Commitment and Competition in Asset Sales: Evidence from Music Royalties

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Abstract

A seller's commitment to end a sale once she accepts an offer makes bidders compete before she accepts but can shut out a bidder who would pay more. We study this trade-off, long debated for takeovers, in a unique setting that allows us to observe a change in this commitment together with every move in each sale, from the offers and counteroffers between the seller and her bidders to the bids placed after agreement. Using novel data that track each bidder across listings on a leading marketplace for music royalties, we exploit a rule change that turned each accepted offer into the reserve of a 24-hour auction and left the negotiation unchanged. We find that competition before agreement weakened. The probability of retaking the lead after being outbid fell by 20 percentage points, and three-quarters of the fall remains when auction bids are counted. Competition after agreement changed who bought. The auction drew more bidders, displaced the accepted bidder in half of the auctions and cut resale within six months by 40 percent. However, sellers accepted offers about 6 percent lower, by roughly as much as the auction added, so final prices did not change relative to their list price or the platform's valuation. In asset sales, commitment does not so much limit competition as move it. When bidders compete decides who owns the asset, but not what the seller receives.

JEL: D44, D47, D83, G14, G34, L82.
Keywords: seller commitment, deal protection, auctions, negotiated sales, price formation, music royalties.

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I Introduction

When a seller's acceptance ends a sale, she is committed to the offer she accepts. This commitment gives bidders a reason to compete before she accepts, because a bidder who waits can lose the asset. However, it also limits competition, because it can end the sale before a bidder who would pay more has bid. In takeovers, these two effects of commitment divide the debate over whether rivals should be helped to bid against a first bid. Easterbrook and Fischel (1981) argue that rival bids lower what the first bidder gains, and thus reduce the first bidder's incentive to look for targets. Bebchuk (1982) and Gilson (1981) argue that rival bids let a buyer who values the target more acquire it. This trade-off is not confined to takeovers. In a bankruptcy sale in the United States, the debtor signs an agreement with a first bidder, the stalking horse, and the court then opens that agreement to an auction. Housing markets differ in whether acceptance binds. In Norway, a seller who accepts a bid is bound by it (Anundsen et al., 2023). In England and Wales, an accepted offer does not bind until contracts are exchanged, and until then the seller can take a higher offer. In each of these markets, the law decides whether the seller's acceptance ends the sale.

In this paper, we study what happens to competition and to the price when a seller loses this commitment, so that her acceptance no longer ends the sale. Theory does not settle the question. On the first effect, some models predict that commitment makes bidders compete harder, because a higher offer leads the seller to stop searching (Povel and Singh, 2006; Zhu, 2012) or keeps rivals out (Fishman, 1988; Hirshleifer and Png, 1989). Other models predict no change. If bidders can raise their offers at no cost, an early offer is only an opening bid, and the bidding ends in the same place (Hirshleifer and Png, 1989). Theory also disagrees about the second effect. Bebchuk (1982) and Gilson (1981) argue that keeping a sale open lets a buyer who would pay more win. Others argue that the threat of rival bids already raises the price the seller negotiates (Fuchs and Skrzypacz, 2010), and that selling to one bidder at a time can be efficient when entering a sale is costly (Bulow and Klemperer, 2009). Which effect is larger, and so whether the seller gains, is an empirical question.

Nor does empirical evidence settle it. Studies that observe differences in the seller's commitment see only outcomes of the deal, such as premiums and the number of deals (Jarrell and Bradley, 1980; Boone and Mulherin, 2007*a*; Restrepo and Subramanian, 2017). Studies that observe the offers made before agreement have no change in rules (Gorbenko and Malenko, 2014; Liu, Officer and Tu, 2023; Backus et al., 2020; Larsen,

2021). To the best of our knowledge, no study observes how bidding responds when a seller loses the power to end the sale.

We answer this question with unique data from Royalty Exchange, a leading marketplace for music royalties. The asset is a claim on the future royalties of a catalog of songs, which earns income each time the songs are streamed, broadcast or performed. On the marketplace, songwriters, producers and small publishers sell such claims to investors. A sale raises about $110,000 on average. Most sellers sell only once, while a small group of investors makes most of the offers. The marketplace resembles a takeover contest in the features that matter for our question. Several bidders compete for the same asset, the seller decides which offer to accept and when, and the rules decide whether her acceptance ends the sale. It differs in three ways. Sales are small, and entering a sale costs a bidder little. Offers are also public and binding from the start, whereas bids before a merger agreement are often private and nonbinding (Boone and Mulherin, 2007*b*; Quint and Hendricks, 2018).

This marketplace is an ideal setting for our question because it has both features that earlier studies lack, a change in the seller's commitment and a record of every move in each sale. We begin with the rule change. We call the rules in force until December 2024 Regime 1. Under Regime 1, investors made public, binding offers on a listing, and each offer stayed valid for 72 hours. The seller could accept, reject or counter any offer. She could also post an ask, a price at which any investor could buy the asset at once. When the seller accepted an offer, the sale ended and the bidder who made it bought the asset. Her acceptance thus committed her to that bidder. A bidder who held the highest offer could therefore lose the asset to a rival who offered more, because the seller might accept the rival.

The platform changed these rules in response to investors. In announcing the change, it wrote that sellers "could accept an offer without warning, leaving other interested investors unable to compete," and that with the change "sellers benefit from better price discovery" (Royalty Exchange, 2024). The platform's reason is the second effect of commitment. Acceptance ended sales before investors who would pay more had bid. Regime 2 began on December 18, 2024, the date we call the launch. Under Regime 2, the seller's acceptance no longer ended the sale. It opened a 24-hour English auction with the accepted offer as the reserve price. Any investor who had made an offer on the listing before acceptance could bid in the auction, and so could any subscriber to the platform's All Access service. If no one bid, the bidder whose offer was accepted bought at that price. The platform announced no change to the

rules before acceptance. Offers stayed public and valid for 72 hours, and the seller could still counter them and post an ask. The change here moves the seller from full commitment to none. Our evidence therefore speaks to sales that stay open after agreement, and not to the size of a termination fee or the value of a match right.

The second feature of our setting is a record of every move in each sale. For each listing, the marketplace records every offer with its amount and time, the seller's counteroffers and asks, the offer she accepts and every bid in the auction that may follow. Each bidder carries an identifier that stays the same across listings. We also observe whether the buyer later puts the asset back up for sale. We study direct listings, which are posted by the original rights holders. Our sample contains 715 completed sales of direct listings published between August 2022 and April 2026, 491 under Regime 1 and 224 under Regime 2, and the 435 bidders who made offers on them. Of these bidders, 130 made offers under both rules. The sample starts in August 2022, when the rules for making offers last changed, so offers are made under the same rules in both regimes.

Because Regime 2 applied to every direct listing from the launch, we compare sales before and after that date, with controls for the characteristics of the catalog and fixed effects for the month of the year. The identifying assumption is that nothing else that matters for bidding or prices changed at the launch in a way these controls miss. We address the main threats to this assumption in five ways. First, bidders return across listings, so we compare the same bidder in the same situation under the two rules. A change in who bids therefore does not drive our estimates of bidding. Second, event studies by half-year show that the timing of the changes matches the launch. Outcomes of interest do not differ from their levels just before the launch, but each changes significantly in the first half-year after the launch and the change persists later. Third, we repeat each main estimate at 16 placebo dates under Regime 1. For every outcome that changed at the launch, the change at each placebo date is much smaller. Fourth, the estimates change little when we control for the ten-year Treasury yield and the return on the S&P 500. Fifth, the platform changed one other rule during the sample, when it raised its minimum offer in May 2025. Our estimates change little when we keep only the Regime 2 listings published before that change.

We find evidence that commitment both creates and limits competition. Without commitment, bidders competed less before agreement. Take a bidder who held the highest offer on a listing and was outbid. Such a bidder retook the lead within 72 hours 68 percent of the time under Regime 1 and 51 percent under Regime 2. For

the same bidder, the fall is about 20 percentage points, and it appears in every half-year after the launch. Few of the answers missing before acceptance came back in the auction. Counting bids placed there, outbid leaders still answered 15 points less often. Bidders also raised their own offers less often. The share of bidders who revised their offer fell from 61 to 43 percent, while no fewer bidders took part before acceptance. A high offer can lead the seller to accept, or it can keep rivals away. The rule removes only the first of these reasons. A high standing offer was associated with fewer new bidders under both rules, and the association did not weaken after the launch. These results suggest that part of the competition a seller saw under Regime 1 came from her commitment.

Without commitment, competition also continued after agreement. Nearly three-quarters of the 224 auctions drew a bid. On average, the auction added 7.4 percent to the accepted offer. More bidders came into each sale. Investors without an All Access subscription reach the auction only through an offer before acceptance. Their number on a listing rose by 1.23, or 38 percent of the level under Regime 1. Subscribers, who can enter the auction without an earlier offer, moved some of their first bids from the negotiation into the auction. Losing bidders bid as high over the whole sale as before. Most sales closed at a price the seller had named before the launch, but the bidders who lose set the price under Regime 2. About two-thirds of sales now close just above the best offer of a bidder who lost, against 22 percent under Regime 1.

The auction also changed who bought. The bidder whose offer the seller accepted lost half of the auctions. Under Regime 2, the bidder who held the highest offer before acceptance bought the asset in 46 percent of sales, against 83 percent under Regime 1. The investors who displaced accepted bidders are among the most active on the marketplace. Under Regime 1, 26 percent of buyers put the asset back up for sale within 180 days. After the launch, that share fell by 10 percentage points. Among the buyers who displaced an accepted bidder, only 6 percent did so. These results suggest that, as Bebchuk (1982) and Gilson (1981) argued, competition after agreement moves assets to investors who value them more.

Whether the seller gains also depends on what she accepts. In the models of this debate the target takes the highest bid above a fixed reserve. With a fixed reserve the bidder whose offer she accepts bears the premium of a later auction, except what two rivals who both value the asset more add by bidding against each other. A seller who decides when to accept has a reason to accept less, and search theory gives the reason. A worker who can keep searching after taking a job gives up less by accepting,

and so accepts a lower wage (Burdett, 1978). A seller whose sale stays open after she accepts is in the same position. With offers held fixed, she accepts a lower offer, and a lower accepted offer cushions the bidder whose offer she accepts. We find that sellers responded in this way. Accepted offers fell by 6.1 percent relative to the seller's list price, the first ask she posts, and by 5.6 percent relative to the platform's valuation of the catalog. Part of the fall comes from bidders, because the offers in front of the seller were lower than before at the same age of the listing. Part comes from the seller. When we hold the offer fixed as a share of her ask, sellers accepted an offer of a given size 6.7 percentage points more often, a rise of 44 percent. They also took as long to accept as before, so they did not wait for offers to recover. These results reject the fixed reserve of the takeover models and support search theory.

Whether the seller gains also depends on what she accepts. A seller who decides when to accept has a reason to accept less once acceptance no longer ends the sale, because a better offer can still arrive in the auction after she accepts. We find that sellers responded in this way. Accepted offers fell by 6.1 percent relative to the seller's list price, the first ask she posts, and by 5.6 percent relative to the platform's valuation of the catalog. Part of the fall comes from bidders, because the offers in front of the seller were lower than before at the same age of the listing. Part comes from the seller. When we hold the offer fixed as a share of her ask, sellers accepted an offer of a given size 6.7 percentage points more often, a rise of 44 percent. They also took as long to accept as before, so they did not wait for offers to recover. The seller's threshold for accepting thus fell, as search theory predicts (Burdett, 1978).

On net, the final price did not change. Relative to the list price, the fall in the accepted offer almost exactly offsets the premium of the auction, which is 6.1 percent on the listings whose seller posted an ask. The final price relative to the list price changed by 0.1 percent, and the 95 percent confidence interval excludes a gain as large as the premium. Relative to the platform's valuation, the lower accepted offer takes back 80 percent of a 7.0 percent premium, and the final price again does not change significantly. A hedonic model gives the same answer. It predicts what each catalog sold under Regime 2 would have fetched before the launch. Final prices do not differ significantly from this prediction on average, while accepted offers lie 5.8 percent below it. The same offset protects the bidders whose offers sellers accepted. They bear between 60 percent and all of what the auction adds, by paying more or by losing the asset, but the lower accepted offer offsets that cost. As a group, accepted bidders pay what they paid when sellers had commitment to end the sale.

Our paper first contributes to the literature on competing bids and deal protection in takeovers. The debate over competing bids weighs the first bidder's incentive to find and bid for a target (Easterbrook and Fischel, 1981) against the gain from letting a buyer who values the target more win after agreement (Bebchuk, 1982; Gilson, 1981). Theory shows that commitment can make bidders compete harder before agreement (Fishman, 1988; Hirshleifer and Png, 1989; Povel and Singh, 2006; Zhu, 2012) and that deal protection can raise what a seller receives (Povel and Singh, 2006; Chen and Wang, 2023). Empirical studies of termination fees and go-shops compare premiums, completion and competing bids across deals with and without the provisions (Officer, 2003; Bates and Lemmon, 2003; Subramanian, 2008; Antoniades, Calomiris and Hitscherich, 2016; Gogineni and Puthenpurackal, 2017; Subramanian and Zhao, 2019). They find that the provisions are associated with higher premiums and do not deter competing bids (Officer, 2003; Gogineni and Puthenpurackal, 2017). Boone and Mulherin (2007*a*) find that termination provisions are associated with more competition in the private bidding before agreement. When the United Kingdom banned deal protection, deal counts fell by about half, with no detectable change in premiums or competing bids (Restrepo and Subramanian, 2017). In bankruptcy sales, the stalking horse faces competing bidders in about half of the sales and loses about four in ten of those contests (Gilson, Hotchkiss and Osborn, 2015). We add evidence from inside the sale on both sides of this debate. Because we follow the same bidders through a rule change that removed commitment, we can measure how commitment shapes competition before agreement. The same bidders answered rivals much less often once commitment was removed, so commitment is itself a source of competition. Because we also observe resale, we can ask whether competition after agreement moves the asset to a buyer who values it more. It changed the buyer in about half of the sales, more often than in bankruptcy sales, where the stalking horse can be protected by a break-up fee. Resale fell most where the buyer changed, which suggests that the asset went to buyers who value it more (Hafalir and Krishna, 2008). The auction did so without lowering the return to accepted bidders as a group. Both sides of the debate thus describe part of what commitment does. It creates competition before agreement, and removing it changes who owns the asset after agreement.

