been kept under sound conditions.

Provenance verification through distributed ledgers has been proposed as a way to lower that assurance cost. By writing an immutable record of origin and custody, a blockchain system aims to let a later buyer trust the chain of title without repeating the inspection that an earlier buyer already paid for, and work on supply chains for luxury goods extends this idea to counterfeiting, where a verifiable digital twin discourages the substitution that plagues secondary markets in wine and spirits [2].

Tokenization research connects provenance to liquidity by arguing that a fractional or whole token, once authenticated, can circulate where the physical good cannot. Several authors model the secondary market that such tokens might support and estimate the velocity at which holders would trade [4]. The weakness common to this strand is its reliance on assumed behavior, since few datasets record what external holders of a tokenized luxury asset actually do once they own the token. Platform economics adds a further layer, because a marketplace that brings together estates, merchants, and buyers must align incentives across all parties while generating sufficient revenue to operate [5].

Against this background, the present study contributes evidence where the literature offers projection. It treats the platform as an operating system whose logs reveal realized behavior, and it isolates the external cohort so that the reported liquidity cannot be inflated by participants with an interest in the venture. This empirical stance distinguishes the work from accounts that describe the architecture and then forecast its outcomes [3].

PLATFORM ARCHITECTURE AND METHODS

The platform anchors each physical case of wine to a unique cryptographic token, the wiNeFT, at the point of origin. The wine itself moves through climate-controlled bonded logistics into secure storage, where it remains while the token trades on an open ledger. A holder who wishes to take physical possession executes an on-chain burn, which signals the warehouse to begin customs clearance and shipping, after which the token is retired. This separation of the tradable claim from the stored good is the feature that allows transfers without the physical handling that makes wine costly to sell.

Liquidity support comes from a dedicated node, the WineFund, which is capitalized from institutional raises and functions as a market maker by maintaining a standing bid on active tokens. Its role is to keep a price visible even when private demand thins, so that a holder always faces a quotable exit and the marketplace does not stall during quiet periods [6]. The fee architecture operates through three sourcing scenarios set out in the cooperation agreement. Under the first scenario, the merchant sources and inbounds the wine, and the platform collects a twenty percent primary commission. Under the second, the platform sources the supply while the merchant fulfills, and the primary commission falls to 15%. Under the third, the platform negotiates directly with the estate and again collects 15%, charging it to the winery wallet.

Secondary transfers carry their own royalty logic. A resale computes the royalty as a fixed share of the net resale gain, and the smart contract routes that amount from the buyer's wallet at settlement, removing manual collection and guaranteeing that the originating estate receives a lifetime royalty on every subsequent trade [7]. Before the cohort evidence is presented, the asset lifecycle and the two points at which value is captured are set out in Fig. 1.

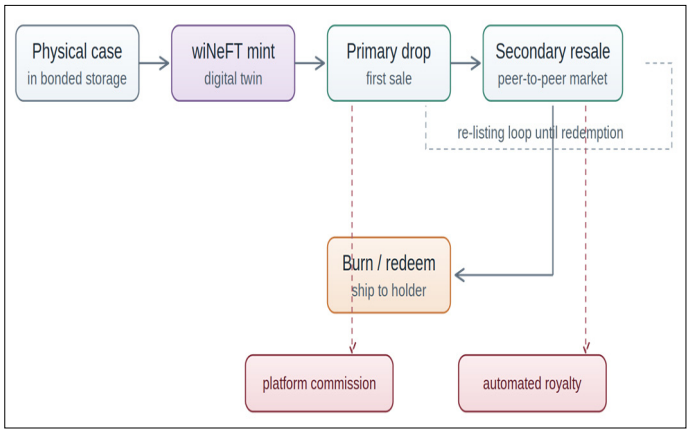


Fig. 1. Asset lifecycle on the platform and the contract-level points of fee capture

The data for the analysis come from transaction-level exports of platform activity, organized into linked sheets that record transactions, users, drop events, and secondary marketplace listings. Each transaction row carries a flag that classifies the associated account as external, internal, or test, and the cleaning rule retains only rows flagged as external. This rule removes activity generated by the venture itself and by quality-assurance accounts, so that the remaining figures describe buyers with no stake in the platform beyond the wine they hold.

Three definitions govern the measurement. A buyer is a distinct external account that completes at least one purchase, identified by a stable user key so that multiple purchases by the same person collapse into a single buyer. A repeat buyer is an external buyer who completes more than one purchase across the observation window. A secondary

listing is a tokenized asset that a holder decouples from primary distribution and offers for peer-to-peer resale, recorded with a status that tracks whether the listing is live, sold, or withdrawn. Monetary totals are summed from the transaction amounts of external purchases, and physical volume is counted in full cases. The reported cohort figures were re-isolated from the raw pivot records by the platform team specifically for the external accounts, which yields the values used throughout the results.

