MASTER IN BUSINESS ENGINEERING PROFESSIONAL FOCUS IN DATA SCIENCE

The influence of new marketplaces What are the main economic characteristics of the new marketplaces?

MANIET, Maxime

Award date:
2023

Awarding institution:
University of Namur

The influence of new marketplaces

What are the main economic characteristics of the new marketplaces?

Maniet **MANIET**

Directeur: Prof. **BERNAL Oscar**

Mémoire présenté en vue de l'obtention du titre de

Master 120 en ingénieur de gestion, à finalité spécialisée

en Data Science

ANNEE ACADEMIQUE 2022-2023

Université de Namur, ASBL

Faculté des Sciences économiques, sociales et de gestion – Département des Sciences de gestion

Rempart de la Vierge 8, B-5000 Namur, Belgique, Tel. +32 [0]81 72 49 58/48 41

Remerciements

Je tiens à remercier l'ensemble des personnes m'ayant accompagné et soutenu pour la rédaction de ce mémoire.

Merci à mon promoteur, Monsieur Bernal Oscar, pour l'aide à la publication de ce mémoire.

Merci en particulier à mon co-promoteur, Monsieur Giot Pierre, pour son suivi, ses conseils et ses remarques. Sans son aide, ô combien précieux, la réalisation de ce mémoire aurait été nettement plus compliquée.

Je souhaite également remercier l'ensemble de l'Unamur pour le savoir qu'ils m'ont transmis durant l'ensemble de mon cursus universitaire.

Finalement je souhaite remercier mon entourage ainsi que mes amis pour leur soutien et leurs conseils tout au long de la réalisation de ce travail.

Résumé

Ce mémoire a été élaboré dans le but d'examiner le développement des nouvelles places de marché au sein de notre société moderne. Son objectif est de permettre à tout novice dans ce domaine de saisir les enjeux que représentent ces marketplaces, ainsi que les diverses stratégies qu'elles déploient, en dépit des variations entre les secteurs et les publics concernés. Dans le premier chapitre, nous aborderons les enjeux émergents liés aux places de marché contemporaines, leurs mécanismes de fonctionnement et les différents acteurs qui y interviennent. Le deuxième chapitre consistera en une revue littéraire de la théorie économique sous-tendant les divers éléments de l'analyse. Le troisième chapitre se concentrera sur l'analyse proprement dite des différentes places de marché sélectionnées. Enfin, les deux derniers chapitres présenteront les conclusions de nos analyses, ainsi qu'un projet personnel visant au développement de deux places de marchés, afin de suggérer des pistes potentielles d'évolution à la suite de cette étude.

Summary

This dissertation was written to study the development of new marketplaces in modern society. Its aim is to enable anyone new to the subject to understand what is at stake in these marketplaces and what strategies they have put in place, despite the differences in the sectors and audiences affected. In the first chapter, we will explain the new challenges facing modern marketplaces, how they work and the different players operating in them. The second chapter will be devoted to a literature review of the economic theory on the various elements of the analysis. The third chapter will be devoted to the actual analysis of the various marketplaces selected. Finally, the last two chapters will draw conclusions from our analyses, as well as from a personal project for the development of a marketplace, in order to suggest possible avenues for further development following this dissertation.

Table of contents

The influence of new marketplaces

What are the main economic characteristics of the new marketplaces?

Maniet Maxime

August 2023

Introduction

Despite a rather gloomy economic climate in recent years, the e-commerce sector, through major marketplaces such as Amazon and Alibaba, has continued to stand out for its ongoing growth in Europe and the world.

According to a Cross-Border study published on 22 September 2022, total cross-border e-commerce in Europe, including Switzerland, Norway and the UK, will be worth around €237 billion in 2021. Note that this study does not even take into account the revenues of online travel platforms such as Booking.

141 billion euros were generated by marketplaces, led by Amazon and Ebay, which alone generated nearly 76 billion euros in 2021. Clearly, the COVID pandemic has enabled marketplaces to enjoy dazzling growth of around 22% compared with 2020. According to forecasts, Cross-border expects the market to grow by a further 65% between now and 2025. Marketplaces are therefore drawing a very positive balance sheet for the last two years.

In just a few years, the internet has become one of the most important sales channels for many businesses. Many consumers are no longer afraid to shop online, thanks to the efforts of the various platforms to guarantee the quality of their products and services. Banks, too, offer highly secure payment methods that do nothing but reassure buyers.

The massive arrival of marketplaces has contributed enormously to the development of e-commerce. A marketplace is a virtual online platform where buyers, whether professionals or not, can meet other buyers who may also be private individuals or professionals. These platforms enable transactions in goods and services to be carried out. In particular, they make it easier for buyers and sellers to do business together without having to go to specialised shops, carry out long and tedious searches for information on a given product, or negotiate to find the best partners, etc.

Marketplaces were originally developed in the 90s by pioneers such as Amazon and Ebay in product categories such as books, music, video, etc. Over the years, and with the bursting of the internet bubble, they have continued to expand into all areas of everyday life, as well as services (hotels, private catering, finance, etc.).

Unlike more traditional sales business models (bookstores, tour operators, etc.), marketplaces have other specific features, such as unique business models, secure platforms and mechanisms to guarantee the efficiency of transactions and prevent misinformation.

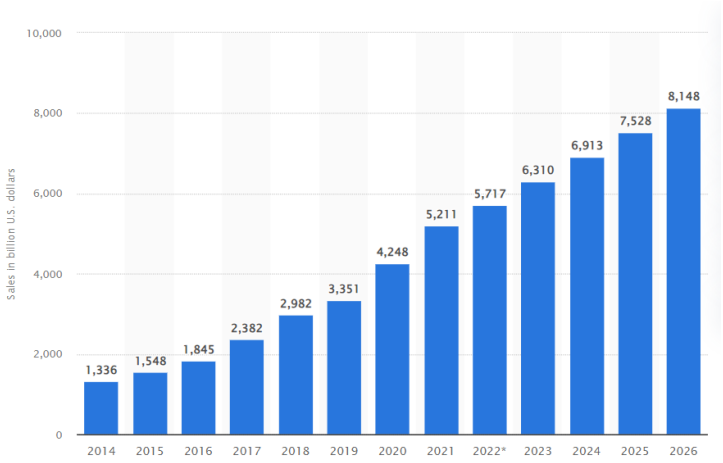
The aim of this dissertation is therefore to use a comparison of different marketplaces to present the different mechanisms and business models put in place by marketplaces in an attempt to guarantee market efficiency as effectively as possible.

Chapiter 1: Marketplaces

1.1. The new challenges facing marketplaces

As explained above, Europe and even the world have been witnessing an explosion in the number of online sales of all kinds in recent years. Over the last ten years, we have seen an explosion in the number of sales, which is expected to reach $5,717 billion worldwide by 2022.