Second, we contribute to the literature that compares auctions and negotiations as ways to sell an asset. Theory suggests that sellers usually do better with an auction (Bulow and Klemperer, 1996, 2009). However, studies of takeovers find that

auctions and negotiations yield similar prices for target shareholders (Boone and Mulherin, 2007*b*; Gentry and Stroup, 2019). One explanation is that the price agreed in a negotiation already reflects the competition that could follow it (Betton, Eckbo and Thorburn, 2009; Fuchs and Skrzypacz, 2010). Consistent with this explanation, negotiated premiums are higher where rival bidders are more likely to appear (Aktas, de Bodt and Roll, 2010). Offer-level data from bargaining show how sellers respond to the offers they receive (Backus et al., 2020; Larsen, 2021). Our data record every offer a seller receives, including those she turns down, before and after the platform began to open an auction once she accepts. We can therefore hold an offer fixed and see whether her decision to accept it responds to the competition that may follow. After the rule change, sellers accepted an offer of a given size more often and accepted lower offers, as search theory predicts (McCall, 1970; Burdett, 1978). The accepted offer fell by about as much as the auction added, so the final price did not change. Our results thus suggest why the way a sale is run can matter little for the price. The price the seller accepts adjusts to the competition that follows. The gain from that competition then shows up in who buys. A premium measured after agreement is computed on an offer that is itself an outcome of the rule (Lucas, 1976), so it overstates what keeping a sale open gives the seller. The same concern applies to a topping bid after a go-shop or an auction after a stalking-horse agreement, if the agreed price responds there as well.

The paper proceeds as follows. Section II draws five empirical implications from the debate and from search theory for the seller. Section III describes the marketplace and the rule change. Section IV presents the data and the empirical design. Section V tests the five implications in the order of a sale, from bidding before agreement, through the seller's response and competition after agreement, to the final price, resale and what the auction costs the accepted bidder. Section VI concludes.

II Theory and Empirical Implications

We draw five empirical implications from the debate over competing bids in takeovers, which grew out of the Williams Act's requirement that tender offers stay open (Hirshleifer and Png, 1989), and from search theory for the seller. We state them in the order of a sale, from the bidding before the seller accepts, through her decision to accept and the competition after it, to the final price and to who buys. Each implication compares Regime 2 with Regime 1, and Section V tests them in the

same order.

Implication 1 (bidding before agreement). Under Regime 2, bidders should compete less before the seller accepts. A bidder whose offer has been topped by a rival should answer less often, and bidders should raise their own offers less often.

Theory gives a bidder two reasons to make a high offer before agreement. The first works on rivals. A high offer can discourage them from evaluating the asset or from entering the contest (Fishman, 1988; Hirshleifer and Png, 1989; Bulow and Klemperer, 2009). The second works on the seller. A high offer can lead her to accept (Zhu, 2012), and when acceptance ends the sale, the accepted offer secures the asset before rivals can respond. A bidder whose offer has been topped then risks losing the asset unless they answer. Povel and Singh (2006) show that allowing further bids after a winner has been selected can undermine the incentives that make a selling procedure profitable. Termination provisions, which commit a target to an agreed deal, are associated with more competition in the private bidding before agreement (Boone and Mulherin, 2007*a*). When acceptance opens an auction instead, any offer made before acceptance only earns a place in the auction. Offering more than a rival no longer secures the asset. The rule removes the bidder's ability to secure the asset by inducing the seller to accept. It need not remove the reason that works on rivals, because a high offer still shapes their beliefs and their decision to enter.

A bidder who expects an auction may also wait for it, and some of the answers missing before acceptance should then reappear as bids in the auction. They need not all reappear. In an ascending auction, a bidder whose value the price has passed never bids, whereas under Regime 1 the same bidder would have answered at lower prices along the way. Whether bidders who wait bid as high over the whole sale as before is the subject of Implication 3.

Implication 2 (the seller's response). Under Regime 2, the seller should accept an offer of a given size more often, and the offers she accepts should be lower.

A seller who receives offers over time accepts the first offer above a threshold, and the threshold equals what she expects from waiting (McCall, 1970). Search and bargaining models let the trading opportunities available to her shape this decision (Zhu, 2012; Fuchs and Skrzypacz, 2010). An auction after acceptance raises the value of accepting and the value of waiting. Accepting an offer now opens an auction in which rivals can bid above it, so accepting is worth the offer plus what the auction is expected to add. Waiting is worth more as well, because the better offer she would accept later also opens an auction. With the offers she receives held fixed, the auction

adds no more to that later offer when a higher reserve leaves rivals less room to bid above it, and what it adds comes later. Accepting now then gains more than waiting does, so she accepts offers she would have turned down when acceptance ended the sale, and her threshold falls. The argument parallels on-the-job search, in which a worker who can keep searching after taking a job accepts a lower wage (Burdett, 1978). If less bidding before agreement also lowers the offers she expects to receive, waiting is worth less still, and her threshold falls further.

Some takeover models predict no such response. They fix the valuation below which the target's shareholders reject a sale, so an offer of a given size is accepted as often under either rule (Fishman, 1988; Dimopoulos and Sacchetto, 2014). Accepted offers alone cannot tell the two predictions apart. They fall if the seller lowers her threshold, but they also fall if bidders offer less while her threshold stays where it was. Whether she accepts an offer of a given size more often does separate them, because it holds the offer fixed.

Implication 3 (competition after agreement). If the auction adds competition, more investors should bid on a listing under Regime 2, or the same investors should bid higher than under Regime 1. If it only moves competition into the auction, the same investors should bid as high as before, but some of them bid later. The platform changed its rule because acceptance ended sales before investors who would pay more had bid (Royalty Exchange, 2024), the argument that Bebchuk (1982) and Gilson (1981) made for takeovers. Bidders who expect an auction may instead wait for it, as Implication 1 allows.

Only bidders who made an offer before acceptance and subscribers to the platform's All Access service can bid in the auction. Non-subscribers cannot wait, because they reach the auction only through an offer before acceptance. If the auction draws them into sales, more of them should make offers before acceptance. Subscribers can wait. If they only move their bids into the auction, fewer of them should bid before acceptance and as many over the whole sale. If the auction draws in subscribers who would not have bid under Regime 1, more of them should bid over the whole sale. Bidders already in the sale need not change in number to add competition. If acceptance used to stop them before they reached what they would pay, the best losing offer, the highest offer of a bidder who did not buy, should be higher relative to the asset's value under Regime 2.

The auction also changes how the price is set, under either reading. As in Implication 2, the seller accepts the first offer above her threshold (McCall, 1970), so

under Regime 1 a bidder must beat her threshold, or her ask if she has posted one, rather than the best rival offer. The price is then often the seller's own and can lie well above every rival's offer. In an ascending auction the winner pays just above the highest bid of the last bidder to drop out (Vickrey, 1961). Under Regime 2, whenever a rival bids above the reserve, a losing bidder sets the price, so more sales close just above the best losing offer.

Implication 4 (the final price). Under Regime 2, the final price can rise, stay the same or fall. Under Regime 1, the final price is the accepted offer. Under Regime 2, it is the accepted offer plus what rivals add by bidding in the auction. If the accepted offer does not adjust to the new rule, the auction premium passes fully into the final price. However, Implication 2 predicts that the seller accepts lower offers, so the final price rises only if the auction adds more than the accepted offer falls.

Theory does not sign the change in the final price once bids and participation respond to the selling procedure. Bulow and Klemperer (2009) show why auctions often raise more revenue than sequential sales, although sequential sales economize on entry costs. Hirshleifer and Png (1989) show that when bidding is costly, facilitating competition can lower the expected price. Roberts and Sweeting (2013) emphasize the information bidders have before entry and the selection of participants it produces, which can favor sequential sales. Gentry and Stroup (2019) estimate similar average revenue across auctions and negotiated procedures, with differences across targets.

Implication 5 (resale and the accepted bidder). Under Regime 2, buyers should be less likely to relist soon after purchase, if the auction moves assets to buyers who value them more. A first sale that leaves the asset with a bidder who does not value it most leaves gains from a later sale (Hafalir and Krishna, 2008). Under Regime 1, the seller can accept an offer before a bidder who values the asset more has bid, but such a bidder can still outbid the accepted bidder in the auction under Regime 2. Bebchuk (1982) and Gilson (1981) argue that this competition moves the asset to the buyer who values it most, so fewer gains are left for a resale. The prediction requires that other reasons to resell, such as a need for cash or a change in the asset's value, do not change with the rule. It also requires private values. A royalty stream has a value common to all buyers as well, and a rival may then outbid the accepted bidder because of different information or beliefs, in which case the auction need not reduce the gains from a later sale.

Easterbrook and Fischel (1981) argue that competition after agreement lowers the return to the bidder who identified and investigated the target, and so weakens

the incentive to do so. The auction acts directly on the accepted bidder, who is not necessarily that bidder, and theory does not sign the effect of the rule on the accepted bidder's gain. With the accepted offer held fixed, the auction can only lower that gain, because the accepted bidder may pay more or lose the asset. Implication 2, however, predicts that accepted offers fall, so an accepted bidder whom no rival challenges pays less than under Regime 1. Section V.E measures what accepted bidders pay in the auction, how often they lose the asset, and how these costs compare with the fall in the accepted offer.

III The Marketplace and the Rule Change

A The Marketplace

A song earns royalties each time it is used. When it is played on the radio, streamed or performed in public, its songwriter and publisher earn a performance royalty, which a performing rights organization such as ASCAP or BMI collects and pays out each quarter. A song also earns mechanical royalties when it is reproduced, synchronization fees when it is used in film or television, and, for the owner of a recording, sound-recording royalties. A claim on these royalties is a claim on the future earnings of a catalog of songs. Its value depends on how much the catalog earns now and on how fast those earnings decline as the songs age.

Royalty Exchange is a marketplace where owners of royalties sell such claims to investors. It describes itself as the largest royalty marketplace in the world (Royalty Exchange, 2021*a*).[1] Most listings sell a songwriter's or a publisher's share of performance royalties. A listing sells the royalties for one of three terms: for the remaining life of the copyright, for a fixed number of years after which the royalties return to the seller, or until the buyer has received a fixed amount. The seller receives cash now, and the buyer receives the royalties as they are paid.

The marketplace has a primary and a secondary market. In the primary market, the original rights holder posts a direct listing after the platform has vetted the catalog. In the secondary market, investors resell catalogs they have bought. The two sides of the primary market differ in experience. Sellers are songwriters, producers and small publishers, and most of them sell once. Bidders are investors who buy repeatedly, and a small group of them makes most of the offers. In most over-the-

[1] Stoikov and Kosyuk (2022) study the same marketplace and value its catalogs by forecasting their cash flows from past royalties.

counter markets, a buyer and a seller negotiate in private. On this marketplace, several bidders make offers on the same listing at the same time, and each of them sees the offers of the others.

Each listing has a page that shows what a bidder needs to value the catalog. Figure 1 shows the page of listing 5811, which we follow through this section. The listing sold the publishing royalties on three songs, among them "Avalon" by $uicideBoy$, for the life of the copyright. Most of these royalties are mechanical royalties from streaming. The page reports the royalties of the last twelve months (LTM), here $11,715, and the dollar age of the catalog, here 6.71 years, which is the age of its royalties weighted by earnings. It also reports the average royalty over the last three years, which this catalog lacks because it began to earn in 2021. Further down, the page plots the royalties of each period, breaks them down by song, by type of income and by source, and describes the catalog in a short text. Members who are logged in also see the platform's valuation of the catalog, the marketplace median, a multiple of LTM based on past sales of catalogs of similar age. The page shows the minimum offer the platform accepts, here $40,000. On the right, a price tracker plots every offer and the seller's ask over time, and an offer history lists each offer with its amount, an anonymous label for the bidder and its outcome.

B The Sale Process under the Two Rules

We call the stage of a sale in which bidders make offers and the seller answers them the negotiation. From August 2020 until December 2024, a direct listing was sold by negotiation alone, and the seller's acceptance ended the sale. A direct listing goes live on a weekday, usually at 1:00 pm Eastern Time. Investors then make offers. An offer is public and binding, and it stays valid for 72 hours. The seller can accept an offer, reject it or make a counteroffer. She can also post an ask, a price at which any investor can buy the asset at once. We call the first ask she posts her list price. Sellers usually post the ask only after the first offers have arrived, and then lower it as the negotiation goes on, often to the amount of a counteroffer.

In the negotiation under this rule, offers rise, the ask falls, and the sale ends when an offer meets the seller's threshold. We call the bidder with the highest offer the leader. The leader can lose the asset by not answering a higher offer, because the seller may accept the rival's offer instead. The leader can also lose it to a bidder who takes the ask.

Listing 5811 was sold in this way. Its price tracker in Figure 1 and Panel A of

Figure 2 show the sale. The listing was published on August 20, 2024, and the first offer, $40,000, the minimum the platform accepted, came within two hours. The seller posted an ask of $80,000 the next day. Over the following six days she lowered it in small steps to $73,000, usually when she countered an offer, while eight bidders made 20 offers and raised the highest offer from $40,000 to $68,500. That last offer came from Buyer 1, the first bidder, who was then the leader. On the seventh day the seller countered Buyer 1 at $73,000 and lowered her ask to the same amount. Two minutes later Buyer 6 took the ask and bought the catalog for $73,000, or 6.23 times LTM. The leader lost it.

On December 18, 2024, the date we call the launch, the seller's acceptance stopped ending the sale. The platform made the change in response to investors, who had complained that a seller could accept an offer without warning and leave other investors unable to compete (Royalty Exchange, 2024). Under the new rule a sale has two stages, the negotiation and an auction. The negotiation works as before, but an accepted offer, or an offer at the ask, now opens a 24-hour English auction with the accepted offer as the reserve (Royalty Exchange, 2024).[2] The platform changed nothing in the negotiation. Two groups of investors can bid: those who made an offer during the negotiation, and subscribers to the platform's All Access service. A bid in the last five minutes extends the auction by five minutes. If no one bids, the accepted bidder, whose offer the seller accepted, buys at that offer. Table 1 compares the two rules. We call the rule before the launch Regime 1 and the rule after it Regime 2, and we assign each listing to the rule in force on the day it was published.

Panel B of Figure 2 shows a sale under Regime 2. The listing was published on February 10, 2026. The seller lowered her ask from $170,000 to $141,500 as she countered offers, and she then accepted a buyer's counteroffer of $118,500, which opened the auction. One bid arrived in the first hour. In the last hour, six bidders placed 50 bids and raised the price to $171,888, above the seller's list price. The accepted bidder lost the catalog.

[2]The platform's announcement said that the rule applied to select listings, but in practice nearly every sale went through an auction from the first weeks, in the primary and the secondary market alike.

IV Data and Empirical Design

A Data and Sample

We assemble listing and offer histories from Royalty Exchange for direct listings published between August 23, 2022 and April 12, 2026. The records link each catalog's characteristics and royalty history to the sequence of offers, seller responses and eventual sale. For each listing, we observe its publication date, contractual term, royalty payer, songs, earnings history, LTM royalties, three-year average royalties, dollar age and minimum offer. We also observe every change in the seller's ask. Each offer carries its amount, submission and expiration times, type and outcome, together with a bidder identifier that remains constant across listings. For sales that proceed to an auction, the records identify the offer that opens it, subsequent bids and the auction's start and end times. These records allow us to follow competition throughout a sale and to compare the same bidders across the two regimes.

