Analysis of Domain Name Sales and Auctions

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***Abstract*—The second-hand market for domain names is a special market as domains are intangible and unique goods with a wide price range. Most research papers focus on the appraisal of domain names, however, how and when domains are sold or auctioned has not been analyzed before to our knowledge. This paper presents a more holistic examination of the domain name market by analyzing auction and sales data from multiple marketplaces. We provide insights into properties and trends of the domain market, as well as characteristics of the domains that change hands.**

***Index Terms*—domain name, domain registrar, second-hand domain market, domain auction**

1. Introduction

Domain marketplaces allow the trading of domains that have expired or which current owners do not wish to use. On these marketplaces, prices of domains can vary greatly. To give a recent example, in September 2024, the domain `rocket.com` was traded for 14 million USD [1] while the majority of domains sell for far less. As such, domains present a special type of intangible good: According to Wu et al. [2], traditional accounting methods cannot be used to calculate the marketvalue of a domain due to its non-financial properties. In addition, each marketplace can employ their own policies on selling and buying, and offer a variety of other services. For sellers, it is crucial to know whether investing in domains is lucrative and which marketplace is most suited. For buyers on the other hand, knowing what to expect from the second-hand market can help decide if they should pursue their desired domain or register an alternative domain.
This paper analyzes five second-hand marketplaces for domain names. Using data collected from auctions and sales, we investigate how and when domains change ownership by analyzing bidding behaviors of potential buyers, characteristics of sold domains, and properties of the domain marketplaces. The rest of the paper is structured as follows: Chapter 2 presents background information on domain registration and a general overview of the domain providers. Chapter 3 summarizes related work. Subsequently, we present the data collection and processing, and display the results of the analysis in Chapter 4.

2. Background

In this chapter, we give a brief overview of domain names and their life cycle in order to understand the domain name market. Afterward, the domain providers and their most important policies are introduced.

2.1. Domain Names and their Life Cycle

Domain names are organized in a hierachical structure that is read from right to left: A domain starts at the DNS root (.), followed by the top-level domain (TLD) and second-level domain (SLD) separated by a period [3], [4]. Every combination of TLD and SLD is allowed exactly once in a domain name registry, and the length of each segment is limited to 63 characters [4].
Domain names are sold through registrars in cooperation with registry operators, organizations that manage individual TLDs and register domain names in a DNS database [3]. The registration duration usually lies between one and ten years at a time. To retain possession of a domain after that period, a renewal fee needs to be paid [5]. If a domain owner decides not to renew their registration, an expiration process will be triggered which can vary depending on the TLD. Website visitors might see a parked page showcasing information on where the domain can be acquired and advertisements to generate revenue. For generic TLDs, the expiration process goes roughly as follows: Up to 45 days after expiring, the domain owner can pay the standard renewal fee to keep the domain. If that does not happen, the domain enters the redemption grace period which lasts 30 days, and a renewal will incur an additional fee [5]. If the owner lets the deadline pass, the status of the domain will change to `pending delete`. Several days later, the domain will be deleted from the registry's database and becomes available for re-registration [5]. Some registries of country-code TLDs will immediately start the redemption grace period upon expiry [6].

2.2. Provider Overview

The auction and sales data was collected from the providers Sedo, Sav, Namecheap, GoDaddy and SnapNames. Below are their most important characteristics.

Market Listing Types. All providers offer auction and 'Buy now' types of sales on their platforms. Sedo, GoDaddy and SnapNames additionally have a 'Make offer' type that allows for negotiations between sellers and buyers.