Table 1.1 – *Retail e-commerce sales worldwide from 2014 to 2026.*



Source : Statista (2023)

A marketplace is first and foremost a sales channel, a platform where consumers can buy a variety of goods and services from a wide range of merchants. From a metaphorical point of view, a marketplace can be seen as a shopping center offering an unlimited range of goods and services.

For consumers and sellers alike, the benefits are manifold.

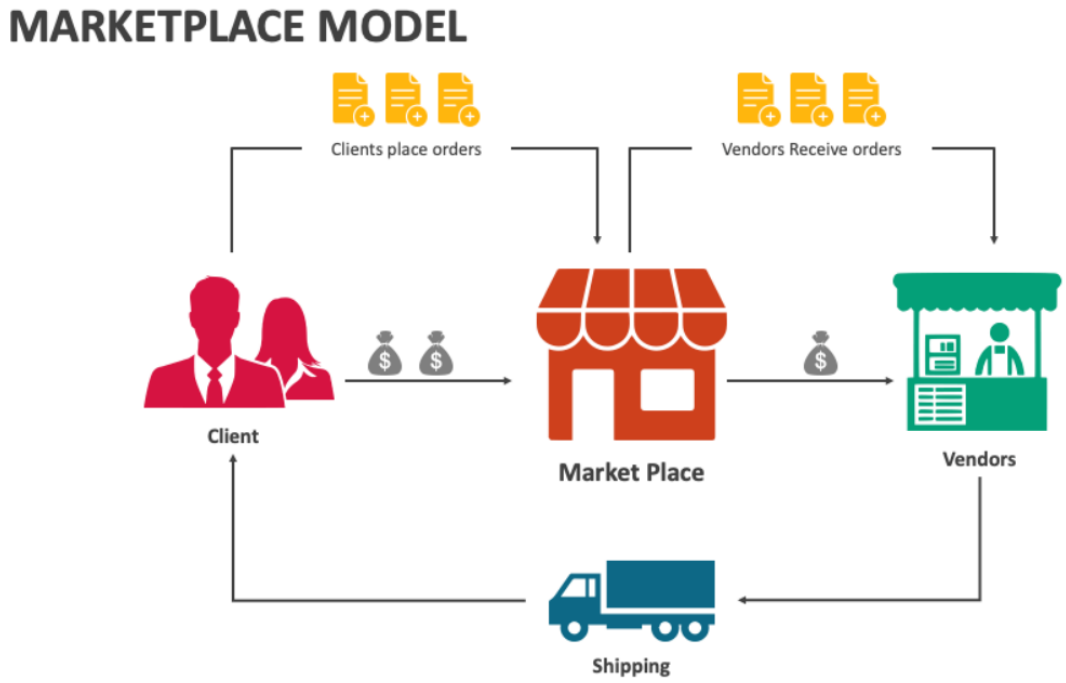
- Sellers benefit from increased visibility and can reach customers on the other side of the world without having to develop local sales and logistics resources. In just a few clicks, they can also analyse the competition and adjust their prices accordingly. Finally, it also enables them to source their various supply needs online.
- For the consumer, the advantage is huge. They can buy different goods from home, compare them and look for the most advantageous offers...

- Finally, the marketplaces benefit from all this activity in order to monetise their business through commissions on sales made or services offered.

However, this creates a form of double competition. Platforms such as Amazon, Alibaba and Ebay are in direct competition with each other. However, they are also the ones who set the rules (commissions, search results, delivery packages, etc.) for their third-party sellers, who may be several on the same platform offering the same product. This creates a new form of competition (Ryan et al., 2012; Zhu & Liu, 2018). The obvious implication is that the marketplace operator has a significant advantage.

1.2. How marketplaces work: the different agents and success factors

Table 1.2 – *Marketplace operation.*



Source : Collidu 2023

1.2.1. The marketplace operator

The operator is responsible for the proper management of the platform. Its main role will be to set up a regulated and secure site as well as various tools and services so as to create value by facilitating

interaction between buyers and sellers (Autenne & De Ghellinck, 2019). In a way, its role will be that of a regulator, ensuring that supply and demand are maintained and balanced.

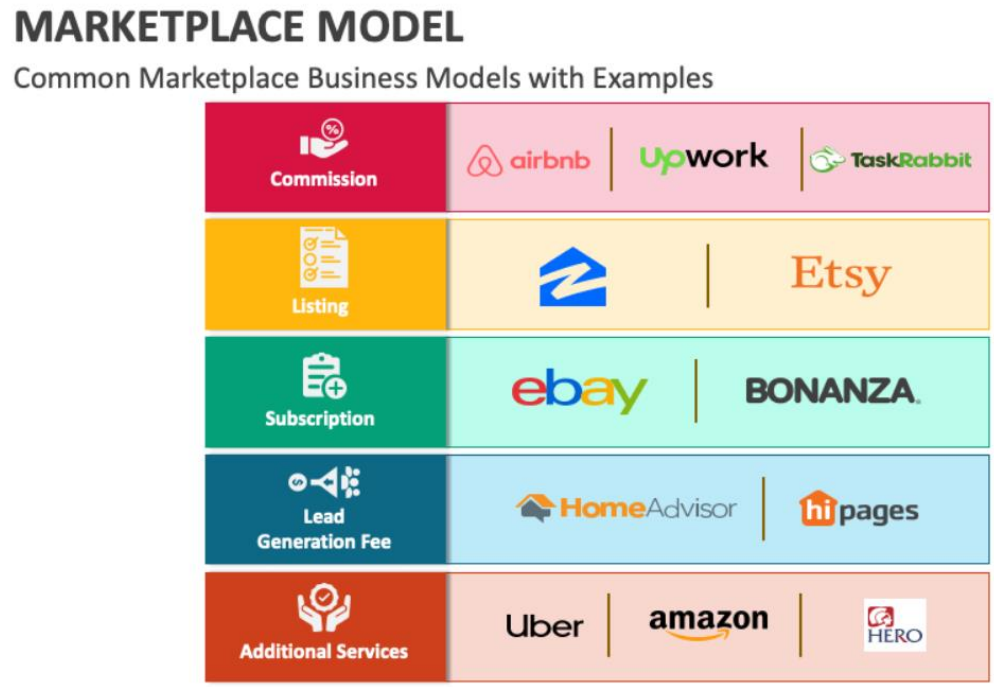
The platform operator will be different from a traditional firm, which has goods or services for end consumers and, in order to sell them, enters into transactions with external players (wholesalers, chain shops, etc.) while managing its internal players (employees, shareholders, etc.). A marketplace operator does not have to reconcile the management of these two entities because it is not involved in the production of goods or services offered on the platform (Autenne & De Ghellinck, 2019).