We choose the sample window to separate the December 2024 reform from other changes in the platform's trading rules. Before August 2022, the platform changed offer validity, introduced seller counteroffers and proxy bidding, and prohibited offer withdrawals. The last of these changes took effect on August 23, 2022, when offer validity returned from 24 to 72 hours. We begin the sample on that date and end it on April 12, 2026, immediately before the next reform. This window gives us approximately 28 months before the launch and 16 months after it during which the trading rules remained the same except the rule change of interest.[3]

The main sample contains 715 completed sales of direct listings, 491 under Regime 1 and 224 under Regime 2. We retain listings published before the launch only if they were also accepted before it, and listings published after the launch only if they proceeded to an auction. Completion is measured as of October 2026, when we collected the data. The main analysis therefore conditions on sale. We also recover unsold direct listings by comparing multiple marketplace snapshots and use these supplementary records to assess selection into the completed-sale sample.

The two sides of the market differ in how often they trade. Of the 499 sellers, 72 percent sell a single catalog in the sample. Bidders return across listings, and the most active tenth of the 435 bidders make nearly two-thirds of all offers. A seller therefore typically meets the market once, while the bidders she faces have bid on

[3]One feature of the platform did change within the sample. For listings published from mid-May 2025, the minimum offer rose from about 36 to about 56 percent of the price the platform suggests for a listing. We show that it does not explain our results.

many catalogs like hers. One hundred thirty bidders make offers under both regimes, which allows us to compare the same bidders before and after the launch.

Our price analysis distinguishes the accepted offer from the final price. Under Regime 1, acceptance ends the sale, so the two are identical. Under Regime 2, the accepted offer sets the auction's reserve, while the final price is the winning bid, or the accepted offer if no further bid arrives. The auction premium is the percentage increase from the accepted offer to the final price.

Comparing prices across listings requires accounting for differences in the royalties being sold. Our main benchmark is the seller's list price, observed for 626 listings, 429 under Regime 1 and 197 under Regime 2. It provides a reference price chosen by the seller for the particular catalog.

Our second benchmark is the platform's valuation, the marketplace median. The platform assigns valuation multiples by contractual term and dollar age and applies them to the lower of LTM royalties and average annual royalties over the preceding three years. When the three-year average is unavailable, it uses LTM royalties. The multiples track median prices of past sales and are revised over time. Using multiples observed after the launch could therefore incorporate the price changes we seek to measure. We instead value listings under both regimes using the multiples displayed in September 2024, before the launch. This approach holds the valuation schedule fixed while allowing valuations to vary with catalog characteristics and earnings. The benchmark covers 610 listings, 424 under Regime 1 and 186 under Regime 2.[4]

Table 2 describes the sample. Panel A shows that the assets are small claims on mature royalty streams. The average catalog earned $20,472 in the last twelve months under Regime 1 and $23,087 under Regime 2. A few catalogs earn several hundred thousand dollars a year, which makes the standard deviations large. About two-thirds of listings sell the royalties for the life of the copyright. The dollar age averages 12 to 14 years, with a standard deviation above 20 years, so the sample mixes young catalogs with catalogs that have earned for decades. More than half of the listings are paid by a performing rights organization, and fewer than one in five sells royalties from sound recordings. The average sale was $102,356 under Regime 1 and $129,442 under Regime 2, or about seven times LTM, and the 715 sales together raised $79.3 million. Because the mix of catalogs shifts, the comparisons in Section V control for catalog characteristics and measure prices against a benchmark.

Panel B shows that the negotiation is active. The first offer arrives three to five

[4]Listings sold for a fixed return have no valuation.

days after a listing goes live on average. A listing draws five to six bidders and 16 to 20 offers on average, and the seller answers with about seven counteroffers. Nearly nine in ten sellers post an ask, and they accept offers well below it. The list price averages $132,860 under Regime 1 and $167,451 under Regime 2, against accepted offers of $102,356 and $120,017. Agreement comes about 19 days after publication on average, and the large standard deviations reflect a minority of listings that stay on the market for months.

Panels C and D describe prices and the auction. Under both regimes, the final price averages about 1.1 times the platform valuation, so the marketplace median tracks the prices at which catalogs sell. The ratios of the accepted offer and the final price to the valuation differ across the regimes, and Section V estimates these differences. Under Regime 2, the auction draws a bid in nearly three-quarters of sales. The auction is short and thin, with fewer than two bidders and six or seven bids on average. It nonetheless raises the price by 7.4 percent over the accepted offer on average, and the accepted bidder buys the catalog in fewer than half of the auctions.

B Empirical Design

The rule applied to every direct listing from the launch date, so we compare sales before and after that date. Our outcomes are measured at three levels: the listing, the bidder on a listing, and the sale event. For an outcome of listing i, such as the accepted offer relative to a benchmark, we estimate

$$Y_i = \alpha + \beta \,\mathrm{Post}_i + X_i'\gamma + \theta_{m(i)} + \varepsilon_i, \tag{1}$$

where α is a constant, Post_i indicates that listing i was published on or after December 18, 2024, X_i contains the characteristics of the catalog, and $\theta_{m(i)}$ is a fixed effect for the month of the year in which the listing was published. All controls are fixed when the listing is published. The coefficient β measures the change in the outcome at the launch, and its standard error is robust to heteroskedasticity.

For an outcome of bidder j on listing i, such as the number of offers the bidder makes in the negotiation, we add a bidder fixed effect θ_j and estimate:

$$Y_{ij} = \beta \,\mathrm{Post}_i + X_i'\gamma + \theta_{m(i)} + \theta_j + \varepsilon_{ij}. \tag{2}$$

With the bidder fixed effect, β compares the same bidder under the two rules. Standard errors are clustered by listing and by bidder.

Some outcomes describe a decision at a particular moment of a sale, which we call a sale event. Our main example is the outbid event, which occurs when a rival makes an offer above the highest offer on a listing, and the leader, who held that offer, has then been outbid. For outbid event e, in which bidder j is outbid on listing i, we estimate

$$Y_{ije} = \beta \, \text{Post}_i + X_i'\gamma + \theta_{m(i)} + \theta_j + \varepsilon_{ie}, \tag{3}$$

where Y_{ije} indicates that bidder j retakes the lead. With the bidder fixed effect, β compares the same bidder in the same situation under the two rules. Standard errors are clustered by listing and by bidder. The seller's decision to accept is another sale event, the arrival of the first offer on a listing to reach a given share of her ask. In that regression, a fixed effect for the share and a control for the age of the listing replace the bidder fixed effect, and standard errors are clustered by listing.

The coefficient β measures how bidding changes when a seller's acceptance no longer ends the sale. The identifying assumption is that nothing else that matters for bidding changed at the launch. Our sample window separates the reform from earlier and later revisions to the platform's trading rules, and the rules governing offers before acceptance remained unchanged at the launch. The platform publicly announced the reform and made the auction visible to participants through notifications and a countdown clock. Bidder fixed effects allow us to compare the same investors under the two rules. To account for broader market conditions, we also report specifications controlling for the ten-year Treasury yield and the return on the S&P 500 as a robustness check. To see when an outcome changed, we replace $Post_i$ with an indicator for each half-year relative to the launch, using the last half-year before the launch as the reference period. The event study allows us to assess whether the timing of changes is consistent with a response to the reform.

V Empirical Results

We test the five implications of Section II in turn, one in each of Sections V.A to V.E. Section V.F asks whether anything other than the rule could produce the results, and how a common value of the asset would change their interpretation.

A Bidding before Agreement

Implication 1 is about a decision that bidders make before the seller accepts. Under Regime 1, a leader who was outbid had to answer or risk that the seller would

accept the rival's offer and end the sale. Under Regime 2, the leader already holds a place in the auction and has less reason to answer. We therefore test whether an outbid leader answers, which we define as retaking the lead within 72 hours, the time an offer stays valid, by offering at least as much as the offer that outbid them. We keep only outbid events at least 72 hours before acceptance, so that the leader has the full 72 hours to answer under both rules, which keeps 67 percent of the events under Regime 1 and 70 percent under Regime 2. The sample has 6,191 outbid events on 529 listings by 359 bidders. Of these bidders, 103 were outbid under both rules, and it is their behavior that the bidder fixed effect compares across the two rules.

We find that outbid leaders answer much less often once the seller's acceptance no longer ends the sale. Under Regime 1, an outbid leader retook the lead after 67.6 percent of outbid events, and under Regime 2 after 51.1 percent. Column (1) of Table 3 shows that the same bidder retook the lead 19.5 percentage points less often after the launch, which is 29 percent of the Regime 1 rate. The estimate does not depend on what we count as an answer. Columns (2) and (3) require the leader to become the sole highest bidder again and leave out answers placed within ten seconds, which a proxy offer can make automatically, and the fall is still more than 18 percentage points. Figure 3 plots the effect by half-year. The retaking rate in each half-year before the launch is indistinguishable from the rate just before it, and it is significantly lower in every half-year under Regime 2.

One might expect these answers to reappear in the auction. Column (4) drops the 72-hour limit and follows each outbid leader to the end of the sale. Outbid leaders still answer 14.6 percentage points less often when bids in the auction are counted. Most of the missing answers are therefore not made at any stage of the sale. As Implication 1 notes, an ascending auction does not require them, because a bidder whose value the price has passed never needs to bid. What the seller loses is these answers at the time she decides whether to accept.

Implication 1 also predicts that bidders in general raise their own offers less often. The last two columns of Table 3 turn from outbid events to every bidder on a listing. Under Regime 1, 61.4 percent of bidders revised their offer, that is, made more than one offer before acceptance, and a bidder made 3.60 offers on a listing on average. After the launch, only 42.6 percent of bidders revise, a fall of 23.3 points for the same bidder, so that a majority of the bidders on a listing now make a single offer before the seller accepts. As shown in column (6), the same bidder also makes 1.34 fewer offers on a listing after the rule change.

Implication 1 does not say that every reason to bid high disappears. A high offer can still discourage rivals from entering, and the rule leaves that reason in place. Table A1 follows each offer made at least 24 hours before acceptance and asks whether a bidder new to the listing arrives in the next 24 hours. Under both rules, new bidders arrive less often when the standing offer is high relative to the seller's list price. With controls for the age of the listing and the number of bidders, the relation is no weaker under Regime 2, and is stronger with listing fixed effects. The standing offer and the arrival of new bidders are determined together, so we read this relation as an association. The association did not weaken when the rule changed, which is what Implication 1 leads us to expect, since the rule takes away a bidder's ability to secure the asset through the seller's acceptance and leaves the effect of a high offer on rivals as it was.

These results suggest that part of the competition a seller saw under the old rule came from her power to end the sale. A bidder answered a rival because the seller might otherwise accept the rival's offer, and that reason disappeared when acceptance began to open an auction. Whether the seller then has lower offers in front of her, and how she responds, is the subject of the next subsection.

B The Seller's Response

Implication 2 predicts that sellers accept lower offers under Regime 2, and that they accept an offer of a given size more often. The second prediction is the one that separates the seller's response from the bidders', because it holds the offer fixed.

We find that sellers accept lower offers after the rule change. Column (1) of Table 4 measures the accepted offer against the seller's list price and against the platform valuation. Relative to her list price, the accepted offer is 6.1 percent lower after the launch. Under Regime 1, sellers accepted offers 18 percent below their list price on average, and they now accept offers 23 percent below it. Relative to the platform valuation, the fall is 5.6 percent. Panel A of Figure 4 plots the accepted offer relative to the list price by half-year. In each of the three half-years after the launch, it is 5 to 7 percent below its level in the last half-year before the launch.

The remaining columns of Table 4 describe the two sides of the negotiation at the time the seller accepts, what the seller asks and what bidders offer. Sellers do not ask for more than before. Columns (2) and (3) measure her list price and her standing ask, the ask in force when she accepts, against the platform valuation. After the launch, her list price and standing ask do not change significantly. However, the

seller has lower offers in front of her, which is consistent with the result above that outbid leaders answer less. Column (4) takes the best offer made up to a day before the seller accepts, which is 8.4 percent lower relative to her list price and 7.6 percent lower relative to the valuation.

The lower best offer is not the result of earlier acceptance. A seller who accepted earlier in the life of a listing would have a lower best offer in front of her under either rule, since bidders would have had less time to raise it. Table A2 therefore measures the best offer at a fixed age of the listing. Relative to her list price, the best offer is 5.4 percent lower a week after publication and 5.6 percent lower after two weeks. Figure A1 shows that the gap opens after the first day of a listing. Sellers also take as long to accept as before. Table 2 shows that the time from publication to acceptance averages 18.5 days under Regime 1 and 18.9 days under Regime 2. Column (3) of Table A2 shows no change with controls. Sellers therefore accept at the same age of the listing as before, with a best offer in front of them that is 8.4 percent lower.

Accepted offers would fall even if the seller's threshold had not moved, simply because bidders offer less. To isolate her response, we hold the offer fixed and ask whether she accepts it. We measure the size of an offer by its share of her standing ask, the ask in force when the offer arrives, which is the price at which she would sell at that moment. We set six levels, at 70, 75, 80, 85, 90 and 95 percent of her standing ask. At each level, we take the first offer on the listing that amounts to at least that share of her ask, and we drop the offer exceeding the level by more than 10 percent. For a seller who asks $100,000, the offer at the 80 percent level is the first offer of $80,000 or more. The outcome equals one if this offer is the one the seller accepts, and zero otherwise. Each listing thus contributes one decision at each level, however many offers it draws, and the regression compares these decisions under the two rules at the same level and the same age of the listing.

As shown in Table 5, we find that sellers accept an offer of a given size more often after the launch. Under Regime 1, the seller accepted 15.4 percent of these offers, and column (1) of Table 5 shows a rise of 6.7 percentage points, which is 44 percent of that rate. An offer that meets her ask closes the negotiation without a further decision on her part, so column (2) counts only acceptances of offers below the ask. That rate rises by 5.7 points from 7.6 percent. Columns (3) and (4) repeat the test with two benchmarks that do not move during the negotiation. Column (3) measures the offer against the platform valuation at levels from 60 to 110 percent, and column

(4) against her list price at levels from 50 to 95 percent.[5] The acceptance rate rises by 3.2 points from 5.5 percent in column (3) and by 3.1 points from 8.4 percent in column (4). Panel B of Figure 4 plots the estimate of column (1) by half-year. The acceptance rate in each half-year before the launch is indistinguishable from the rate just before it, but it is 5 to 13 percentage points higher in the half-years after the launch.

The rule also changed how negotiation closes. Under Regime 1, 58.7 percent of sales closed at the seller's own price, with a bidder taking her standing ask or accepting her counteroffer. After the launch, meeting her price only opens the auction. Column (5) of Table 5 shows that the share of sales closed at her price fell by 15.9 points, and column (6) shows that the share closed on her counteroffer fell by 8.0 points. Only 42.4 percent of sales now close at her price, which implies that a majority close on an offer that a bidder named and the seller accepted.