Auctions by Private Sellers. Selling domains through auctions as an individual is only possible on Sedo and

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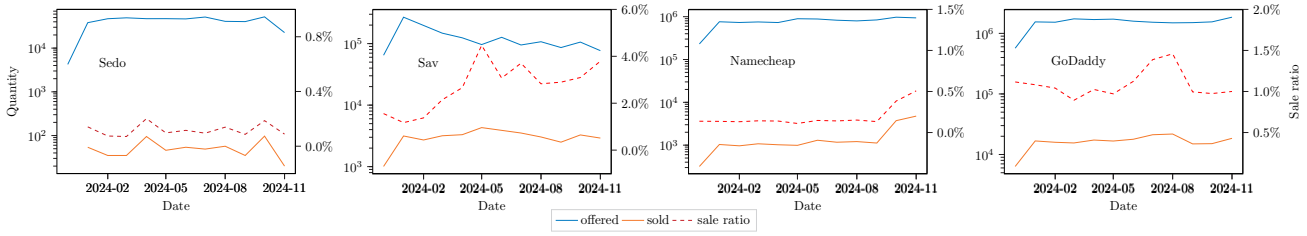

Figure 1: Domains offered and sold per month in marketplaces (on a logarithmic scale) and the sale ratio in percent.

Sav. On Namecheap, GoDaddy and SnapNames, private sellers are limited to sale-type listings.

Fees. Sav charges the lowest fee at 4% of the final sales price while GoDaddy has the highest rate at up to 25% and a 15 USD minimum for each sale. SnapNames and Namecheap have a fee of 20% and 10%, respectively. On Sedo, it costs 59 EUR to put a domain up for auction. Alternatively, it can start as a 'Make offer' that converts into an auction listing free of charge after the first offer was received. In both cases the fee is 15% of the final price.

Cross-listing. Sedo explicitly forbids cross-listing domains for sale in other marketplaces. Namecheap, GoDaddy and SnapNames cross-list auctions and sales from their partner platforms to promote a successful and faster sale.

Auction Format. All five providers use a soft-close auction format whereby an auction is extended by five to ten minutes everytime a bid is submitted five to ten minutes before it ends.

3. Related Work

There are several publications on domain appraisal. In one of the earlier works on this matter, Wu et al. [2] realized that, while domain names should be treated as intangible assets likewise to intellectual property, other methods of appraisal are needed. They identified multiple factors affecting the value of a domain, among the more significant ones, the domain structure, i.e., letters and numbers in a domain, its length and the TLD. However, their model includes some subjective criteria, such as impression and creativity.
Subsequent works by Dieterle and Bergmann [7], Bikadi et al. [8] Moro-Visconti [9] and Tang et al. [10] use very similar domain structure criteria. In addition, the number and types of keywords, and their respective search result volumes are contributors to a domain's value [8], [10]. Other metrics include revenue from advertisements [9] and various page ranks [8]–[10], e.g. Alexa Rank and Google Page Rank.
Thies [11] provides an overview of the domain market which describes the price index of domains in general and a trend in domain registrations from 2006 to 2013. According to Thies, domain registrations and the price index show an overall upward trend that rises and falls synchronously with the development of the IT economy [11]. Furthermore, their study provides a relative ranking of top-level domain prices which found the `com` TLD to be the most valuable one when SLDs are the same [11].

4. Evaluation

Sav, Namecheap, GoDaddy and SnapNames offer snapshots of their respective marketplace in the form of `CSV` and `JSON` files. Sedo is more protective of their data and restricts access to the files from the 'expired domains' category. Data collection on SnapNames has begun late in 2024 and is, thus, limited to the months of October and November. Several marketplaces include data for domains about to expire or domains about to go on auction. For the analysis, we consider domains that were in an ongoing auction or sale when the snapshot was taken.
The files were downloaded once per day because of GoDaddy's update rate. As a result, certain inaccuracies arise from the granularity of our data: A file includes auctions and sales that have not ended at the time the file was created. If bids were submitted between file creation and the end of an auction, the final bid count and auction price would not be captured by the market snapshot the next day. For this reason, the final bid count and auction price are referred to as 'minimal final bid count' and 'minimal final price'. Similarly, one can only assume that an auction without bids will lead to a 'likely unsold domain'.
The analysis starts at a macro level at which the overall numbers and characteristics of marketplaces are examined. Afterwards, we zoom in and take a closer look at the details of auctions and the properties of sold domains.