From a more practical point of view, a seller will offer his catalogue of products on a platform. Once a product has been ordered by a customer, a sales contract is formed solely between the seller and the purchaser of that good. The marketplace therefore bears no responsibility for the sale of the goods. It simply facilitates the transaction.

It does, however, provide a framework of trust for both parties, particularly in terms of payment security (platforms generally receive payments after the purchase and redistribute this amount to the seller once delivery has been made) and delivery.

The operator will be remunerated according to different commission models for the smooth running of the platform, the guarantees offered and any additional services.

Table 1.2 – *MarketPlace Commission Model.*



Source : Collidu (2023)

- Advertising revenue model. One of the first models used for online platforms was that based on free access for all users, with the marketplace's revenue guaranteed by the advertising on it (Anderson, 2009).
- Sales commission model.
- Subscription model. Whether for sellers, who may be offered subscriptions for better referencing, or for services such as delivery, etc., or for buyers, such as Amazon's Prime, which gives access to certain free deliveries, reduced delivery times, access to audio/video platforms, etc.
- Subscription fee model.
- Freemium model. The marketplace offers some services free of charge and others for a fee (Wagner et al., 2014). Unlike a subscription, which includes a number of paid features, the Freemium model offers sellers/buyers the option of paying only for the features they want.

1.2.2. The seller

The seller is the agent who offers the goods or services for sale. Normally, it is the seller who manages the dispatch and tracking of orders, unless the platform offers to take charge of this service (e.g. Amazon). It should also be noted that, depending on the marketplaces, the seller may be a professional or an individual.

However, it is very important to understand the three-way relationship between the operator, the seller and the buyer. The operator's customer is the seller and the seller's customer is the buyer.

1.2.3. The buyer

The buyer, whether a professional or an individual, is the person who visits the marketplace in search of a good or service.

1.3. Marketplace typology

1.3.1 B2B, B2C or C2C?

Today's marketplaces are aimed at all types of market. The traditional market is obviously the first to be affected. B2C or Business-to-Consumer, where a private customer uses a professional seller of goods or services (Booking, Amazon, etc.). This is currently the best-known form of marketplaces.

One of the key factors in this type of market is volume, such as Amazon, the world's largest bookshop, or Uber, which has the largest number of drivers.

The B2B or Business-to-Business model is designed for transactions between professional sellers and professional buyers. One of the leaders in this type of market is Alibaba, which puts wholesalers in touch with companies located in the 4 corners of the world.

Some entrepreneurs combine the use of these two types of marketplaces. They buy their products wholesale from Alibaba and then resell them on B2C platforms such as Amazon.

Finally, the C2C or consumer-to-consumer marketplace is a solution for ordinary people who want to sell some of their goods to other individuals. The marketplace acts as an intermediary by setting up a platform for easy transactions between private individuals (Airbnb, Marketplace, etc.).

1.3.2. Hybrid vs authentic

A hybrid marketplace operates on the basis of commission from third-party sales, but also from direct sales of its own products. There are different types of hybrid marketplaces:

- They can be "clicks and mortar" (Douglas, 2006). This involves a physical point of sale coupled with an online shop. In general, these are companies that were first and foremost physically present in different territories and regions and that wanted to expand their offering and reach a wider customer base via an online marketplace.
- Or "pure players". These are companies that are only present online, but which offer not only their products or services but also those of other sellers on the marketplace. So-called "pure players" have no building dedicated to welcoming customers. Amazon is the perfect example of this type of hybrid marketplace.

Hybrid marketplaces tend to be the subject of debate. If a hybrid marketplace sells its own products, it will tend to systematically promote its own products or increase commissions on third-party sellers' products in order to favour itself. This could ultimately harm the customer (Khan, 2016).

However, this presumption was called into question in a study Etro, 119-148 (2023). The introduction of products by a marketplace would have two main effects. On the one hand, the marketplace is tempted to increase commissions so as to shift demand towards its own products, but on the other hand it is encouraged to reduce commissions so as to attract new sellers and therefore collect more commissions. This would mean that the first is a subsistence effect and the second a margin effect. In any case, both are beneficial to the consumer and therefore efficient from a market point of view (Etro, 119-148, 2023).

Finally, in contrast to these hybrid marketplaces, we find genuine marketplaces which only sell the products or services of their sellers and therefore only play the role of intermediary.

Chapiter 2: Economic theory

2.1. Information asymmetry in the marketplaces sector

In economics, information asymmetry occurs when one party (buyer or seller) in a transaction has more or better information than the other party. Typically, it is the seller who has more or better information about the subject of the transaction, but the reverse also exists.

A good number of examples of information asymmetry in everyday life can be cited, such as a second-hand car salesman not disclosing any defects linked to a vehicle's past (Akerlof 1970).

The theory of information imbalance dates to 1963 described by Kenneth. J Arrow, who originally presented it as moral hazard, which was later corrected to information asymmetry in 1970 by George Akerlof, based on the fact that the average value of a commodity tends to fall in a market where information is asymmetric, even if the commodity is of good quality.

This concept of asymmetric information therefore contradicts the assumption of transparency of information in the standard model of pure and perfect competition, i.e., rational individuals who maximize their utilities are prepared to engage in opportunistic behavior that can undermine the efficient functioning of a market.

In the context of asymmetric information, two types of situations can be distinguished: anti-selection or adverse selection: the market is disturbed by better knowledge of the good at the heart of the transaction at the time of the exchange. And moral hazard: defined as a situation in which one party cannot control the actions of the other.

2.1.1. Anti-selection and Moral hazard

Anti-selection is often defined as being ex-ante, in other words a problem of asymmetry that occurs before the contract is signed. It occurs when sellers hide or overestimate the quality of the products they wish to sell at the highest possible price.

In this way, anti-selection can cast doubt on the quality of the information provided by the seller and can lead the buyer to doubt the true quality of the property or its true value, sometimes wrongly. As a result, the price is no longer a perfect indicator of the value of the property, because a buyer can

acquire the same type of property at different prices. The price can vary for the same type of asset depending on what the seller considers to be the price that maximises his utility function.

This type of variance in prices is at the heart of the problems faced by today's marketplaces. In effect, the price can no longer play its information role, and under these conditions the competitive market no longer functions properly. The buyer, who lacks reliable information, runs the risk of selecting a product that does not correspond to the market price by buying goods of poor quality at too high a price or, on the contrary, by asking abnormally low prices for quality goods.

This was demonstrated in the "lemon market" theory Akerlof (1970), which sought to show that the price of a vehicle was not necessarily a guarantee of its quality. He took a sample of 100 vehicles, half of which were "Lemons" (poor quality vehicles) and the rest good quality models. This suggests that the owners of Lemons should sell them at a lower price than those of good quality, so if the quality of the vehicles can be perfectly identified by both parties, there's no problem. But what if the buyer cannot identify the quality of the vehicle? Out of fear, buyers offer low prices, which pushes owners of good vehicles out of the market. The solution could come from an average price for all units, but with Lemons sold at too high a price and quality vehicles undervalued. In other words, "Bad products drive out good ones..." (Akerlof 1970).