These results show how the seller responds when acceptance opens an auction. The offers in front of her are lower than before, and she does not wait for them to rise. She accepts after the same time as under Regime 1, takes an offer of the same size more often, and ends with an accepted offer that is 6.1 percent lower relative to her list price. Search theory predicts this response. A seller who accepts under Regime 2 can still receive a better offer in the auction, so accepting costs her less than it did when acceptance ended the sale, and the lower offers before acceptance make waiting worth less. What we see in the data rejects the fixed threshold of the takeover models and supports search theory. The lower offer that she accepts is the reserve from which the auction starts, so next we turn to competition after agreement.

C Competition after Agreement

The platform introduced the auction so that investors who would pay more could still bid after the seller accepts. Implication 3 asks whether the bids that follow acceptance are competition the auction adds to a sale or competition it moves out of the negotiation. The auction adds competition if more investors bid on a listing or if the same investors bid higher. It moves competition if the same investors bid later but as high as before. Nearly three-quarters of the 224 auctions draw at least a bid. However, a bid above the accepted offer is not by itself added competition. Sellers now accept offers that are 6.1 percent lower relative to their list price, so a rival can outbid the accepted bidder without paying more than the asset would have fetched

[5]Levels against the list price start lower because the list price lies above the standing ask.

before the launch. We therefore count the investors who bid at any stage of a sale and measure how high the losing bidders bid over the whole sale.

Subscribers bid later. Only a subscriber can enter an auction without an earlier offer on the listing, so a bidder who does so reveals a subscription. We identify 45 revealed subscribers in this way and follow them through the listings of both regimes. Column (1) of Table 6 shows that the number of subscribers with an offer before acceptance fell by 0.67 per listing from 2.30. Column (2) shows that the number of subscribers who bid at any stage of the sale did not change. The auction thus moves the first bids of some of them from the negotiation into the auction.

More non-subscribers come into a sale under Regime 2. These bidders reach the auction only through an offer before acceptance, so their participation shows up in the negotiation. Column (3) of Table 6 shows that the number of non-subscribers on a listing rose by 1.23, or 38 percent of the Regime 1 level of 3.21. Columns (4) and (5) show that the rise is entirely in non-subscribers who make a single offer before acceptance. Their number rose by 1.35 per listing from 1.33, while the number of non-subscribers with several offers did not change. One offer already gives the bidder a place in the auction, and a higher offer before acceptance does not improve that place. The same reading fits the earlier finding that a bidder already in a sale revises less often after the launch, because their first offer already holds the place.

Non-subscribers also bid high. Column (1) of Table 7 shows that, on the listings with a valuation, the number of bidders whose highest offer over the sale is at least the platform valuation rose by 0.69 per listing from 1.79. Column (2) shows that non-subscribers account for 0.51 of that rise. In 32 percent of auctions, at least one non-subscriber besides the accepted bidder bids in the auction. One of them outbids the accepted bidder and wins the asset in 13 percent of auctions.

Losing bidders bid as high over the whole sale as before. The test that Implication 3 proposes is the highest offer over the whole sale by a bidder who did not buy, which columns (3) and (4) of Table 7 measure against the list price and the platform valuation. We do not find a salient change relative to both benchmarks. The first subsection shows that bidders answer rivals less often before acceptance. Those missing answers did not lower the highest losing bid of the sale, because bidders who return in the auction bid well above their earlier offers. They bid a median of 21 percent above their own best offer before acceptance. Under Regime 1, an answer before acceptance was a step toward a bidder's highest offer. In an ascending auction, bidders keep raising until the price passes their value, so the auction reaches as high

a losing bid as before without those steps.

The auction also changes how the price is set, which Implication 3 predicts under either reading. Before the launch, 58.7 percent of sales closed at a price the seller had named, her standing ask or her counteroffer. Such a price can lie well above every rival's offer. In an ascending auction, the runner-up's bid sets the price. Column (1) of Table 8 measures how often the final price lies within 2 percent above the best offer of a third party, a bidder who is neither the buyer nor the accepted bidder. The share rose from 21.6 percent of Regime 1 sales to 48.2 percent of Regime 2 sales, a rise of 25.6 percentage points. Figure 5 shows that the share is flat before the launch and significantly higher in each half-year after it. Column (2) counts the accepted bidders who are outbid in the auction among the losing bidders. The share of sales that close within 2 percent above the best losing offer then rises from 21.6 to 65.6 percent. In about two-thirds of sales, the price now lies just above the best offer of a bidder who lost, as it does when the runner-up's bid sets the price. A count of bidders gives the same result. Column (3) shows that the number of bidders whose highest offer lies within 5 percent of the final price rose by 0.62 per listing from 1.42.

Our results suggest that the auction moves competition among subscribers and adds competition from non-subscribers. Subscribers, who can wait for the auction, bid later. Non-subscribers, who reach the auction only through an offer before acceptance, come into a sale in larger numbers. Losing bidders bid as high over the whole sale as before. The auction also hands the setting of the final price from the seller to the bidders who lose. Whether the seller receives more as a result is the subject of the next subsection.

D The Final Price

Implication 4 leaves the sign of the change in the final price open. Rivals bid above the accepted offer in the auction, but the accepted offer is itself lower than before, so the final price rises only if the auction adds more than the accepted offer gives up. To compare the two, we measure the accepted offer and the final price of every sale against the same benchmark for the catalog. The change in the final price at the launch is then the sum of the change in the accepted offer and the premium, the log of the final price over the accepted offer, which is zero in every sale under Regime 1. Table 9 reports the change in the final price in its first row and the two parts of that change below it.

We find that the auction raises the price after agreement, but the seller receives no

more than before. Column (1) of Table 9 measures prices against the seller's list price. Under Regime 1, a sale closed 18 percent below the list price on average. After the launch, the accepted offer is 6.1 percent lower relative to the list price, but the auction adds 6.1 percent to the accepted offer. Sellers now accept offers 23 percent below their list price, and the auction brings the final price back to 18 percent below it. The lower accepted offer thus takes back 99 percent of the premium. Panel A of Figure 6 plots the final price relative to the list price by half-year. The final price in each half-year, before and after the launch, is indistinguishable from its level just before the launch. Therefore, the auction premium is not a gain to the seller. A premium observed after agreement overstates what an auction adds to the price, because the offer on which it is computed is itself an outcome of the rule (Lucas, 1976).

The result does not depend on the benchmark. Column (2) of Table 9 measures final prices against the platform valuation, which the seller does not choose. The accepted offer is 5.6 percent lower and the premium is 7.0 percent, so the lower accepted offer takes back 80 percent of the premium. As a result, the final price does not change significantly. Panel B of Figure 6 shows that the final price relative to the valuation in each half-year after the launch is indistinguishable from its level just before the launch. The premium differs between columns (1) and (2) because each benchmark is available for a different set of listings. Columns (3) and (4) therefore apply the two benchmarks to the same 535 listings, those with both a list price and a valuation. On these listings, the premium is 6.4 percent, the accepted offer is significantly lower under both benchmarks, and the final price does not change significantly under either.

We also compare the final price of each Regime 2 sale with the price that the same catalog would have fetched before the launch. To predict that price, we estimate a hedonic model on the 503 completed listings published before the launch. The model relates the log price to log LTM royalties, dollar age, royalty growth, the number of songs, contractual term, royalty payer, and copyright type, with month-of-year and half-year fixed effects. It further lets the effects of LTM royalties, dollar age, and growth differ by term and allows them to be nonlinear. Table A3 reports the estimates and shows that the hedonic model can explain 95.0 percent of the variation in log prices. The estimation sample contains no sale with an auction, so the prediction for a catalog sold after the launch is the price that the catalog would have fetched before the launch. If the auction raised what sellers receive, the final prices of Regime 2 sales would lie above these predictions by about the premium.

Predicting the price of a Regime 2 sale requires a price level for the market after the launch, which the estimation sample does not contain. We set the price level to the average of the half-year effects over the last twelve months before the launch, as if the market had stayed at the level of that year. If the level of the market drifted after the launch, this step alone would move the errors on Regime 2 sales, whether or not the auction changed prices. We test for such drift within Regime 1. We fit the model on the 281 sales published more than a year before the launch, hold the price level at the average of the last twelve months of that period, and predict the prices of the sales published in the last year before the launch. The mean error of these predictions does not differ significantly from zero, so we find no evidence that holding the price level fixed for a year shifts the predictions.

To judge whether the errors on Regime 2 sales are large, we compare them with the errors that the model makes on Regime 1 sales. We predict each Regime 1 sale with a model fitted without it. Specifically, we divide the 503 Regime 1 sales at random into ten groups. For each group, we fit the model on the other nine groups and predict the prices of the held-out group. We repeat the random division five times and average the five predictions of each sale. Every Regime 1 sale is thus predicted by a model that has not seen it, as every Regime 2 sale is.

We find that sales under Regime 2 close at about the prices that the same catalogs would have fetched before the launch. Figure 7 plots the distributions of the prediction errors for held-out Regime 1 prices, Regime 2 final prices, and Regime 2 accepted offers. The errors on Regime 2 final prices are distributed like the errors on held-out Regime 1 prices, and their mean does not differ significantly from zero. On the other hand, the accepted offers of the same sales lie 5.8 percent below the prediction on average.

These results suggest that the auction and the negotiation offset each other in the seller's price. Rivals raise the price by 6 to 7 percent after the seller accepts, but she accepts an offer that is lower by about as much, so she receives what she received when acceptance ended the sale. The final price shows neither the revenue advantage of auctions in Bulow and Klemperer (2009) nor the lower price that Hirshleifer and Png (1989) show costly bidding can produce, and it is in line with the similar average revenue that Gentry and Stroup (2019) estimate for auctions and negotiations. Next we study who buys the asset and what the auction costs the accepted bidder.

E Resale and the Accepted Bidder

Implication 5 is about who buys the asset. Under Regime 1, the bidder whose offer the seller accepted bought it. Under Regime 2, a rival who values the asset more can still outbid that bidder in the auction, and if such rivals buy, fewer assets should return to the market soon after the sale. Resales under Regime 1 point to gains of this kind. The 33 purchases under Regime 1 that were resold within 180 days fetched a median of 1.30 times the price paid. At 82 percent of these resales, the new buyer was already on the marketplace when the seller's acceptance ended the first sale. We first measure how often the auction changes the buyer. Because the accepted bidder bought every asset under Regime 1, we compare the two rules through the bidder who held the highest offer before the seller accepted, a bidder defined in the same way under either rule. We then measure resale by whether the buyer relists the asset and posts an ask on it within 180, 90 and 30 days of the purchase. The resale ask records the buyer's decision to sell, whether or not another investor then buys. We observe every purchase in the sample for the full 180 days.

We first find that the auction changes the buyer in about half of the sales. Under Regime 1, the bidder with the highest offer before acceptance bought the asset in 82.9 percent of sales, and under Regime 2 in 46.0 percent.[6] Column (1) of Table 10 shows that this share fell by 35.7 percentage points after the launch, which is 43 percent of the Regime 1 rate. Figure 8 presents that the share is significantly lower in every half-year after the launch. Column (2) shows the same change for the accepted bidder, who bought every asset under Regime 1 and now loses about half of them. Opening an agreement to an auction changes the buyer in bankruptcy sales as well. The stalking horse faces competing bidders in about half of the sales and loses about four in ten of those contests (Gilson, Hotchkiss and Osborn, 2015). One difference is that a stalking horse can be protected by a break-up fee or a topping fee, paid if its bid fails, while the accepted bidders we study have no such protection. The auction does not change how often the bidder who starts the bidding buys. Column (3) shows that the bidder who made the first offer on a listing bought it in 15.3 percent of sales under Regime 1 and buys it as often after the launch. The buyers who displace accepted bidders are among the most active investors on the marketplace. Table A4 compares them with the accepted bidders they displace. Before the auction opened, the median displacing buyer had made offers on 95.5 listings of the marketplace, against 39.5 for

[6]The share is below 100 percent under Regime 1 because the seller could close the sale with another bidder, most often by countering at a price above the highest offer.

the median accepted bidder they displaced. Of the displacing buyers, 41.4 percent rank among the ten largest buyers of the sample.

Buyers put the asset back up for sale much less often after the rule change. Under Regime 1, 25.9 percent of buyers posted a resale ask within 180 days, and under Regime 2, 12.1 percent do so. Column (4) of Table 10 shows a fall of 10.3 percentage points, which is 40 percent of the Regime 1 rate. Columns (5) and (6) use shorter windows, which leave little time for a need for cash or for news about the asset to arise. Within 90 days, the share falls by 7.2 percentage points from 21.0 percent. Within 30 days, it falls by 4.5 percentage points from 13.6 percent.

The fall in resale is concentrated in the sales in which the auction changed the buyer. Panel B of Table 10 sorts the 224 auctions by what happened to the accepted bidder. In 28.1 percent of them, no rival bid, so the buyer is the one the negotiation alone would have produced. Of these buyers, 20.6 percent post a resale ask within 180 days, not far below the 25.9 percent of Regime 1. In 20.1 percent of auctions, the accepted bidder raised their bid and kept the asset, and 15.6 percent of these buyers post a resale ask. In the remaining 51.8 percent, another bidder displaced the accepted bidder, and only 6.0 percent of these buyers relist the catalog. A change in the return to reselling cannot produce this pattern. Resales on the platform have also gone through an auction since the launch. If that change had made reselling less attractive, resale would have fallen among all buyers under Regime 2 alike. Instead, resale fell most where the auction changed the buyer, which suggests that the rule improved the allocation of assets.

The auction has a cost for the accepted bidder. Easterbrook and Fischel (1981) argue that competition after agreement lowers the return to the bidder who found and investigated the target. On this marketplace, the auction acts directly on the accepted bidder rather than on the bidder who starts the bidding. Under Regime 1, the accepted bidder bought the asset at the accepted offer. Measured against that outcome, the auction imposes a cost in one of two ways. An accepted bidder who raises to keep the asset pays more. Panel B of Table 10 shows that these bidders pay 9.3 percent above the accepted offer on average. An accepted bidder who is displaced pays nothing but loses the surplus from buying at the accepted offer, the amount by which the asset was worth more to them than that offer. Their bids in the auction bound what the asset was worth to them (Haile and Tamer, 2003). A bidder does not bid more than the asset is worth to them, so it was worth at least their highest bid, or the accepted offer if they did not bid in the auction. A bidder also does not

let a rival win at a price they are willing to beat, so it was worth at most the final price. We also use two tighter upper bounds, which assume that a bidder answers a rival bid they are willing to beat. One is the first rival bid that the accepted bidder left unanswered, and the other is the first such bid that stood unanswered for at least an hour.[7]

We find that accepted bidders bear most of what the auction adds. Table 11 measures the cost to the accepted bidder on the 626 listings with a list price, which include 197 of the 224 auctions. In each sale, the cost is zero if no rival bids, the log of the final price over the accepted offer if the accepted bidder raises and keeps the asset, and the log of the asset's value to them over the accepted offer if they are displaced. The four columns differ only in the value of a displaced accepted bidder, which rises from their own highest bid in column (1) to the final price in column (4). Even at the lowest value, the cost to accepted bidders is 3.7 percent of the accepted offer, or 60 percent of the premium. The cost rises to 4.3 and 5.2 percent under the two tighter upper bounds in columns (2) and (3), and to the whole premium in column (4). Therefore, accepted bidders bear between 60 percent and all of what the auction adds.