4.1. Providers

The data was collected from auctions and sales of 32,422,508 unique domain names across five providers from the end of December 2023 until November 2024. To put that number into perspective: according to Verisign's quarterly domain report, 362 million domains are registered across all TLDs [12]. Figure 1 shows the trends of domains offered and sold on each platform and the monthly sale ratios. Every auction with a final bid count of at least one counts as sold as bids are binding. Among the five providers, GoDaddy appears to be the biggest marketplace with an average of 1.6 million domains offered per month. It is followed by Namecheap and Sav with around 830K and 130K per month, respectively. Sedo has a monthly average of 44K in expired domains. SnapNames has been excluded from Figure 1 as there is only data from two months. In the time period considered, Sedo, Namecheap and GoDaddy appear to have equilibriums between the number of offers and sales: The monthly sale ratios vary by less than 0.5% for these three. Sav, on the other hand, looks more volatile as the ratio changes by up to 1.8% between months. Table 1 displays the average sale ratios.

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TABLE 1: Average monthly sale ratios in marketplaces.

Sedo	Namecheap	Sav	GoDaddy
0.1%	0.2%	2.7%	1.1%

Cross-listing had a small effect on the final numbers as 26425 cross-listed domains were found in the dataset. Most cross-listings occurred between GoDaddy and Sav and GoDaddy and Namecheap. Sedo's cross-listing ban appears to be well enforced since no cross-listing in any other marketplace was found. Furthermore, each domain that was cross-listed appeared at most in two marketplaces at the same time. Generally, cross-listing is a way to promote auction and sale listings and attract more attention from potential buyers. For private sellers on Namecheap, GoDaddy and SnapNames, cross-listing their domain in other marketplaces is the only possibility to auction off their domain. Listing domains in an auction and another format is not problematic as marketplaces allow sale-type listings to be cancelled [13], [14].

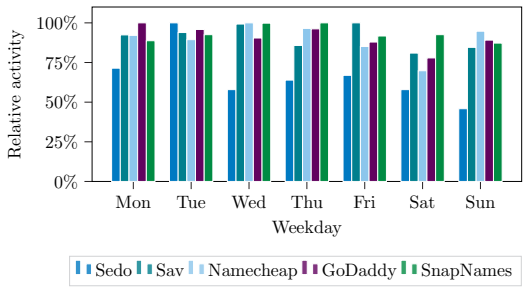

Figure 2: Relative activity per weekday in marketplaces: No significant peaks or troughs at any provider.

Next, the activity in each marketplace is examined. Whenever a bid count for a domain listing increases from one day to the next, the count for that weekday is incremented. Figure 2 contains the combined activities of the five providers. Each bar represents the number of bids relative to the respective highest bid count of the week per seller. The more prominent fluctuations of Sedo are explained by the small available dataset. The absolute difference between minimum and maximum is 72 bids. Apart from a small dip around Saturdays for all remaining providers, the distributions don't have any significant peaks or troughs in activity which suggests that people bid on domains on all weekdays, including weekends. Intuitively, this makes sense since an auction listing can start and end on any day of the week. To better understand the bidding behavior, Section 4.2 will delve into when bids come in for individual auctions.

4.2. Auctions

All five providers state in their marketplace terms that bids cannot be retracted once submitted. As such, a query for the highest bid amount per domain listing was performed to get a number that should at least provide a bottom line for the final auction price. The same is done for the number of bids each auction receives. The results are shown in Figure 3. Outliers from rare occasions in

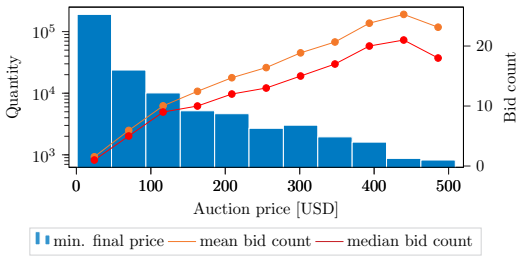

Figure 3: Minimal final auction price (on a logarithmic scale) and mean/median bids per bin.