Two boundaries on the method warrant statement. Forecast and unfiltered figures that appear in planning documents are excluded, as they describe targets rather than realized activity, and mixing them with the cleaned cohort would defeat the purpose of the cleaning rule. End-buyer identities are withheld and reported only in aggregate, protecting the privacy of individuals in the export while preserving the behavioral patterns the study measures.

RESULTS

The cleaned external cohort establishes the scale of independent participation on the platform. Fifty-eight unique external buyers transacted during the observation window, and their purchases moved 198 full cases of luxury wine through the system, generating 87,607.16 dollars in gross merchandise value. These figures matter because they come from outside the venture, where every buyer chose to commit capital to a tokenized claim on wine held in bonded storage. The headline indicators for the cohort are collected in Table 1.

Table 1. Key performance indicators of the cleaned external buyer cohort

Indicator	Value	Basis
External gross merchandise value	$87,607.16	Cleaned external cohort, Flag = ext
Physical volume transacted	198 cases	External participant transactions
Unique external buyers	58	Authenticated independent buyers
Buyers making repeat purchases	27	Re-isolated within external cohort
Repeat buyer rate	46.55%	27 of 58 external buyers

The headline totals take on further meaning when read against the size of the cohort. Dividing the external gross merchandise value by the 58 buyers yields an average commitment of 1,510.47 dollars per buyer, and dividing it by the 198 cases yields an average case of 442.46 dollars. The ratio of cases to buyers stands at 3.41, indicating that the typical external participant did not treat the platform as a single-trophy site but instead accumulated several cases across the window. A capital commitment of this depth, spread over more than three cases for the average buyer, marks the cohort as one of high-net-worth participants who used the venue to build a position in the asset [4]. These derived indicators are presented in Table 2, where each value is traced to the headline figures through the stated computation.

Table 2. Derived indicators computed from the cohort headline figures

Derived indicator	Value	Computation
Gross merchandise value per buyer	$1,510.47	$87,607.16 divided by 58
Gross merchandise value per case	$442.46	$87,607.16 divided by 198
Cases per buyer	3.41	198 divided by 58
Single-purchase share	53.45%	31 of 58 external buyers
Repeat share	46.55%	27 of 58 external buyers

The per-buyer and per-case figures matter for the liquidity argument because they describe the weight of capital that the secondary layer must absorb. A market that clears trades worth several hundred dollars per case across buyers who each hold multiple cases sustains a deeper pool of transferable value than a market of one-off low-value purchases. The depth of holding per buyer also shapes the interpretation of the repeat rate, since a participant with several cases has more reason to return to the platform to manage that position through additional purchases or resale.

The presence of a secondary layer separates this platform from a venue that only sells. Holders decoupled tokens from primary distribution and listed them for peer-to-peer resale, and the marketplace records track each listing through live, sold, and withdrawn states. The appearance of completed sales in these logs confirms that resale is a realized activity within the external cohort, not a feature that exists only in the contract code. A resale market that clears transactions is the operational definition of the liquidity that the asset class historically lacked, since it gives a holder a path to exit without waiting for an auction cycle.

The secondary records reveal the path a listing follows after a holder posts it, and that path determines the liquidity claim's structure. A listing begins in a draft state, moves to a live state where other participants can transact against it, and then resolves either by selling to a buyer or by being withdrawn when the holder removes it from the market. A withdrawn listing can be re-entered into the live state when the holder

reposts it, and a sold listing can proceed to redemption when the new holder burns the token to take physical delivery. The set of states and the transitions between them are shown in Fig. 2, which traces the lifecycle that underlies every figure in the secondary layer [8].

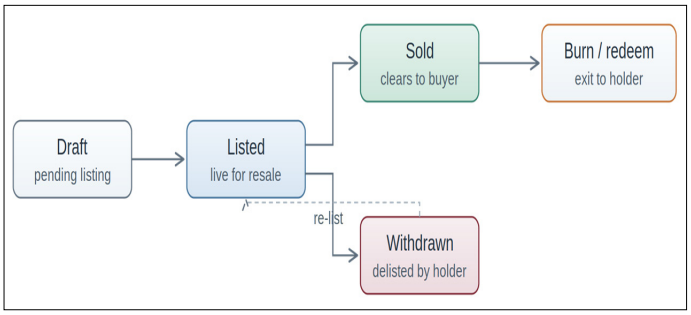


Fig. 2. State lifecycle of a secondary marketplace listing

Reading the secondary layer as a set of states clarifies why clearing matters more than listing alone. A listing that reaches the live state shows intent to sell, yet only a transition to the sold state proves that a counterparty stood ready at an acceptable price. The presence of sold listings within the external cohort carries the weight of the liquidity argument, while the withdrawn and re-list transitions show that holders retained control over timing and could wait for terms they accepted. This control over exit, paired with a clearing mechanism, reproduces the function that an auction performs for traditional wine without the scheduling delay it imposes.