However, the lower accepted offer offsets this cost under every bound. Column (1) of Table 4 shows that, after the launch, sellers accept offers 6.1 percent lower relative to their list price. The fall is as large as what the auction adds, and therefore at least as large as the cost under any of the four values. The first row of Table 11 adds the cost to the accepted offer, which gives the accepted bidder's effective price. The effective price is the accepted offer if no rival bids, the final price if the accepted bidder raises and keeps the asset, and the asset's value to them if they are displaced. A displaced bidder ends with no surplus, as if they had paid that value. Under Regime 1, the effective price is simply the accepted offer. Relative to the list price, the effective price does not change significantly at the launch in any of the four columns. Therefore, once the cost of the auction is counted, accepted bidders as a group pay what they paid when acceptance ended the sale.

These results suggest that the auction moves assets to investors who value them more, without lowering the return to the accepted bidder. Under Regime 1, the seller's acceptance often ended a sale before an investor who valued the asset more

[7] A rival bid that another rival tops within minutes may be gone before the accepted bidder sees it, so we use the second measure to count only rival bids that the accepted bidder had time to answer. Among the 48 displaced accepted bidders who bid in the auction, the first rival bid they left unanswered remained the highest bid for a median of 5 minutes.

had bid, and that investor bought the asset later in a resale. The auction lets such investors buy at the first sale, and the assets they buy stay with them. The pattern is the reallocation that Bebchuk (1982) and Gilson (1981) expected from competition after agreement, under the private value assumption.

F Robustness and Discussion

Our estimates compare sales before and after one date. We now show that the leading alternative explanations do not account for them.

Placebo dates. If bidding and prices drifted over time for reasons unrelated to the rule, sales before and after any date would differ as ours do. We therefore repeat each main estimate at 16 placebo dates under Regime 1, the first of each month from March 2023 to June 2024, comparing the listings published after each date with those published before it. As shown in Figure A2, for each outcome that changed at the launch, the change at every placebo date is smaller. Retaking the lead, for example, moves by at most 1.3 percentage points at a placebo date, compared with a fall of 19.5 points at the launch. The final price, which did not change at the launch, stays within the range of its placebo estimates. A drift over time therefore does not explain our results.

Market conditions and the minimum offer. A weaker market for royalties after the launch would make bidders less eager and sellers readier to accept. We therefore control for the average quarterly ten-year Treasury yield and the quarterly return on the S&P 500. As shown in Table A5, the estimates with market controls stay close to those reported above, so market conditions do not explain our results.

One other rule changed after the launch. For listings published from May 12, 2025, the platform raised the minimum offer from about 36 to about 56 percent of the price it suggests for a listing. A higher minimum offer starts the bidding closer to the final price, so it could reduce answers and revisions even if the auction had changed nothing. Table A6 repeats the main estimates on the 75 Regime 2 listings published before May 12, 2025, when the minimum offer still followed the rule of Regime 1. Again we find very similar results, so the rise in the minimum offer does not explain our results.

Listings that did not sell. Our sample consists of completed sales. If the new rule changed which listings sell, the sample would change with it, and so could our estimates. Two earlier snapshots of the marketplace let us check for such a change. They record eleven direct listings that were open to offers but never sold. As shown in

Table A7, these listings drew offers about as high relative to LTM as completed sales, but their sellers asked 11.4 times LTM, compared with 6.5 times LTM at acceptance in completed sales. They remained unsold because their sellers asked for much more than bidders offered. Such failures did not become more common after the launch. Of the listings published 51 to 231 days before each snapshot, 2.6 percent never sold under either rule, and Table A8 shows that the share is lower under Regime 2 at other ages. Adding the failed sales back to the sample leaves our estimates almost unchanged. Table A9 adds the eight unsold Regime 1 listings, whose offers the 2024 snapshot preserves, and the three sales that were agreed but never paid for. Outbid leaders still retake the lead 19.2 percentage points less often, and the accepted offer remains 6.1 percent lower relative to the list price. The selection of listings into our sample therefore does not explain our results.

Common values. Part of the value of a royalty stream is the same for every buyer, because every buyer would receive the same royalties. Part differs across buyers, with their cost of capital and with how the catalog fits what they already hold. Our results on bidding before agreement, on the seller's response and on the final price do not depend on this split. They come from two features of the rule. An accepted offer no longer secures the asset, and a better offer can still arrive after the seller accepts. The result for the accepted bidder does not depend on how buyers value the asset either, because its bounds assume only that a bidder never bids more than they think the asset is worth and never lets a rival win at a price they would beat. The common value part matters only for how we read the change in buyers. A rival may outbid the accepted bidder because they expect the catalog to earn more, rather than because it is worth more to them. Either way, the auction changes the buyer in half of the sales, and the buyers who take the asset from the accepted bidder are among the most active investors on the marketplace and keep what they buy.

VI Conclusion

When a marketplace for music royalties turned each accepted offer into the reserve of an auction, bidders competed less before agreement. A bidder who lost the lead became 20 percentage points less likely to retake it, and still 15 points less likely when bids in the auction are counted. Competition shifted to the auction, which brought in more bidders and displaced the accepted bidder half of the time. Winning buyers resold less often. However, sellers accepted lower offers, by about as much as the

auction added, so the final price did not change.

These results speak to both sides of the debate over competing bids. Commitment is itself a source of competition, because a bidder must answer a rival whose offer the seller might accept. Competition after agreement changes who buys, as Bebchuk (1982) and Gilson (1981) argued. In our market, sellers accepted less once the auction could still raise the price, as search theory predicts. Commitment thus does not so much limit competition as move it. The timing of competition decides who owns the asset, but not what the seller receives. The auction raised the price by about 7 percent over the accepted offer, but the accepted offer itself had fallen by about 6 percent. A premium measured after agreement therefore overstates what the seller gains.

The trade-off we study arises wherever a seller negotiates with several bidders. In takeovers, bankruptcy sales, and housing markets, the law or the contract decides how far an accepted offer binds the seller. The rule change we study moved from one end of this range to the other, from an acceptance that ends the sale to an acceptance that only opens an auction. Most rules in practice lie in between. Termination fees, match rights, and go-shops leave the sale open but give the accepted bidder some protection. How bidders and sellers respond to such partial commitment is likely to depend on the cost of entering a sale. Entry is cheap in our market. After the change, bidders kept arriving and no more listings failed to sell. Where entry is costly, weaker commitment can also reduce the number of deals, as the ban on deal protection in the United Kingdom did (Restrepo and Subramanian, 2017). Finding the degree of commitment that best serves sellers, or that best allocates assets, requires a structural model in which bidders decide whether to enter and how hard to compete, and the seller decides which offer to accept. Data like ours, which record every move before and after agreement, can discipline that model. We leave its estimation to future work.

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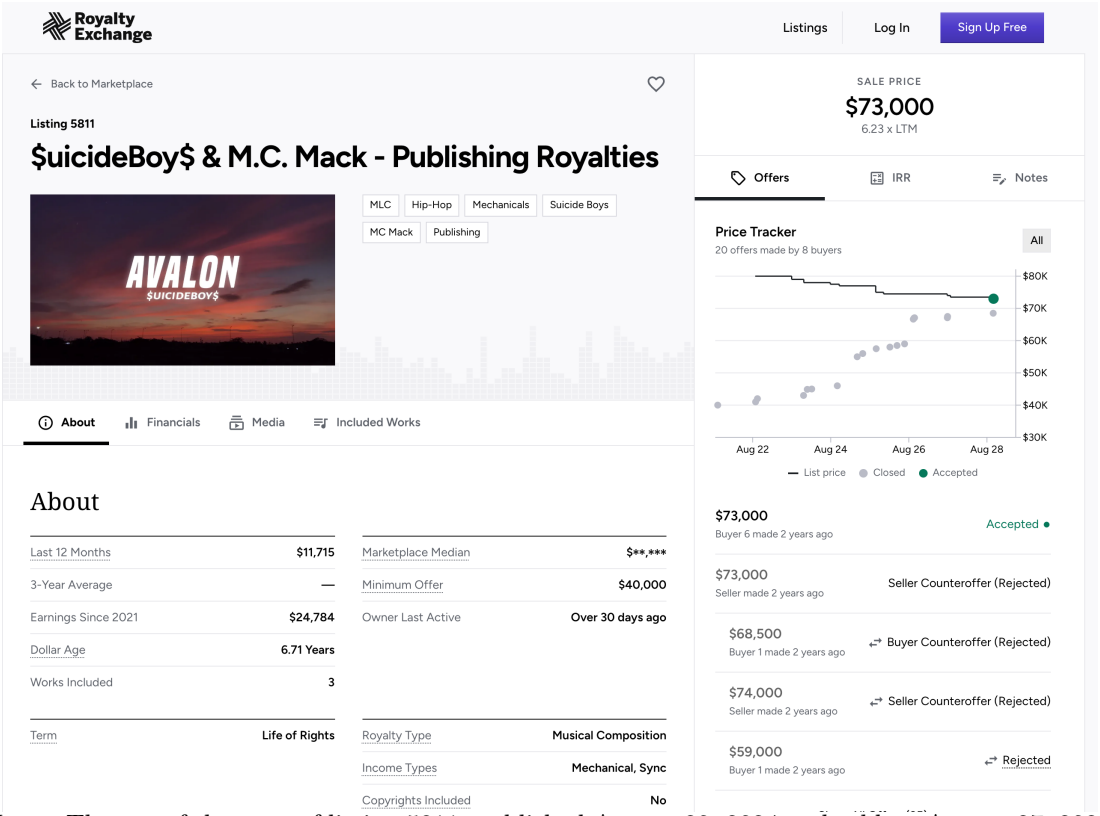
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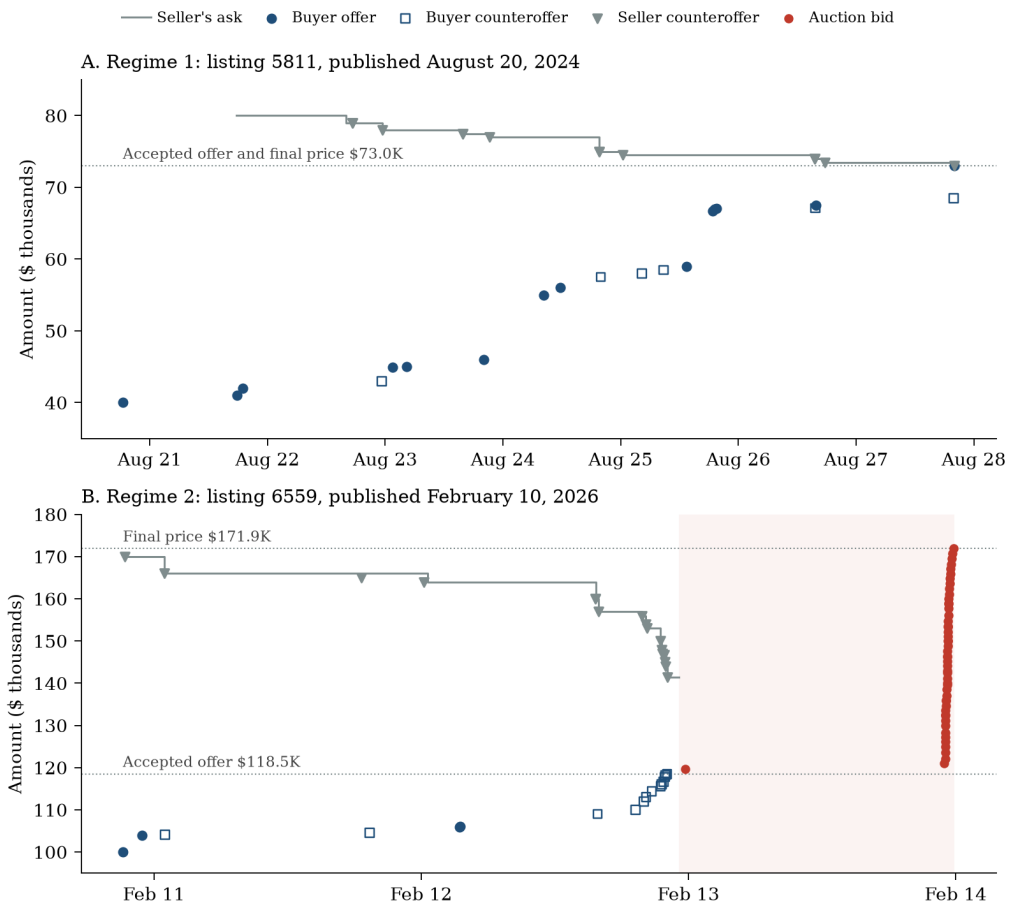
Zhu, Haoxiang. 2012. "Finding a Good Price in Opaque Over-the-Counter Markets." *Review of Financial Studies* 25(4):1255–1285.

Figure 1. The Page of a Listing



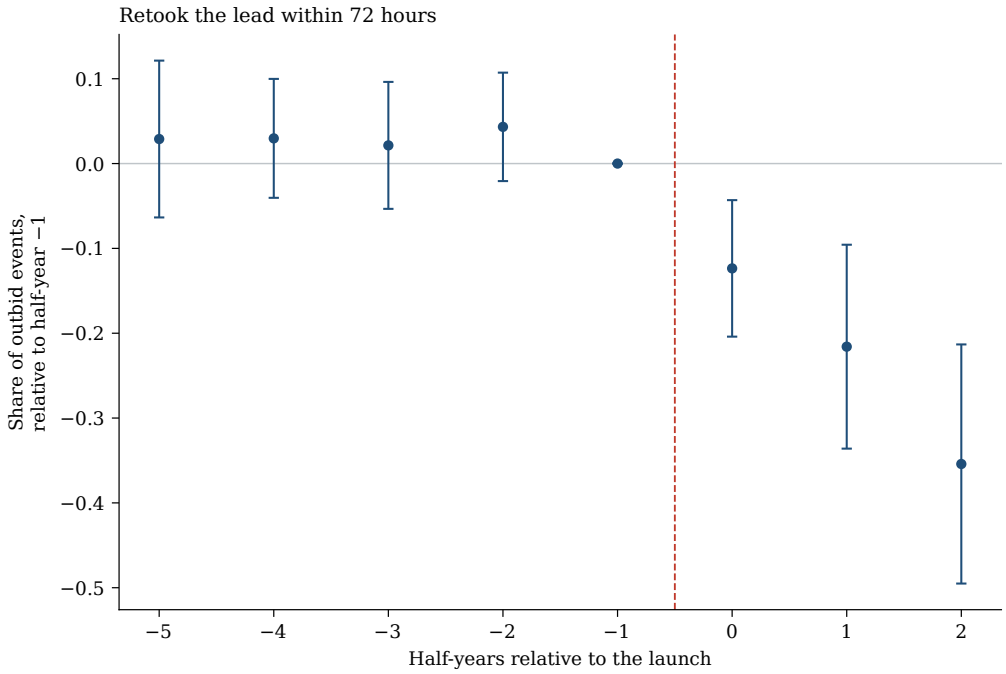
Notes: The top of the page of listing 5811, published August 20, 2024 and sold on August 27, 2024, as a visitor who is not logged in saw it on November 14, 2026. The layout has changed since the sale, but the fields are the same. Logged-in members see the marketplace median, which is masked here. Below this part, the page plots the royalties of each period and breaks them down by song, by type of income and by source.