The consequences of anti-selection can be twofold: it can discourage sellers of good quality products and attract unscrupulous sellers to sell inferior goods at prices higher than their real value. Overall, this can lead to a general decline in the quality of products on marketplaces.

2.2. Liquidity

Market liquidity can be considered as a measure of the probability that a transaction will take place at a stable price that reflects the intrinsic value of the asset. Market liquidity can be defined as follows: Market liquidity refers to the extent to which a market, such as a country's stock market or a city's real estate market, allows assets to be bought and sold at stable and transparent prices.

The liquidity of a marketplace such as Amazon or Vinted refers to the ease with which buyers and sellers can find transactions that meet their needs. This means that there are enough requests to buy and offers to sell for transactions to take place quickly and smoothly. More specifically, on a marketplace, liquidity is determined by the volume of sales and purchases. On Vinted, liquidity also depends on the availability of items and their attractiveness to buyers, as well as the speed of delivery.

There are now a huge number of marketplaces, and in the mid of this fierce competition lies liquidity. In other words, the probability of completing a transaction on the marketplace (Yu and Chaturvedi, 2001). In a study conducted in the early 2000s by Yu and Chaturvedi, they showed that greater liquidity is synonymous with attracting a greater volume of transactions and that, in turn, a higher trading volume will increase liquidity. Liquidity can therefore be considered a key element in the survival and success of a marketplace (Sculley and Woods, 2000).

High liquidity is very important above all because it allows existing marketplaces to make money, given that commission models are often based on sales. However, it has also been shown that a marketplace with very high liquidity can present high barriers to market entry for new entrants (Yu and Chaturvedi, 2001).

Given that marketplaces invest in order to achieve high liquidity and therefore increase their commissions on sales Yu and Chaturvedi (2001), the platform will endeavour to bring together as many buyers and sellers as possible. This is one of the most valuable and important roles of modern marketplaces, that of intermediary Bailey and Bakos (1997). In B2B, B2C and C2C marketplaces, they make it highly likely that buyers and sellers will meet (Yu and Chaturvedi, 2001).

Given that marketplaces are often two-way (for example, Vinted, which brings together individual buyers and sellers), it is important to define the liquidity of buyers and sellers (Sculley and Woods, 2000).

For buyers, this is the average number of visits or searches that result in transactions. Many marketplaces, for example, measure and analyze search sessions and purchases (Uber measures the number of actual rides against the number of ride requests).

Vendor liquidity is the number of ads placed by a seller that result in actual transactions. It can be measured by comparing the number of users over different periods, or the number of properties reserved for rent on an accommodation marketplace, for example. Therefore, the more a marketplace focuses its liquidity analysis on specific elements, the better it will be able to understand which products and services are under-selling relative to others, and the more efficient and effective it will be (Shapiro and Varian, 1999).

Liquidity obviously depends very much on the type of marketplace analyzed, whether it is buyer-driven with passive sellers, or whether it brings together a seller and a buyer with a shared commitment. Dual-commitment marketplaces often tend to have lower liquidity because both parties must devote time and energy to the success of the transaction. On this type of marketplace,

the transaction conversion rate is generally lower, but in return they are more responsive to customer needs.

In the end, marketplaces such as Uber or managed marketplaces (where buyers and sellers are brought together, but where the marketplace sets the price of the transaction) have the highest search rates and liquidity. However, this requires a fairly high level of standardization on the part of sellers, as it is not, they who are responsible for the quality and level of service, but the platform itself. This can sometimes lead to a saturation of supply.

We can also add the fact that the players, particularly the sellers on the marketplaces, have a crucial role to play. Marketplaces should enable sellers of traditional goods to migrate their transactions to online platforms with complete ease. This makes them "experts" Grewal et al. (2001) who are likely to attract other sellers in their turn. Attracting new sellers helps to maintain high liquidity (Brunn et al., 2002).

In the reality of marketplaces, liquidity will always play a crucial role. However, the study by Yu and Chaturvedi (2001) shows us that modern-day marketplaces will do more than just provide liquidity. They will certainly seek to differentiate themselves on liquidity, but also on many other characteristics such as supply and demand, comparisons, valuations, after-sales services, etc. (Yu and Chaturvedi, 2001).

2.3. Volatility

Volatility can be defined in several ways. It has been defined as a significant variation in price, demand or supply, which may be unpredictable or influenced by macro/macro-economic factors. Volatility measures the extent and speed of change in the price of an asset over a given period. In economic theory, volatility is linked to two concepts: variability and uncertainty.

We often tend to talk about volatility to measure the extent of price change rather than the change itself. In economic theory, volatility is used to indicate the dispersion of returns on a financial asset, for example, over a certain period. The statistical indicator of standard deviation is used to measure volatility.

Because volatility measures fluctuations over a given period, it can be used to measure the associated risk. Marketplaces with high volatility will not be able to guarantee the price of an asset over the long term (this is often the case for financial brokerage platforms). Volatility can also have advantages and disadvantages.

A marketplace with volatility can allow both buyers and sellers to benefit from attractive prices. This means that a consumer can wait for prices to fall, or a buyer can move towards lower prices.

Beware, however, that too much volatility can be detrimental to market efficiency. This is why some platforms set up price-fixing systems, customer loyalty programs and partnerships, all with the aim of smoothing out trends and buyer behavior.

Volatility can have consequences for both buyers and sellers. They may be faced with price fluctuations, stock-outs or unpredictable demand.

2.4. Market efficiency

The modern definition of efficiency for marketplaces could be translated as the ability of a platform to efficiently connect buyers and sellers by optimizing the distribution of information and offering tools that enable market prices to be obtained.

There have already been many literary reviews of this efficiency, which is so wide-ranging and varied. Inefficiency and price dispersion have been singled out as costly information outcomes, particularly in the theory of information economics Stigler (1961). Consumers will continue to search for goods until their marginal expected cost is equal to their marginal expected cost (Naglé, 1984).

As a result, many factors can influence market efficiency. The three main factors are information acquisition, product supply and symmetric information Bakos (1997). For example, a reduction in the cost of online searches on marketplaces could increase the efficiency of distribution and competition (Bakos, 1997).

Apart from these three factors, the way in which marketplaces allow their customers to sell their products will play a key role. Several tools can be used to determine the selling price:

English auction: A classic auction system in which a base price is dictated, and then the various buyers can adjust this price upwards one after the other within the allotted time. When the time is up, or when there are no more bids above a certain amount, the bid is awarded.