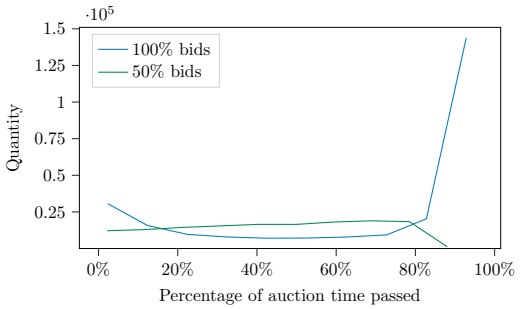

Figure 4: Percentage of days to 50%/100% bids: Most final bids come in the last 10-20% of an auction.

which domains sell at very high prices would impair the readability of the figure and are, therefore, discounted for using the 95th percentile. Instead, these special cases need to be analyzed separately in future work. Approximately 73% of all domains sell for likely less than 50 USD and 83% for likely less than 100 USD. In line with the low average sales price, almost 77% of auctions from sold domains likely end with less than five bids. The mean and median bid counts for each bin are marked by the orange and red line, respectively. As prices increase, both mean and median bid counts increase as well while staying relatively close. Their trends suggest that auctions ending with high prices usually receive a higher number of bids. To find out whether high bid counts result from more bidders participating or a small number of buyers submitting more bids, more information from the marketplaces is needed. Solely Sav provides data on how many individual bidders partake in an auction, thus, our analysis is very limited in this regard. Out of all successful auctions on Sav, about 87% have one or two bidders per auction. At least for the marketplace of Sav, this distribution matches the findings of Roth and Ockenfels [15].

To examine when each auction received its likely winning bid, the total auction duration and the highest number of bids for each auction listing were determined first, then, after what percentage of the total duration that bid count was reached. With the same method, the percentage of time passed until registering 50% of the final bids was obtained. The line graph for auctions that have just received their final bid (i.e., 100% of their bids) in Figure 4 displays a steep incline after 80% of auction time, indicating that a large number of auctions receive their likely winning bid in the final 10-20% of listing duration. Combined with the graph representing the time it takes to receive half of the respective final bids, one can infer that bidding activity appears to increase in the last 10-20% of

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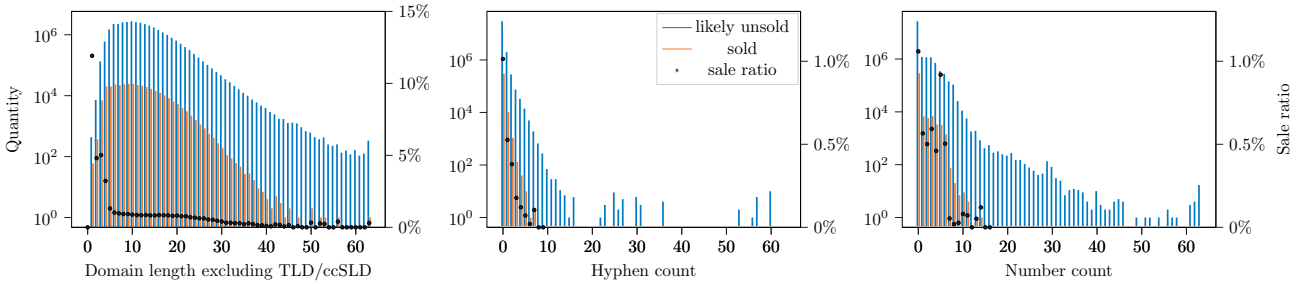

Figure 5: Comparison of lengths, hyphens and numbers between sold and likely unsold domains on a logarithmic scale. Sale ratios were calculated per attribute value and confirm a preference for shorter domains with fewer non-letter characters.

auction time. This observation is consistent with the late-bidding behavior described in [15]. Late-bidding is more prominent in hard-close auctions but it exists to a lesser degree in marketplaces that automatically extend auction timers.