Figure 2. Two Example Sales



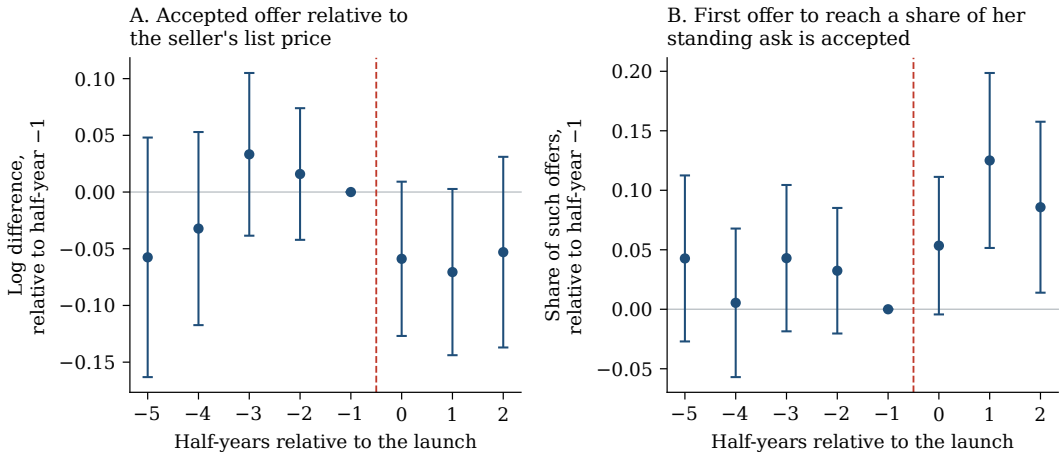
Notes: Panel A shows a sale under Regime 1 and Panel B a sale under Regime 2. Filled circles are buyer offers, open squares buyer counteroffers, triangles seller counteroffers, and red circles bids in the 24-hour auction (shaded). The grey line is the seller's ask. Dotted lines mark the accepted offer and the final price, which coincide under Regime 1.

Figure 3. Retaking the Lead around the Launch



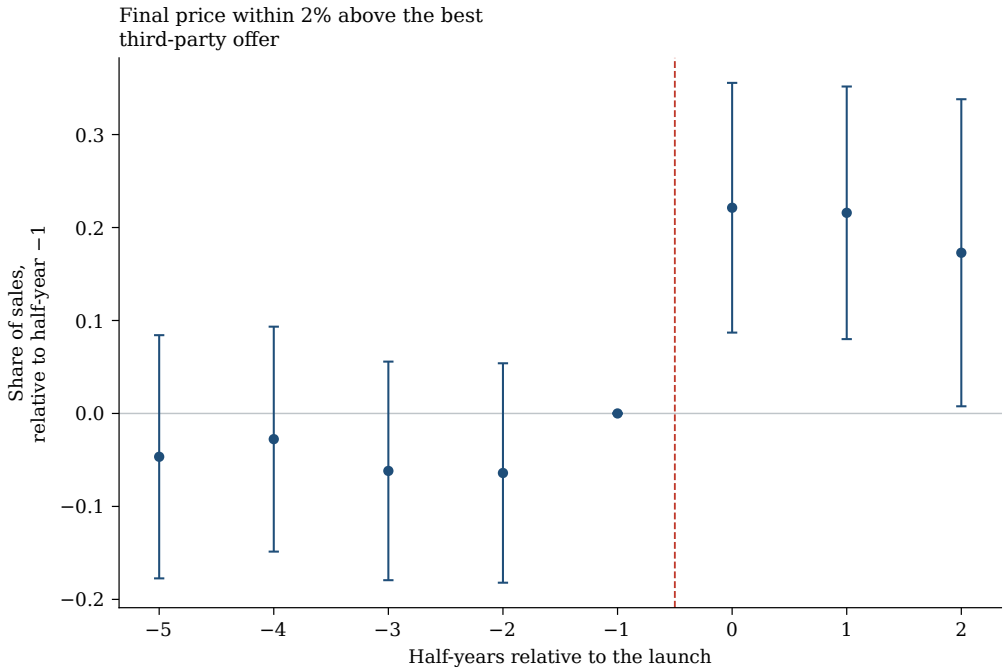
Notes: Coefficients on half-year bins relative to December 18, 2024, with half-year −1 as the base, from regressions with the controls of Table 3 without month-of-year effects. Half-year −5 begins on August 23, 2022, and half-year 2 ends on April 12, 2026. Bars show 95 percent intervals from standard errors clustered by listing and by bidder. The outcome is whether an outbid bidder offers at least as much as the offer that outbid them within 72 hours (Table 3, column (1)); the regression has bidder fixed effects.

Figure 4. The Seller's Acceptance around the Launch



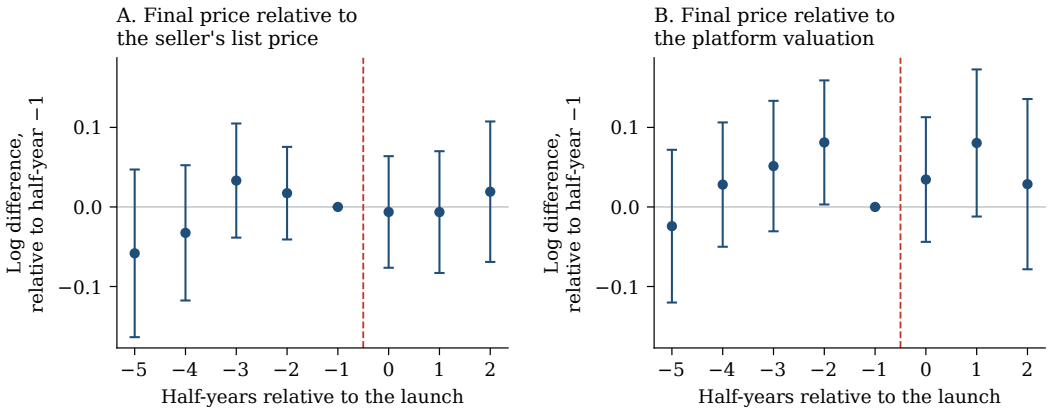
Notes: Coefficients on half-year bins relative to December 18, 2024, with half-year −1 as the base, from regressions with the controls of Table 3 without month-of-year effects. Half-year −5 begins on August 23, 2022, and half-year 2 ends on April 12, 2026. Bars show 95 percent intervals from standard errors robust to heteroskedasticity in Panel A and clustered by listing in Panel B. Panel A: log accepted offer minus the log of the seller's list price (Table 4, column (1)). Panel B: whether the first offer to reach 70 to 95 percent of the ask standing when it is made is the offer the seller accepts, with level effects and the age of the listing at the offer (Table 5, column (1)).

Figure 5. Competition after Agreement around the Launch



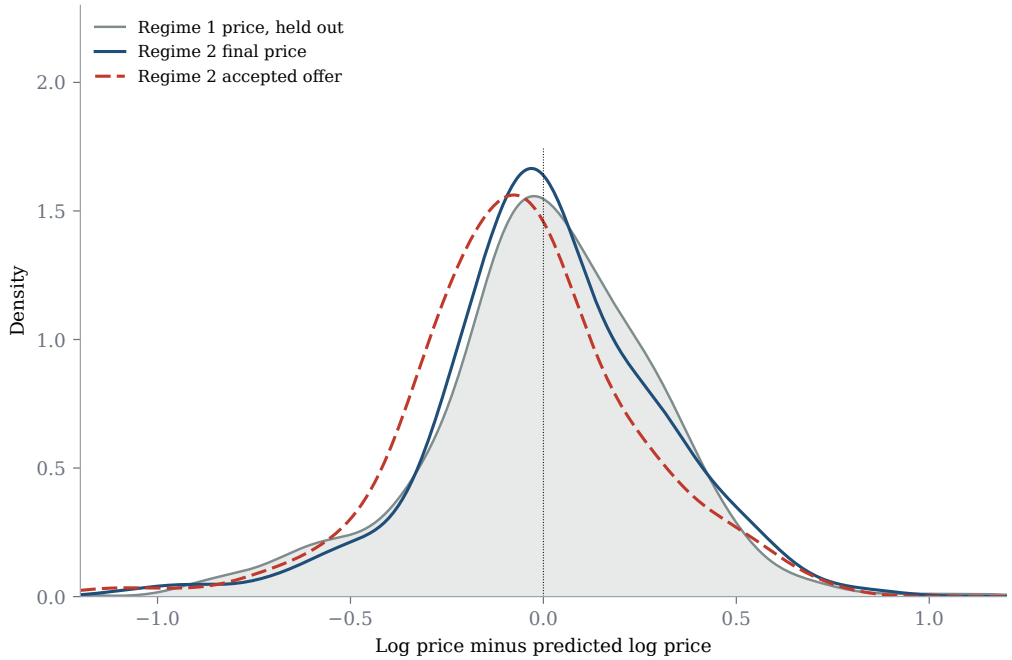
Notes: Coefficients on half-year bins relative to December 18, 2024, with half-year −1 as the base, from regressions with the controls of Table 3 without month-of-year effects. Half-year −5 begins on August 23, 2022, and half-year 2 ends on April 12, 2026. Bars show 95 percent intervals from standard errors robust to heteroskedasticity. The outcome is whether the final price is at most 2 percent above the highest offer of a bidder who is neither the buyer nor the bidder whose offer was accepted (Table 8, column (1)).

Figure 6. The Final Price around the Launch



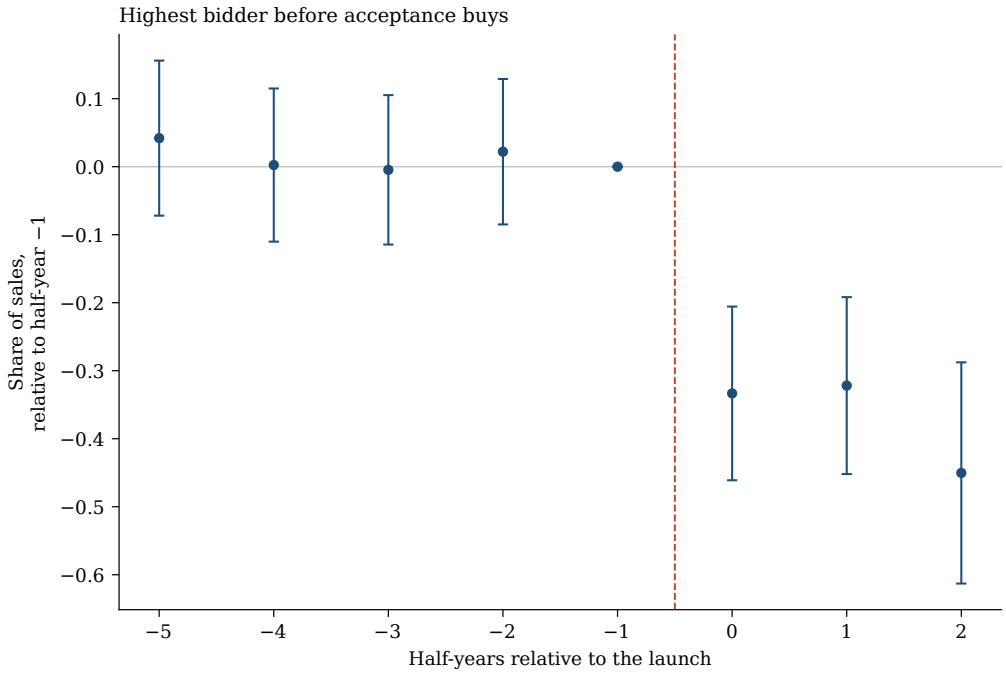
Notes: Coefficients on half-year bins relative to December 18, 2024, with half-year −1 as the base, from regressions with the controls of Table 3 without month-of-year effects. Half-year −5 begins on August 23, 2022, and half-year 2 ends on April 12, 2026. Bars show 95 percent intervals from standard errors robust to heteroskedasticity. The outcome is the log final price minus the log benchmark (Table 9, first row), on the 626 listings with a list price in Panel A and the 610 listings with a platform valuation in Panel B.

Figure 7. Prices under Regime 2 against a Hedonic Model Fitted on Regime 1 Sales



Notes: Kernel densities of prediction errors, the log price of a sale minus the log price predicted by the hedonic model of Table A3, which is fitted on the 503 direct listings published before the launch. For a sale under Regime 1, the prediction comes from the model fitted on the other nine of ten random groups of these listings, and the error is the mean over five random divisions. For a sale under Regime 2, the prediction comes from the model fitted on all of these listings, at the price level of the 12 months before the launch, and the error is shown for the final price and for the accepted offer. The densities use the main sample, 491 sales under Regime 1 and 224 under Regime 2. The mean errors of the Regime 1 price, the Regime 2 final price and the Regime 2 accepted offer are 0.001, 0.008 and −0.059. In a regression of the error on Post with the controls of Table 3, the coefficient is 0.009 (0.025) for the final price and −0.057 (0.025) for the accepted offer, with standard errors robust to heteroskedasticity in parentheses.

Figure 8. The Highest Bidder before Acceptance and the Buyer



Notes: Coefficients on half-year bins relative to December 18, 2024, with half-year −1 as the base, from regressions with the controls of Table 3 without month-of-year effects. Half-year −5 begins on August 23, 2022, and half-year 2 ends on April 12, 2026. Bars show 95 percent intervals from standard errors robust to heteroskedasticity. The outcome is one if the buyer is the bidder who held the highest offer before the seller's acceptance (Table 10, column (1)).