Reverse auction: This time it is not buyers who are competing but sellers. In this case, it is the sellers who send in their requirements and the sellers bid for the contract.

The most common auctions to be found on online marketplaces such as Ebay are what are known as GBAs: Group Buying auctions. Numerous studies have already been carried out on the traditional auction systems that have been present in our society for centuries (Klemperer, 1999).

However, the auction methods used on marketplaces differ slightly from traditional auctions, such as English-style auctions, reverse auctions, etc. The GBA differs from these traditional auctions in that, unlike the latter, the number of bidders is random (Chen et al., 2007).

Various studies Kauffman and Wang (2002) have shown that many platforms have abandoned the auction system in favour of fixed prices. However, we can also see that in certain sectors of activity, such as art or real estate, auctions are tending to remain and, what's more, to develop.

In fact, GBA auctions can often outperform fixed prices when the seller is faced with an uncertain market with several demand regimes Kauffman and Wang (2002). In the case of art, this makes perfect sense. The market for the sale of collector's items is one in which the goods are difficult to value, and demand can be diverse and varied. We therefore know with certainty that a market with an uncertain demand regime will be much more conducive to the use of GBA (Anand and Aron, 2003).

Finally, platforms that do not use auction systems will favour private sales: this is a type of sale that is often found, particularly on marketplaces selling second-hand goods, cars, real estate, etc. It is simply an exchange between a seller, who sets the price, and the buyer, who may negotiate the price.

2.5. Inventory

Inventory is a key factor for any business. In the marketplace context, inventory is defined as the total quantity of physical products that a seller has in stock. This quantity of stock will have an accounting value that must be considered in the marketplace's year-end balance sheet.

The emergence of new marketplaces over the last twenty years or so offers companies new opportunities to improve their supply chains and therefore their inventories. However, according to a study of e-marketplaces Grieger (2003), this supply chain is very poorly managed. Other studies Smith et al (2001) and Keskinock et al (2001) have also suggested that the system is very poorly managed and requires major innovation in order to obtain better and more efficiently managed stock.

Problems with stock management, or inventory, are often linked to the mode of supply. Inventory problems have already been noted in studies of companies with two supply modes Barankin (1961) and also for companies with three supply modes, despite their inventory systems (Johansen and Thorenston, 1998).

Nowadays, globalisation has multiplied the sources and modes of supply for companies. The increase in the number of sources means that dynamic programming models need to be implemented for inventory systems (L.H Lee et al, 2005).

Several management methods exist for the use and management of stocks:

- The minimum stock method: This method consists of replenishing stock only when the product falls below a certain threshold. It is also known as just-in-time stock management Toyota (1960). This method is based on waiting for a customer order to trigger supply. However, this method involves constant monitoring of details to avoid breakdowns, delays, defects, etc. (Toyota, 1960).

- FILO and FIFO: Respectively the "First in last out" and "First in First out" methods involve selling either the last product in your stock for FILO or FIFO the first product to enter stock first.

- Kanban" label management: This technique also consists of minimizing stocks as much as possible by using labels. This method ensures tracking during each stage of the shipment (Ono, 1950).

- The inventory method: this is a classic method which simply consists of counting all the stock. From an accounting point of view, this physical inventory is compulsory once a year. However, this technique is almost never used for day-to-day inventory.

Chapiter 3: Analyze of different marketplaces

3.1 Auto Trader

AutoTrader is an online platform specializing in bringing car buyers and sellers together. It was founded in 1997 in the United Kingdom and has grown over the years to become one of the world's leading online car classifieds. The platform operates mainly in the UK and North America.

AutoTrader is a hybrid platform whose basic service is to bring buyers and sellers together. However, AutoTrader also offers other services such as vehicle valuation and purchase, leasing and new vehicle sales.

In addition, AutoTrader offers potential vehicle buyers not only advertisements from private individuals but also from car sales professionals. We can therefore characterise this type of platform as a B/C-to-C model.

For the purposes of our analysis, however, we will focus on the "basic" activity, which is putting sellers (professionals and private individuals) in touch with potential buyers.

The AutoTrader platform allows users to select the make and model of vehicle they want. It also offers more selective filters, such as location, year of registration, price, etc. Overall, AutoTrader offers all types of vehicle advertisements, with prices that can vary considerably. The average price of used vehicles in the United States is $33,240 for 2021 (Source: Lapresse).

AutoTrader's commission model is based on a "Freemium" model. The platform is free for all potential buyers. For sellers, however, the price of the platform will differ depending on the number of vehicles you wish to sell. If you are a private individual who simply wants to sell your vehicle, the platform will offer you a free service with basic services (Free). The additional services will then be fully paid for and will depend on what the seller wants (Premium).

They will enable sellers to have their ad better referenced, with the ad being featured for longer and active for longer on the site. This price also differs if you are a private individual or a professional. This type of commission plays a role in liquidity. The Freemium model can have a significant impact on the platform's liquidity because this type of model attracts a diverse and varied audience of sellers, creating a high volume of offers.

It enables both individual sellers interested in simply selling their car and who are not necessarily in a hurry to sell it to be satisfied (and therefore to make do with a free service from the platform), and sales professionals who will be happy to pay for additional services to sell a larger number of vehicles quickly.

It therefore makes it possible to offer liquidity tailored to the needs of the seller, while at the same time offering the buyer a very high level of liquidity.

In view of the quantity/diversity of the offer and the ease of searching (users can view hundreds of vehicles in just a few clicks), liquidity can be good.

However, the most critical point about this type of platform remains the asymmetry of information. There is little guarantee of information on the platform. The platform, which only acts as an intermediary, does not guarantee any second-hand vehicles sold by third parties. In the event of a dispute, the platform will be of no help, but it does provide potential buyers with a rating of the sellers, which goes some way to counteracting this asymmetry of information.

AutoTrader also features a seller rating system that allows buyers to rate and comment on the buying experience with vehicle sellers. Users can assign stars and leave detailed comments regarding the quality of service, accuracy of the vehicle description, transparency of the process, and overall communication with the seller.

Sellers are ranked according to their average rating, giving buyers a quick overview of their reputation. This system encourages responsibility and trust in online transactions and goes some way to reducing information asymmetry.

Finally, it is difficult to determine whether the site is efficient or not, because once the seller and buyer are in contact, the negotiation and payment procedures are no longer the responsibility of the platform. It is content to use a private sale system because it is the most widespread and the most suitable given the predominantly private audience (ascending car auctions are often reserved for professionals).

3.2. Ebay

Ebay is a marketplace founded in 1995 that enables its users to buy and sell different types of products. The company, originally known as AuctionWeb, was created primarily for collectors and auction-goers. Ebay was one of the pioneers in the online sale of goods using an auction system.