The durability of demand is captured by the cohort's repeat-purchase behavior. Of the fifty-eight external buyers, twenty-seven completed more than one purchase, resulting in a repeat-buyer rate of 46.55 percent. This figure speaks to stickiness, because a buyer who returns has tested the platform once and chosen to commit again, which is a stronger signal than a single purchase that might reflect curiosity. The split between returning and one-time buyers within the cohort is shown in Fig. 3.

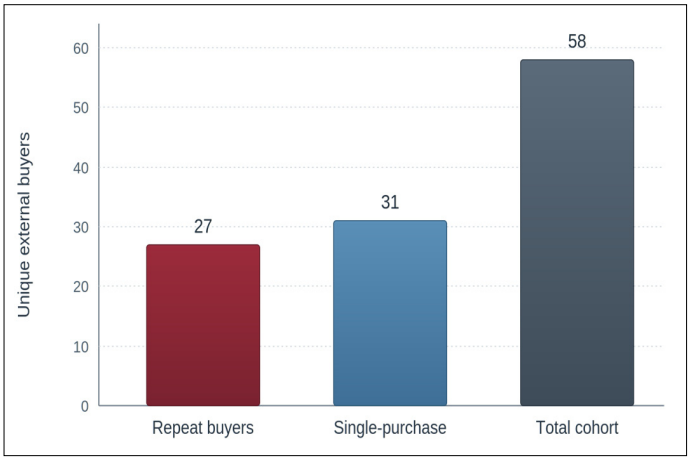


Fig. 3. Repeat and single-purchase buyers within the cleaned external cohort, n = 58

The cohort size of fifty-eight is reported alongside the rate so that the figure is read with its base in view, since a percentage drawn from a small cohort carries more variance than the same percentage drawn from a large one. Within that frame, a return rate near half of the external base indicates that the platform retained a substantial portion of the buyers it acquired, and that the resale layer documented above had a population of returning participants to sustain it. The two results reinforce one another, because liquidity requires both that listings clear and that buyers remain present to take the other side of future trades.

DISCUSSION

The combination of active secondary listings and a repeat rate nearly half that of the external cohort supports the central claim that the platform created real liquidity for an asset that markets had treated as difficult to sell. Liquidity in this setting means that a holder can find a counterparty and a price without the delay and cost that an auction imposes, and the records show both halves of that condition. Listings reached sold status, indicating clearing, and a large share of buyers returned, indicating that demand persisted across multiple cycles [8].

The contract logic explains how this liquidity is sustained without manual overhead. Because the royalty on each resale is computed and routed at settlement, the originating estate continues to earn from the asset long after the first sale, which gives estates a reason to keep listing through the platform and keeps a fresh supply entering the system. The standing bid maintained by the liquidity node further stabilizes the venue, since a holder facing thin private demand can still exit against the node. When set against the traditional secondary market for wine, where a seller waits for an auction house to schedule a lot and absorbs a commission on an uncertain hammer price, the platform compresses the time to exit and posts the fee schedule in advance, which together lowers the cost of converting the asset to cash [7].

The depth of holding observed in the cohort sharpens the reading of the repeat rate. With an average of 3.41 cases and $ 1,510.47 committed per buyer, the population is one that placed meaningful capital at stake, so a return rate near half indicates repeat commitment from buyers who had already built a position, not casual re-entry by low-stakes participants. A market that retains such buyers across multiple cycles holds a base of demand capable of absorbing future listings, a condition that distinguishes a liquid venue from one where supply accumulates without takers. The pairing of capital depth with a near-even split between returning and one-time buyers indicates that the platform converted a substantial share of its acquired participants into recurring counterparties [8].

Several limits qualify these conclusions. The cohort is small at fifty-eight buyers, so the repeat rate, while informative, rests on a base that future data should enlarge before the figure is treated as stable. The evidence comes from a single platform and a single asset class, which means the pattern

may reflect features of luxury wine and of this venture instead of tokenized assets in general. The observation window is bounded, so the analysis captures repeat behavior within a period and cannot yet speak to liquidity across a full holding cycle that, for fine wine, can span many years [4]. These limits do not undercut the core finding, although they mark the conditions under which it holds and point to the data that would extend it.

CONCLUSION

The study set out to test whether a blockchain marketplace can create secondary liquidity for a luxury asset that has long resisted resale, and the cleaned external records answer that it can. 58 independent buyers moved 198 cases and $ 87,607.16 in gross merchandise value, secondary listings cleared to sold status, and 46.55% of external buyers returned for additional purchases. Taken together, these results show a functioning resale layer with a population of returning participants, which is the operational form of the liquidity that the wine market historically lacked.

The findings rest on audited operational data and a strict cleaning rule, which lends them a footing that projection-based accounts lack. Future work should enlarge the cohort, extend the observation window across longer holding cycles, and compare behavior across additional asset classes and platforms, so that the patterns observed here can be tested for generality. Such extensions would clarify whether the liquidity demonstrated for one luxury asset on one platform marks a broader property of tokenized real-world markets or a result particular to the case studied.

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