Table 1. The Two Rules for Closing a Sale

	Regime 1: negotiation, which acceptance ends	Regime 2: negotiation, then an auction
Listings published	August 23, 2022 to December 17, 2024	December 18, 2024 to April 12, 2026
How offers are made	Investors make public, binding offers, valid for 72 hours, which they cannot withdraw. A bidder can make a proxy offer, which the system raises automatically up to a maximum the bidder sets. The listing page shows every offer, the number of bidders and a price tracker.	Unchanged
Seller's options	Accept, reject or counter an offer, or post or change the ask	Unchanged
What acceptance does	Ends the sale at the accepted offer. An offer at the ask buys the asset at once.	Opens a 24-hour ascending auction with the accepted offer as the reserve. An offer at the ask also opens the auction.
Who may bid in the auction	No auction	Investors who made an offer during the negotiation, of any size, and All Access subscribers
Auction rules	No auction	Bids rise above the accepted offer, proxy bids are allowed, and the seller cannot counter. A bid in the last five minutes extends the auction by five minutes. The accepted bidder buys at the accepted offer if no one bids.

Table 2. Descriptive Statistics

	Regime 1		Regime 2	
	Mean	SD	Mean	SD
Panel A. The catalog				
LTM royalties ($)	20,472	73,208	23,087	33,430
Dollar age (years)	12.5	21.1	13.7	21.8
Songs in the catalog	182	1,780	116	273
Term: life of rights	0.64	0.48	0.70	0.46
Term: 30 years	0.13	0.33	0.13	0.34
Term: 10 years	0.09	0.29	0.00	0.00
Term: fixed return	0.14	0.34	0.17	0.38
Paid by a performing rights organization	0.53	0.50	0.59	0.49
Sound-recording royalties	0.18	0.38	0.16	0.36
Platform valuation ($)	99,110	354,421	137,429	183,999
Panel B. The negotiation				
Buyer offers	19.8	16.0	15.7	12.9
Bidders	5.5	3.1	6.2	3.9
Seller counteroffers	7.4	6.7	7.2	6.3
Seller posted an ask	0.87	0.33	0.88	0.33
Days to the first offer	3.36	18.21	4.74	20.58
Days to acceptance	18.49	36.88	18.87	28.60
Panel C. Prices				
Seller's list price ($)	132,860	466,300	167,451	233,956
Accepted offer ($)	102,356	324,007	120,017	165,388
Final price ($)	102,356	324,007	129,442	182,516
Final price / LTM	6.78	4.46	6.93	3.86
Accepted offer / platform valuation	1.13	0.43	1.01	0.32
Final price / platform valuation	1.13	0.43	1.09	0.36
Final price / accepted offer	1.000	0.000	1.074	0.103
Panel D. The auction				
Auction drew a bid			0.73	0.45
Bidders in the auction			1.8	1.5
Bids in the auction			6.5	9.7
Accepted bidder bought			0.48	0.50
Listings	491		224	
Listings with an ask	429		197	
Listings with a platform valuation	424		186	

Notes: Completed direct listings published and accepted from August 23, 2022 to December 17, 2024 (Regime 1), and completed direct listings published from December 18, 2024 to April 12, 2026 that went through an auction (Regime 2). Shares are means of indicators. SD is the standard deviation. Panel B counts offers, bidders and counteroffers before acceptance. The seller's list price, the first ask she posts, and the ratios to it use listings with an ask, and the ratios to the platform valuation use listings with a valuation, which excludes fixed-return listings.

Table 3. Bidding before Agreement

	Outbid events				Bidders on a listing	
	Retook the lead within 72 hours	Sole highest bidder within 72 hours	Retook the lead after 10 seconds	Retook the lead by the end of the sale	Revised own offer	Offers per bidder
	(1)	(2)	(3)	(4)	(5)	(6)
Post	−0.195***	−0.187***	−0.185***	−0.146***	−0.233***	−1.336***
	(0.038)	(0.038)	(0.037)	(0.032)	(0.033)	(0.217)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bidder fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	0.676	0.667	0.652	0.724	0.614	3.60
Observations	6,191	6,191	6,191	6,191	4,097	4,097

Notes: Each column is a regression of the outcome on Post, an indicator for a listing published on or after December 18, 2024, on completed sales of direct listings published from August 23, 2022 to April 12, 2026. Controls are log LTM royalties, dollar age, royalty growth (with an indicator for a missing three-year average), log track count, and term, payor, copyright-type and month-of-year effects. Columns (1) to (4) use 6,191 outbid events on 529 listings. An outbid event is a new highest offer made at least 72 hours before acceptance, and the bidder who held the highest offer until then is outbid. In column (1) the outbid bidder retakes the lead if, within 72 hours, they offer at least as much as the offer that outbid them. Column (2) requires that offer to exceed every other bidder's highest offer to date. Column (3) counts only offers placed more than ten seconds after the bidder was outbid. Column (4) drops the 72-hour limit and counts an offer of at least that amount at any time before the sale ends, including bids in the auction. Columns (5) and (6) use 4,097 bidder-listings: whether the bidder made more than one offer before acceptance, and the number of offers. Standard errors, in parentheses, are clustered by listing and by bidder. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 4. Accepted Offers and Asks

	Accepted offer	List price	Standing ask	Best offer a day before she accepts
	(1)	(2)	(3)	(4)
Relative to the seller's list price				
Post	−0.061***		−0.019	−0.084***
	(0.021)		(0.016)	(0.021)
Regime 1 mean	−0.202		−0.121	−0.297
Observations	626		626	595
Relative to the platform valuation				
Post	−0.056**	−0.016	−0.037	−0.076***
	(0.027)	(0.029)	(0.027)	(0.028)
Regime 1 mean	0.064	0.289	0.158	−0.037
Observations	610	535	535	569

Notes: Each cell is a regression of the outcome on Post, with the sample and controls of Table 3. Outcomes are log prices minus the log benchmark. The list price is the first ask the seller posts on the listing. The platform valuation is rebuilt from the platform's rule with the multiples it displayed in September 2024 (610 listings; fixed-return listings have none). Column (3) is her ask at acceptance, and column (4) the highest buyer offer made up to 24 hours before acceptance, on sales accepted at least 24 hours after publication. Standard errors, in parentheses, are robust to heteroskedasticity. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 5. The Seller's Decision to Accept

	Accepted: the first offer to reach a share of					
	her standing ask	her standing ask, offer below it	the platform valuation	her list price	Accepted at her ask or counter-offer	Closed on her counter-offer
	(1)	(2)	(3)	(4)	(5)	(6)
Post	0.067***	0.057***	0.032***	0.031**	−0.159***	−0.080**
	(0.022)	(0.020)	(0.012)	(0.013)	(0.043)	(0.039)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	0.154	0.076	0.055	0.084	0.587	0.322
Observations	1,795	1,795	3,212	2,998	715	715

Notes: Each column is a regression of the outcome on Post, with the sample and controls of Table 3. In columns (1) to (4) an observation is the first offer on a listing to reach a given share of the benchmark (70 to 95 percent of her standing ask in columns (1) and (2), 60 to 110 percent of the platform valuation in column (3) and 50 to 95 percent of her list price in column (4), in steps of five points; offers more than 10 percent above the level are left out). The levels of column (4) start lower because the list price lies above the standing ask. The outcome is whether the seller accepts that offer, and these regressions add level effects and the log age of the listing at the offer. The standing ask is the ask in force when the offer is made, and column (2) counts only acceptances of offers below it. Column (5) is one if the accepted offer equals the standing ask or the sale closes on the seller's counteroffer, and column (6) is one if the sale closes on her counteroffer. Standard errors, in parentheses, are robust to heteroskedasticity and, in columns (1) to (4), clustered by listing. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 6. Who Bids and When

	Subscribers on the listing		Non-subscribers on the listing		
	Before acceptance	At any stage	All	One offer before acceptance	Several offers before acceptance
	(1)	(2)	(3)	(4)	(5)
Post	−0.668***	0.006	1.226***	1.350***	−0.124
	(0.105)	(0.118)	(0.257)	(0.170)	(0.136)
Controls	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	2.30	2.30	3.21	1.33	1.88
Observations	715	715	715	715	715

Notes: Each column is a regression of a listing-level outcome on Post, with the sample and controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. Under Regime 2, only a bidder with an earlier offer on the listing or an All Access subscriber can bid in the auction, so a bidder who enters an auction without an earlier offer reveals a subscription. Subscribers are the 45 bidders identified in this way, 36 of whom also bid before the launch, and non-subscribers are all remaining bidders. Column (1) counts the subscribers with an offer before acceptance and column (2) those who bid at any stage of the sale. Columns (4) and (5) split the non-subscribers of column (3) by the number of offers they made before acceptance. Non-subscribers can bid in the auction only after an offer before acceptance, so columns (3) to (5) are the same whether or not bids in the auction are counted. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 7. Bidding over the Whole Sale

	Bidders whose best offer is at least the platform valuation		Best losing offer relative to the	
	All	Non-subscribers	list price	platform valuation
	(1)	(2)	(3)	(4)
Post	0.686**	0.511**	0.037	0.044
	(0.276)	(0.220)	(0.025)	(0.030)
Controls	Yes	Yes	Yes	Yes
Regime 1 mean	1.79	1.12	−0.325	−0.062
Observations	610	610	612	586

Notes: Each column is a regression of a listing-level outcome on Post, with the sample and controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. A bidder's best offer is their highest offer over the whole sale, bids in the auction included. Columns (1) and (2) count the bidders on a listing whose best offer is at least the platform valuation, on the 610 listings with a valuation; non-subscribers are those of Table 6. The best losing offer is the highest best offer of a bidder other than the buyer, in logs minus the log benchmark, on the listings with a losing bidder and the benchmark. The list price is the first ask the seller posts on the listing, and the platform valuation is that of Table 4. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 8. How the Price Is Set

	Final price within 2% above the best offer of		
	a third party	any losing bidder	Bidders within 5% of the final price
	(1)	(2)	(3)
Post	0.256***	0.427***	0.615***
	(0.040)	(0.039)	(0.084)
Controls	Yes	Yes	Yes
Regime 1 mean	0.216	0.216	1.42
Observations	715	715	715

Notes: Each column is a regression of a listing-level outcome on Post, with the sample and controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. The three columns take each bidder's highest offer over the whole sale, bids in the auction included. A third party is a bidder who is neither the buyer nor the bidder whose offer was accepted, and a losing bidder is any bidder other than the buyer. Column (3) counts the bidders, the buyer included, whose highest offer is within 5 percent of the final price. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 9. The Final Price

	Listings with the benchmark		Listings with both benchmarks	
	List price	Platform valuation	List price	Platform valuation
	(1)	(2)	(3)	(4)
Final price	0.001	0.014	0.009	−0.008
	(0.022)	(0.027)	(0.025)	(0.028)
Decomposition of the change in the final price				
Accepted offer	−0.061***	−0.056**	−0.056**	−0.072**
	(0.021)	(0.027)	(0.024)	(0.028)
Premium	0.061	0.070	0.064	0.064
	(0.006)	(0.007)	(0.007)	(0.007)
Controls	Yes	Yes	Yes	Yes
Regime 1 mean	−0.202	0.064	−0.214	0.075
Observations	626	610	535	535

Notes: Each column measures prices against one benchmark, the seller's list price or the platform valuation, both defined in Table 4. Columns (1) and (2) use the listings that have the benchmark, and columns (3) and (4) the 535 listings that have both. The first row is the coefficient on Post in a regression of the log final price minus the log benchmark, with the sample and controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. The two rows below split that coefficient into two parts that sum to it, estimated on the same listings with the same controls. The first part is the coefficient on Post for the log accepted offer minus the log benchmark, which in columns (1) and (2) is the estimate of column (1) of Table 4. The second part is the premium, log(final price / accepted offer). The premium is zero for every sale under Regime 1, so its coefficient is the average premium of the sales under Regime 2 given the controls, and it is shown without stars. The Regime 1 mean is the mean of the log final price minus the log benchmark. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 10. Who Buys and Who Resells

Panel A. The buyer

	The buyer is the bidder			Buyer posts a resale ask within		
	with the highest offer before acceptance	whose offer was accepted	who made the first offer	180 days	90 days	30 days
	(1)	(2)	(3)	(4)	(5)	(6)
Post	−0.357***	−0.513***	−0.006	−0.103***	−0.072**	−0.045**
	(0.038)	(0.033)	(0.030)	(0.031)	(0.029)	(0.023)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	0.829	1.000	0.153	0.259	0.210	0.136
Observations	715	715	715	715	715	715

Panel B. Auctions of Regime 2 listings

		Accepted bidder keeps the asset		
	All auctions	no bid in the auction	after raising	Accepted bidder is displaced
Auctions	224	63	45	116
Share of auctions	1.000	0.281	0.201	0.518
Buyer posts a resale ask within 180 days	0.121	0.206	0.156	0.060
Mean log premium	0.067	0.000	0.089	0.095

Notes: Panel A: each column is a regression of a listing-level outcome on Post, with the sample and controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. In column (2) the outcome is one by definition for a sale without an auction, so it is one for every Regime 1 sale. Columns (4) to (6) are one if the buyer relists the asset and posts an ask on that listing within the stated number of days of the purchase. Panel B describes the 224 auctions of listings published under Regime 2. The accepted bidder is the bidder whose offer the seller accepted. The resale row is the outcome of column (4) of Panel A, averaged over the buyers in each group. The log premium is log(final price / accepted offer). *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table 11. What the Auction Costs the Accepted Bidder

	Value of a displaced accepted bidder			
	Own highest bid	First rival bid left unanswered	First rival bid unanswered for an hour	Final price
	(1)	(2)	(3)	(4)
Accepted offer plus cost	−0.024	−0.018	−0.008	0.001
	(0.022)	(0.022)	(0.021)	(0.022)
Decomposition				
Accepted offer	−0.061***	−0.061***	−0.061***	−0.061***
	(0.021)	(0.021)	(0.021)	(0.021)
Cost to the accepted bidder	0.037	0.043	0.052	0.061
	(0.005)	(0.005)	(0.006)	(0.006)
Cost as a share of the premium	0.596	0.698	0.853	1.000
Controls	Yes	Yes	Yes	Yes
Regime 1 mean	−0.202	−0.202	−0.202	−0.202
Observations	626	626	626	626

Notes: Each column takes a different value of the asset to an accepted bidder who is displaced in the auction: their highest bid in the auction, or the accepted offer if they placed none (column (1), a lower bound); the first rival bid above it that they left unanswered (column (2)); the first such bid that stood unanswered for at least 60 minutes, or the final price if none did (column (3)); and the final price (column (4), an upper bound). The cost to the accepted bidder is zero if no rival bids, log(final price / accepted offer) if the accepted bidder raises and keeps the asset, and log(value / accepted offer) if the accepted bidder is displaced. It is zero for every sale under Regime 1. Rows are coefficients on Post on the 626 listings with a list price (197 auctions), with the controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. The first row is the log accepted offer plus the cost, minus the log list price. Under Regime 1 it is the log price paid relative to the list price, and its Regime 1 mean is shown. The two rows below split that coefficient into the log accepted offer minus the log list price, the estimate of column (1) of Table 4, and the cost, estimated on the same listings with the same controls. The cost is zero for every sale under Regime 1, so its coefficient is the average cost of the sales under Regime 2 given the controls, and it is shown without stars. The share of the premium divides that coefficient by the premium in column (1) of Table 9. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Appendix