However, one should bear in mind that the data here does not have the same granularity as [15]. Consequently, 10% of an auction duration can be an entire day. While up to half of the bids are submitted late for the majority of sold domains, this does not necessarily mean that interested parties are engaged in a bidding war in the last hour of an auction.

4.3. Properties of Domains Sold

In this final section of the analysis, the focus lies on the characteristics of domains and what sets apart those that have been bought from domains that seem less desirable. Taking advantage of the findings in [2], [7]–[10], the length of the domain name without TLD/country-code SLD (e.g. `co.uk`), the number of numerical characters and the number of hyphens are picked as attributes to analyze. For each property, the dataset is split into sold and unsold domains. Subsequently, the domain lengths, i.e., the number of characters until the first period, and the number of hyphens and numerical characters are determined. Lastly, the sale ratios for each respective attribute value were calculated. For instance, the sale ratio for the hyphen count of one is the ratio of sold domains with one hyphen to all listed domains with one hyphen. The results are summarized in Figure 5.

As described in Section 3, length is one of the most important factors in determining a domain's desirability. Short domains are easier to remember, type out and more rare [10]. To illustrate this, using letters from the English alphabet, there are 676 possible two-letter and 17576 three-letter SLDs. If the letters need to form a word or a nice-sounding combination, the number of possible SLDs is further reduced. Therefore, short domains are generally more valuable. This is reflected in our data as the sale ratios are visibly higher for short domains. In addition, sold domains have a slightly lower mean and median length: 10.87/10 vs 11.98/11. The steeper decline of sold domains as length increases can be interpreted as long domains being less in demand.

The number of hyphens and numerical characters in a domain name displays a similar negative correlation with desirability. Both graphs have a peak in total sales and sale ratios at zero hyphens and zero numbers, respectively. The hyphen count in the set of sold domains does not exceed seven and most sold domains have less than six digits. Hyphens and numbers can impede the memorability of domain names and even lead to misunderstandings [9]. For example, the number '4' being used symbolically for 'for', or not spelling out hyphens when communicating a domain name verbally.

Apart from a structural analysis, the English keywords in sold domains are examined. To find the words a domain is composed of, each domain name is first tokenized and then matched against a corpus of English words from the Python `NLTK` library. Keywords in which single letters have been replaced by numbers, e.g. '3' for the letter 'E' cannot be recognized. Figure 6 shows the most frequent English words that were identified. The size of a word is indicative of how often it occurred. The word cloud mostly contains keywords that are short and generic, yet descriptive enough to give potential visitors an idea of what the contents of a website might be. For example, '`insurance`' in a domain name makes it easy to guess what type of business that domain belongs to. Plugging the keywords into ahrefs, a tool that estimates search engine volumes, further reveals that 82% of these words return more than 100,000 search results each.

Figure 6: Frequent English keywords found in sold domains.

5. Conclusion and Future Work

This paper analyzes second-hand markets for domains by examining the activity in multiple marketplaces, the outcome of auctions, bidding behavior of their customers,

and characteristics of the domains sold with the help of [2], [7]–[10]. Generally, marketplaces display little fluctuation in the number of offered and sold domains. While the bidding activity remained fairly consistent throughout a week, most auctions of sold domains receive up to half of their bids fairly late in their listing duration. Lastly, we showed that the set of sold and unsold domains differ in their domain structure, i.e., SLD length, the number of hyphens and the number of numerical characters.
The analysis was in part limited by the rate at which the data was fetched. More frequent snapshots of marketplaces could reveal more insights into the late-bidding behavior and possibly yield more accurate bid counts and final prices.

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