The platform's business model is B2C or C2C since professional sellers are also present on the platform in addition to private sellers. The result is a very large and diverse offering, with no fewer than 1.7 billion active ads and around 135 million users worldwide.

This success is largely due to the selling system offered to its sellers. In concrete terms, the seller can decide on a starting price, after which it's a classic upward auction. The seller also decides the duration of the auction.

Ebay also offers an alternative buy-it-now solution that allows sellers who want a fixed price for their goods to sell them at the desired price. Finally, since Ebay allows the buyer to contact the seller via an internal messaging system, the price can also be negotiated directly between the two parties in a private sale.

We can therefore conclude that, in terms of efficiency, Ebay is very efficient, if not the most efficient of the marketplaces we have analyzed. It offers its sellers a variety of sales methods that enable them to maximize their utility. Whether it is the seller who wants to reach the market price via an auction or the seller in a hurry to sell at the price he has set, the variety offered by Ebay means that the platform can be described as efficient.

In addition to these sales systems, Ebay also offers a multitude of services and benefits to buyers and sellers, including information on product availability, competition, price comparisons, market-determined prices, and entertainment (Bosnjak et al., 2006).

In terms of information asymmetry, this remains classic for this type of platform. We find the same problems as with Leboncoin or Vinted. However, the platform offers no guarantee on the products sold, apart from payment.

We can, however, consider that buyers who traditionally went to retail shops in the past imposed that these were limited by the number of shops they could visit. This is the concept of 'reach' (Evans and Wurster, 1999). Previously published studies have shown that Ebay allows shoppers to visit a much larger number of shops in a given period of time. On the other hand, this concept may imply that if shoppers visit more shops, they obtain less information from each shop. Ebay appears to solve this

trade-off, allowing shoppers to obtain both information richness and reach (Evans and Wurster, 1999).

We therefore believe that Ebay significantly reduces the problems of information asymmetries. It allows buyers to browse a large number of items and obtain a large amount of visual information.

We also believe that other asymmetry problems may arise due to the fact that buyers often purchase goods without seeing them. However, we feel that the gain in information is much greater than in traditional retailing, where the buyer is limited in the number of shops visited.

Some studies even tend to suggest that Ebay allows buyers to consider the market to be almost perfect because the information for the buyer is instantaneous and buyers can compare millions of offers (Brynjolfsson and Smith, 2000). This clearly demonstrates the massive gain in information faced by the buyer.

This gain in information for the buyer also has other interesting spin-offs. Other studies have shown that the fact that buyers have better information about products puts significant pressure on companies in terms of prices (Alba et al., 1997; Sharma and Krishnan, 1999).

In addition, Ebay, in an effort to combat the new problems of information asymmetries that online product sales bring about, is proposing to evaluate the reputation of sellers. The overall reputation of a seller has a significant impact on a buyer's willingness to pay (Melnik and Alm, 2005).

To this end, Ebay assigns a score to each seller as a percentage. This rating is based on comments from previous buyers. We can therefore consult a seller's rating as well as any comments that have been written about them. This system makes it possible to generate sufficient confidence among buyers for them to bear the risk of trading with strangers (Ba and Pavlou, 2002).

In view of the figures given above, liquidity can be considered to be good. In fact, the number of ads is very large, allowing buyers to find what they are looking for. Obviously, liquidity will also depend on the geographical area, particularly in terms of population density in a given region or country.

The platform makes the transaction much easier by providing an internal messaging system, reviews of the various sellers, etc. In the interests of liquidity, eBay has even developed its own payment platform, PayPal, to guarantee payment security. Since then, the PayPal platform initially created by eBay has been split off from the marketplace's main business and sold to an investment fund, which continues to develop it.

High liquidity also means that inventory management is extremely important. Every day, eBay receives hundreds of thousands of new listings and must be able to offer visibility to all of them. This

means that potential buyers can view new listings and sellers can sell their property quickly. Ultimately, the aim is to maintain liquidity. To achieve this, eBay constantly updates its sales listings and deletes them after a certain period unless the seller pays for an open-ended sales service.

Finally, the commission model used by eBay is a mixture of different commission systems on sales, listing fees and a freemium model. First, the platform charges listing fees when you want to place an ad online. These fees depend on the options you choose for your ad (auction vs. buy-it-now, duration, exposure, number of photos, etc.). Once the seller's item is sold, the platform deducts a percentage of the purchase price. This percentage depends on the nature of the product and its price.

Finally, eBay offers a list of free and paid options, based on the freemium model. This allows users to sell their goods, with options such as highlighting the item, indefinite sales periods, etc.

We can therefore conclude that Ebay, as one of the pioneers of online marketplaces and one of the leaders in this sector, is highly efficient. In fact, in addition to our analysis, numerous studies have also shown the impact, often positive, that EBay has had.

3.3 Etoro

Etoro is a brokerage platform created in 2007 with the aim of making trading accessible to as many people as possible. It is a low-cost broker that allows investors to invest in a variety of markets, including equities, bonds, CFDs, currencies and cryptocurrencies.

In total, the platform allows its investors to invest in more than 3,000 assets. eToro is also one of the world leaders in social trading.

Social trading is a special form of trading that allows traders and investors to interact with each other, in particular by sharing information and strategies. This makes investing in the financial markets much more accessible to the general public. Even a novice in the field can start investing by basing their strategy, for example, on that of a more experienced trader, before developing their own strategy.

This type of platform certainly allows anyone to start investing in the stock market, but it does have a number of points that require the attention of potential investors.

This type of platform is generally associated with asymmetric information, for a variety of reasons. One of the main reasons is that, while attracting novice investors is a way of reaching a much wider audience, the problem is that it will bring in people with no knowledge whatsoever.

This can mean that these new novice traders are not fully aware of the risks associated with trading. eToro, however, issues numerous warnings about the risks associated with this type of activity (on average, according to the Geneva trading centre, 90% of traders lose money, 70% of whom are beginners).

What's more, novice traders are not necessarily in a position to understand all the tools available to them. The platform offers investors a number of tools, such as charts, statistical projections, historical data, etc., which provide investors with comprehensive information on assets. However, once again, investors may neglect to use these tools properly.

As a result, novice traders may feel cheated because they are investing in companies with a falling share price, whereas a more in-depth analysis of the company's data could identify this downward trend.

To metaphorise this, when someone wants to buy a second-hand phone on a second-hand site like Leboncoin, one of the reflexes that almost everyone has is going to be to ask for a photo or video of the seller turning on the phone to make sure it works. This seems obvious because almost everyone knows how to use a telephone.

For a trader, turning on the phone could be as simple as looking at a company's financial data. At a glance, this will give you an idea of the financial health of the asset.

In practical terms, the platform itself does not present a great deal of information asymmetry, as it gives all its users access to the financial data of its assets and to various tools for analysing investments. However, the fact that it wishes to attract a large number of novice traders can create information asymmetry among them. It is therefore up to users to familiarise themselves with the platform's various tools, but eToro must try to help them as best it can to reduce this potential asymmetry.