Table A1. New Bidders and the Standing Offer

	New bidder within 24 hours	
	(1)	(2)
Coefficient on log(standing offer / list price)		
Regime 1	−0.060***	−0.057***
	(0.016)	(0.017)
Regime 2	−0.147***	−0.392***
	(0.053)	(0.083)
Regime 2 minus Regime 1	−0.087	−0.335***
	(0.054)	(0.082)
Age and bidder-count bins	Yes	Yes
Listing fixed effects	No	Yes
Offer events	10,488	10,488
Listings	595	595

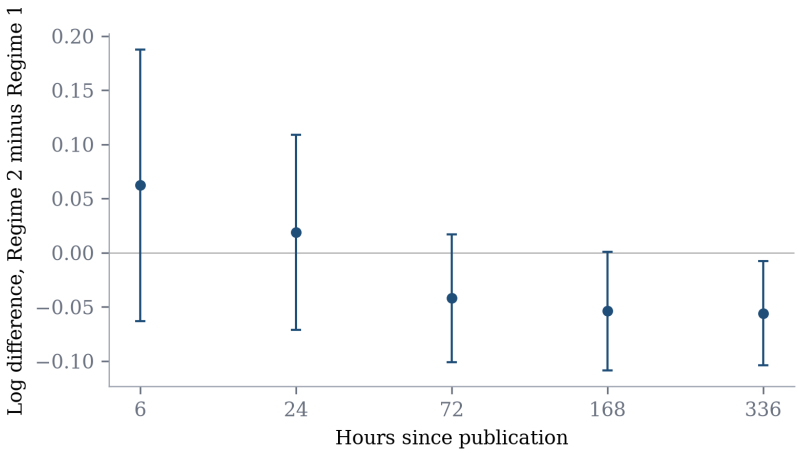
Notes: An observation is an offer made at least 24 hours before acceptance on a direct listing of the main sample with an ask. The outcome is whether a bidder new to the listing makes an offer within the next 24 hours, and the standing offer is the highest offer on the listing at that moment. Both columns control for bins of the age of the listing and of the number of bidders so far, and column (2) adds listing fixed effects. Standard errors, in parentheses, are clustered by listing. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table A2. The Best Offer and the Time to Acceptance

	Best offer relative to the list price (log)		
	168 hours after publication	336 hours after publication	Log(1 + hours) to acceptance
	(1)	(2)	(3)
Post	−0.054*	−0.056**	0.003
	(0.028)	(0.025)	(0.111)
Controls	Yes	Yes	Yes
Regime 1 mean	−0.296	−0.245	5.206
Observations	585	592	715

Notes: Each column is a regression of a listing-level outcome on Post, with the controls of Table 3 and standard errors robust to heteroskedasticity in parentheses. Columns (1) and (2) use the listings with a list price and an offer by that hour, and the accepted offer counts once it is made. Figure A1 shows other hours. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Figure A1. Best Offer at Fixed Hours since Publication



Notes: Change at the launch in the log of the best offer relative to the seller's list price, by hours since publication, conditional on an offer by that hour, on the listings of the main sample with a list price. The accepted offer counts once it is made. Bars are 95 percent intervals from HC1 standard errors.

Table A3. The Hedonic Model

	Log final price (1)
Half-year −5	−0.054
	(0.050)
Half-year −4	−0.041
	(0.070)
Half-year −3	0.012
	(0.040)
Half-year −2	0.074
	(0.071)
Log LTM royalties, dollar age and royalty growth, each also interacted with the term	Yes
Squares of log LTM royalties and of dollar age, log of 1 plus dollar age	Yes
Log track count and an indicator for a missing three-year average	Yes
Term, payor and copyright-type effects	Yes
Month-of-year effects	Yes
Observations	503
R^2	0.950
Root mean squared error, held out	0.298

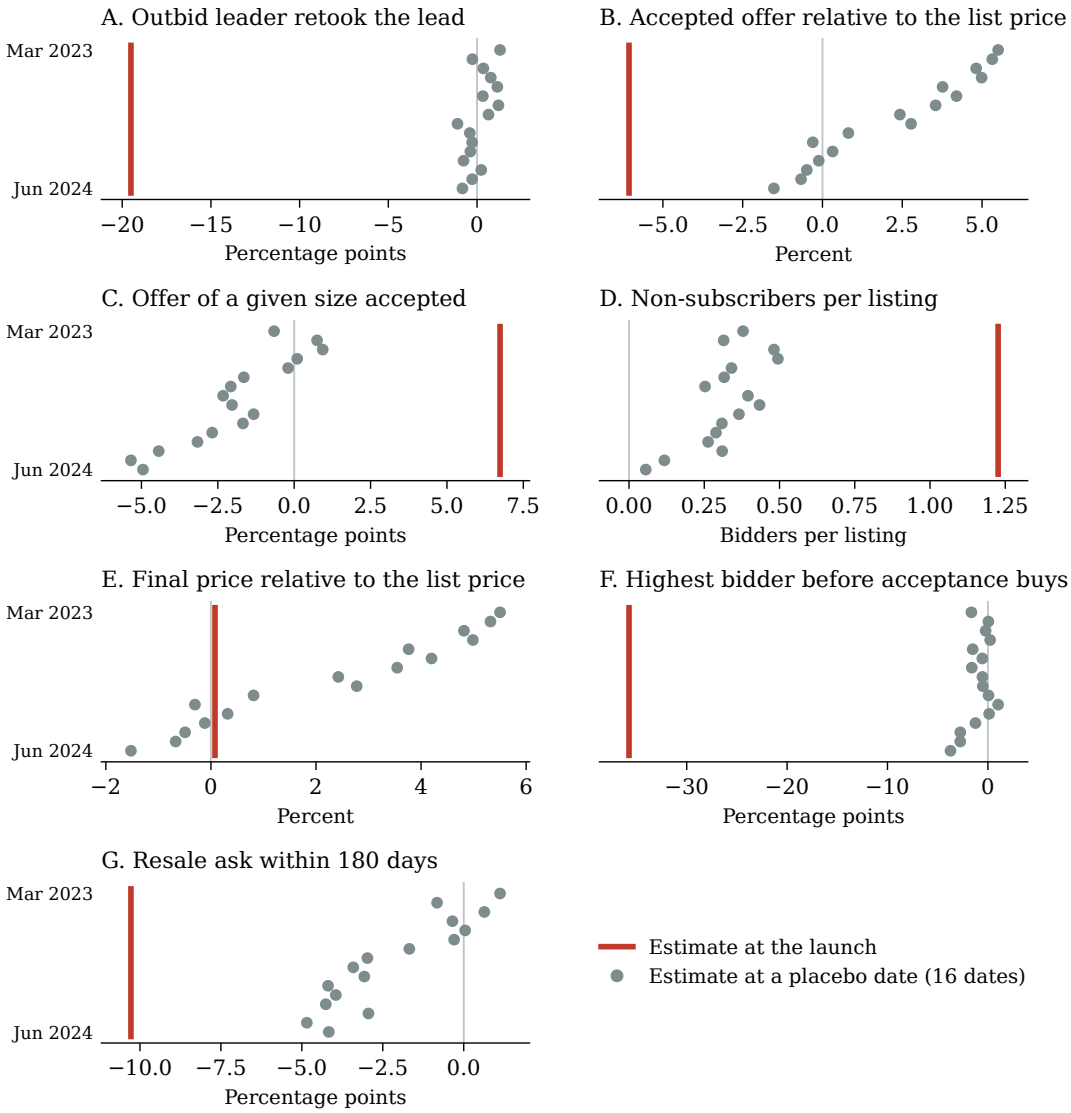
Notes: OLS of the log final price on the 503 completed direct listings published from August 23, 2022 to December 17, 2024, with standard errors robust to heteroskedasticity in parentheses. The sample includes the 12 listings accepted on or after the launch that the main sample leaves out, so the model is fitted on every Regime 1 sale of the period. Half-years are bins of 182.5 days counted back from the launch, and the omitted one is the last before it. The prediction for a listing published after the launch holds the half-year component at the average of the effects of the last two half-years, weighted by their listings. For the held-out root mean squared error, each listing is predicted by the model fitted on the other nine of ten random groups, and the predictions are averaged over five random divisions (Figure 7). *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table A4. Who Wins the Auction

	Winner who displaced the accepted bidder	Accepted bidder displaced	Accepted bidder who won
	(1)	(2)	(3)
Listings with an offer before the auction opened, median	95.5	39.5	35.5
One of the ten largest buyers	0.414	0.164	0.204
Made an offer on the listing before acceptance	0.466	1.000	1.000
Bidders	116	116	108

Notes: The 224 auctions of the main sample. Column (1) is the winner of the 116 auctions won by a bidder other than the accepted bidder, and column (2) is the accepted bidder of the same auctions. Column (3) is the accepted bidder of the 108 auctions the accepted bidder won. Listings count every listing on the marketplace, direct and secondary, before the auction opened. The ten largest buyers are those with the most purchases in the main sample. The second and third rows are shares.

Figure A2. The Main Results at Placebo Dates



Notes: Each panel shows a main estimate (red line) and the same regression at 16 placebo dates under Regime 1 (grey dots), the first of each month from March 2023 (top) to June 2024 (bottom). Each placebo date splits the Regime 1 observations of the estimate at that date, which leaves at least six months on either side and no change in the rules between them, and the regression is repeated with an indicator for publication on or after the placebo date in place of Post. Panel A repeats column (1) of Table 3, on outbid events with bidder fixed effects. Panel B repeats column (1) of Table 4, and Panel E the final price of column (1) of Table 9, both in percent (100 times the log difference). Panel C repeats column (1) of Table 5, on the first offer to reach each level from 70 to 95 percent of the standing ask. Panel D repeats column (3) of Table 6, and Panels F and G repeat columns (1) and (4) of Table 10. Every regression has the controls of Table 3.

Table A5. The Main Results with Market Conditions Controlled

	Retook the lead	Log accepted offer relative to the list price	Offer at a share of the standing ask accepted	Non-subscribers	Log final price relative to the list price	Highest bidder before acceptance buys	Resale ask within 180 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post	−0.196***	−0.074***	0.071***	1.255***	−0.012	−0.363***	−0.092***
	(0.040)	(0.022)	(0.022)	(0.266)	(0.023)	(0.040)	(0.033)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	0.676	−0.202	0.154	3.210	−0.202	0.829	0.259
Observations	6,191	626	1,795	715	626	715	715

Notes: Each column repeats a main estimate on the full sample, adding two measures of market conditions in the quarter before the listing was published: the average ten-year Treasury yield and the log change in the average S&P 500 from the quarter before, both from FRED. Column (1) repeats column (1) of Table 3, on outbid events, with bidder fixed effects and standard errors clustered by listing and by bidder. Column (2) repeats column (1) of Table 4. Column (3) repeats column (1) of Table 5, on the first offer to reach each level from 70 to 95 percent of the standing ask, with fixed effects for the level, a control for the age of the listing and standard errors clustered by listing. Column (4) repeats column (3) of Table 6, and columns (5) to (7) repeat column (1) of Table 9 and columns (1) and (4) of Table 10. Every column has the controls of Table 3. Standard errors in columns (2) and (4) to (7) are robust to heteroskedasticity. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table A6. The Main Results before the Minimum Offer Rose

	Retook the lead	Log accepted offer relative to the list price	Offer at a share of the standing ask accepted	Non-subscribers	Log final price relative to the list price	Highest bidder before acceptance buys	Resale ask within 180 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post	−0.173***	−0.060*	0.045	2.519***	−0.007	−0.366***	−0.103**
	(0.039)	(0.034)	(0.030)	(0.464)	(0.035)	(0.064)	(0.046)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regime 1 mean	0.676	−0.202	0.154	3.210	−0.202	0.829	0.259
Observations	5,415	495	1,449	566	495	566	566

Notes: Each column repeats a main estimate on the listings published under Regime 1 and the 75 listings published under Regime 2 before May 12, 2025, the date from which the platform raised the minimum offer for new listings. Column (1) repeats column (1) of Table 3, on outbid events, with bidder fixed effects and standard errors clustered by listing and by bidder. Column (2) repeats column (1) of Table 4. Column (3) repeats column (1) of Table 5, on the first offer to reach each level from 70 to 95 percent of the standing ask, with fixed effects for the level, a control for the age of the listing and standard errors clustered by listing. Column (4) repeats column (3) of Table 6, and columns (5) to (7) repeat column (1) of Table 9 and columns (1) and (4) of Table 10. Every column has the controls of Table 3. Standard errors in columns (2) and (4) to (7) are robust to heteroskedasticity. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

Table A7. Unsold Listings and Completed Sales

	Unsold listings	Completed sales
Listings	11	715
Ask in force / LTM, median	11.4	6.5
Best offer / LTM, median	5.7	5.9

Notes: The eleven unsold direct listings of Table A8 and the completed sales of the main sample, both regimes. For an unsold listing the ask and the best offer are those in force when the listing was last seen; for a completed sale they are the standing ask and the accepted offer at acceptance.

Table A8. Direct Listings That Did Not Sell

	Regime 1	Regime 2
Seen open to offers and never sold	8	3
Unsold among the listings published before the snapshot		
51 to 141 days before	3 of 52 (5.8%)	0 of 39 (0.0%)
51 to 231 days before	3 of 116 (2.6%)	2 of 77 (2.6%)
51 to 416 days before	5 of 218 (2.3%)	3 of 167 (1.8%)
51 to 532 days before	5 of 281 (1.8%)	3 of 233 (1.3%)

Notes: Direct listings published from August 23, 2022 to April 12, 2026. The Regime 1 snapshot is a crawl of the marketplace on September 27, 2024, and the Regime 2 snapshot is the list of open listings on June 3, 2026 (and May 28, 2026 for the second block). A listing never sold if a snapshot saw it open to offers and it had no completed sale by October 19, 2026.

Table A9. The Main Estimates with the Failed Sales Added

	Eight unsold listings added	Three unpaid sales added	
	Retook the lead	Log accepted offer relative to the list price	Log final price relative to the list price
	(1)	(2)	(3)
Post	-0.192^{***}	-0.061^{***}	0.000
	(0.039)	(0.021)	(0.021)
Controls	Yes	Yes	Yes
Observations	6,248	629	629

Notes: Column (1) repeats column (1) of Table 3, adding the outbid events of the eight direct listings published under Regime 1 that never sold (Table A8), with bidder fixed effects and standard errors clustered by listing and by bidder. Columns (2) and (3) repeat the accepted offer and the final price of column (1) of Table 9, adding the three accepted offers that were never paid for, one under Regime 1 and two under Regime 2, with standard errors robust to heteroskedasticity. Every column has the controls of Table 3. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.