As far as volatility and efficiency are concerned, these two aspects are fairly simple to assess. The platform only acts as a brooker. In other words, it acts as a link between individual or sometimes professional clients and the market places. As a result, efficiency and volatility will never depend on the platform but on the financial markets around the world.

Efficiency can simply be impacted by the speed with which the platform is able to place an order and therefore respect the market price.

Liquidity is very good, with the platform offering easy access to a large number of assets. Even a novice can invest with ease. The platform's liquidity remains its strong point compared with more traditional trading platforms, where it can become complicated for a novice trader.

Finally, eToro's commission model is based on spreads. The platform does not take any commission on trades in certain assets such as equities or cryptocurrencies, but it does apply a spread. A spread is the difference between the price the trader pays and the true market price, which can be fixed or variable. This is a popular revenue model for brokerage platforms. In addition to spreads, there may be other charges, such as withdrawal or inactivity fees.

3.4 Vinted

Vinted is an online sales platform that allows individuals to buy, sell or exchange second-hand clothes. Founded in 2008, in just a few years Vinted has become one of the best-known online clothing resale platforms.

Basically, Vinted's concept is relatively simple and sustainable: it offers a community of users the chance to give a second life to their clothes. Potential buyers can browse the different categories of clothing or accessories, ask the sellers questions, or negotiate the price via an internal messaging system. Initially dedicated solely to women's clothing, Vinted has now expanded into other categories such as men's clothing, children's clothing, and accessories. Overall, Vinted remains a platform that offers goods at very affordable prices.

Vinted is paid a commission of 5% of the purchase price by the seller of the property. To date, Vinted does not really face any major competitors in this sector. Its major rivals, such as Facebook's MarketPlace and Ebay, are sales platforms open to many more sales categories.

It is important to note that, like Leboncoin, Vinted is a platform that does not carry out any transactions in its own name. It acts solely as an intermediary, facilitating transactions between buyers and sellers.

As in the case of Leboncoin, selling in a C2C context implies that it is individuals who wish to maximise their own utility and who are not necessarily thinking in terms of the market. The platform allows sellers to provide photos and a brief description of the item.

However, this potential asymmetry seems fairly limited for two reasons. The first stems from the fairly affordable nature of the items sold: on a €5 dress, the buyer will tend to be less affected if the seller fails to show a poorly made seam than on a dress costing several hundred euros. What's more, Vinted provides a messaging system between the seller and the potential buyer. The buyer can then request any additional photos of the item he or she is interested in.

A possible greater asymmetry could appear during the sale of "branded" goods where the price is higher and the seller would be tempted to hide the true origin of the item (counterfeiting). However, Vinted has put in place a policy of authenticity of items, "Therefore, when you post a designer item online, please prove its authenticity, failing which we will have to hide or delete the ads concerned [...] prove the authenticity of designer items or brands that are popular targets for counterfeiters [...]

failing which the ads concerned will be hidden or deleted". However, despite this policy, Vinted in no way guarantees the clothes sold.

This policy seems to be effective in counteracting information asymmetry.

Vinted also has a policy of evaluating its sellers. Sellers are rated based on feedback from different buyers. This gives potential buyers an initial idea of the seller. This reduces information asymmetry and increases buyer confidence.

Secondly, in terms of price efficiency, it seems to be efficient. The platform has a private sale with a price determined by the seller. However, the buyer can make an offer that is lower than the seller's price (although it should be noted that this offer cannot be less than 50% of the sale price) and a negotiation can be conducted using the internal messaging system. We can therefore assume that despite the fact that we are not dealing with English-style auctions that allow us to sell at the market price, this type of private sale with the possibility of negotiation nevertheless allows both parties to reach an agreement that maximizes their utility.

Finally, in terms of liquidity, it can be considered to be good, mainly due to the fact that these are low-value products. In addition, the platform facilitates transactions by guaranteeing secure payment (before dispatch) and secures dispatch. This seems to be reflected well in Vinted's figures: 1.5 million users and more than 400,000 ads published daily in France.

The only downside to the platform seems to come from inventory management: to date, Vinted has no policy for deleting ads over time. It is therefore not uncommon to find ads that are several months or even a year old. This can have a negative impact on liquidity, as new listings can be swamped. And yet, the very nature of this platform is that sellers want to sell quickly.

However, we can conclude that Vinted fulfils its role very well. What's more, in the current climate of high inflation, this type of economy, which can be described as circular, enables households to find either a small source of additional income or to buy clothes more cheaply.

3.5 Sotheby’s

Sotheby's is an auction house founded in 1744 in London. It is one of the oldest auction houses and enjoys a very strong reputation in the sale of collectables (jewellery, art, wine, works of art, antiques, etc.).

Sotheby's mainly uses a public auction system for its sales of collectables. Potential buyers can be present either in person or, for the past few years, online via their sales platform Sothebysreality.com. Sotheby's often targets an expert and/or affluent public. Because of its reputation and the goods sold by the platform, the commissions (discretionary) are very high.

Sotheby's business model is entirely based on commissions, which are taken not only from the seller but also from the buyer. On average, commissions appear to fluctuate around 25% for the buyer, although this figure remains an estimate as there are virtually no figures in circulation on this subject. Buyers' commissions are estimated at around 10%.

Sotheby's is a sales platform that only acts as an intermediary, facilitating transactions between buyers and sellers via English-style (bottom-up) auction systems. It does not therefore make any sales in its own name.

Given the nature of the goods sold by this auction house, it is clear that information asymmetry is a key issue. Indeed, the range of goods sold via Sotheby's is very wide and, what is more, many of these objects are often unique pieces.

This raises a very important point: unique and collectible items are already very complex to value. The nature of the goods is very heterogeneous and therefore requires the services of multiple experts. Some objects are even categorized as priceless, which makes it difficult to place a value on them.

What's more, works of art of this type are often subject to supply and demand at the time of the transaction. For example, if several works by the same artist or from the same period are sold at similar times in the year, this can lead to a drop in supply and therefore in prices. Furthermore, the purpose of using auctions is to try to maximize the price, and Sotheby's commission is calculated on this price. It is therefore in the auction house's interest to try to sell for as much as possible, but this can lead to a risk of asymmetry.

It is difficult to attest to the efficiency of the art market, and therefore of Sotheby's, as it is practically impossible to determine whether or not the art market in general is efficient due to the limited amount of data and the lack of liquidity (Frey and Eichenberger, 1995).

However, previous studies tend to show that the art market is particularly inefficient (Chanel, 1995). Apart from the lack of data, there are many reasons for this.

Firstly, as we explained earlier, the art market is subject to major information asymmetries. If we wanted a perfectly efficient market, price variations should reflect the new information available to the public (Fama, 1970). However, the specific nature of the market severely limits access to information.

Secondly, the art market has been speculative for some twenty years. Bubbles have been observed in the art market (Kraeussl et al,. 2016). A first bubble was already appearing before the 2008 crisis and then from 2010 onwards (Assaf, 2018). During these speculative bubbles, certain artistic segments tend to behave like financial markets, with different periods of adjustment.

These bubbles only reinforce the asymmetry of information because they bring a flood of investors to the market, who are not necessarily experts. Their only desire is to invest in assets that will give them returns over different time horizons. As a result, these new buyers can acquire assets at prices that do not reflect the intrinsic value of the asset (Li et al. 2020).

Liquidity is another catalyst for this inefficiency. Or in the case of art, illiquidity (Pesando, 1993). This lack of liquidity may be linked to the operation of auctions, which are long and costly in terms of time and resources, but also to the lack of current transactions on these markets. It is estimated that nearly 30% of works of art remain unsold (Ashenfelter, 1989; Ashenfelter and Graddy, 2011).

In practice, during auctions, the seller always sets a reserve price, which is often confidential. If the price is not reached, there is no exchange, and the market does not incorporate the price information. In other words, sellers have a monopoly on certain works and set minimum prices. The future prices of works can therefore never be determined with absolute confidence (Assaf, Kristoufek, Demir and Mitra, 2021).

It is considered, however, that it is not really the auction mechanism that falsifies prices, since in essence it allows the market price to be obtained. But the mispricing and therefore inefficiency comes mainly from unreported sales and undisclosed reserve prices.

Even though the art market is particularly illiquid, we believe that Sotheby's guarantees liquidity and ease of sale during sales. Paradoxically, in an illiquid market, this makes it possible to offer great liquidity when a sale is organized.

As with liquidity, Sotheby's access to a large number of experts, combined with its proven reputation, cuts short the problem of asymmetry. All items are appraised by several independent experts, and a starting price is set in collaboration with the seller and the appraiser.

We can therefore conclude that the asymmetry of information, despite the fact that it is very present in the art world, is under control given the good management of the auction house but also by the type of auction that allows the market price to be determined efficiently.

Sotheby's guarantees a high-quality service with auctioneers who are experts in their fields. The company also checks the solvency of each client wishing to purchase a work. Finally, it ensures that payment is made in complete security.

Our general conclusion on the art market and Sotheby's would be that in a market that is inefficient, illiquid, and biased in terms of information, Sotheby's offers various services that make it an efficient platform.

3.6 Biddit

Biddit is an online platform for selling property (houses, flats, land, etc.) from a Belgian notary. Launched at the initiative of the federation of notaries in 2018, Biddit aims to enable anyone to buy or sell a property with disconcerting ease.

Anyone wishing to sell a property can, under the supervision of a notary, offer their property on the platform. The platform offers two types of sales: public auctions and private sales.

Whichever type the seller chooses, there are many advantages.

First, the auction system enables the seller to obtain a price that is in line with the market, in other words the maximum price that the market is prepared to offer. In addition, the seller is not obliged to sell below a certain price, more commonly known as the reserve price. This price can be determined in advance between the seller and the notary, so if the bid does not reach the minimum price desired, the property will not be sold. Finally, as the bids are binding (the potential buyer must be sure of being able to pay the amount of the bid), this guarantees the seriousness of the bidding.

The platform handles the entire sales process. It puts the complete advert online, with a photo to back it up, and in discussion with the seller and his solicitor, sets the deadline for the sale and the starting price. Once the sale is complete, and if the reserve price has been reached, the buyer signs a “procès-verbal d'adjudication” with the seller at a notary's office. The buyer then has 6 weeks to pay the purchase price.

If we analyse Biddit from a market design point of view, we can quickly see that the platform meets the needs of potential buyers and sellers perfectly and seems very efficient. From an information asymmetry point of view, this seems practically non-existent. The properties are put online on this platform with the help of notaries who, by definition, are property sales professionals. In addition, potential buyers have at their disposal on the platform a full description, various photos and all the important documents relating to the property (land register, town planning, PEB, various installations, etc.). They also have access to the contact details of the notary supervising the sale, who can provide any additional information the buyer may require, as well as offering to visit the property several times if the buyer so wishes.

The buyer therefore has access to all the information relating to the sale of a property and can verify all this information with his own eyes on site. We can therefore consider that the asymmetry of

information in this case is very low or even non-existent. It should be noted that in the exceptional case of a possible asymmetry of information, the notary is liable, not the vendor.

The platform also provides all the contact details of the notaries responsible for each advert.

This absence of information asymmetry also seems to indicate that our volatility will be very low. Volatility is mainly linked to uncertainty, risk, possible market manipulation and information-related transactions. What's more, volatility is not really the hallmark of a property sales platform, as the price of a property will not fluctuate significantly over a given period. The property market is by definition a fairly stable and robust market, which tends to react much more slowly to any macro or micro economic events. Over an average selling period of 5 weeks, volatility can therefore be considered to be zero.

In terms of liquidity, this can be considered to be very good. A seller will tend to put his property on Biddit for two main reasons: firstly, to try to obtain the market price and secondly to allow him to sell his property in complete peace of mind. As explained above, the platform takes care of most of the pre- and post-sale work. The seller simply must come and sign the minutes after the sale and receives his money within 6 weeks. So, the ease of sale seems to be very good.

Finally, and most importantly, the platform is efficient. An auction finds the highest price a buyer is prepared to pay. In fact, according to a study published by CBC, property auctions and the arrival of the Biddit platform have significantly boosted property prices. What's more, if a seller is not interested in selling his property quickly (low liquidity for a second home, for example) and wants to obtain the price he feels is right, the platform offers private treaty sales with a fixed price.

It is relatively difficult to estimate whether prices were previously underestimated or whether the arrival of the platform has caused prices to be overestimated. We simply think that, according to the theory of supply and demand, Biddit being a national and easily accessible platform has enabled more people to consult the sales offers without having to travel to the four corners of Belgium. As a result, the platform can be considered efficient.

The inventory is non-existent. Notaries placing ads online will not commit any additional financial resources, or even less than a traditional sale without using Biddit. This is not the case for this type of platform, which is content to play an intermediary role by aggregating all the ads and supervising the sales.

Finally, the rise in property prices can certainly be regrettable for consumers. However, we can also consider that this type of platform makes it possible to broaden the offer to potential buyers while reducing the asymmetry of information and increasing liquidity.

3.7 Leboncoin

Leboncoin is a classified ads platform launched in France in 2006. It brings together private buyers and sellers on a user-friendly platform, offering goods and services in virtually every sector of activity. It is important to note that Leboncoin only plays the role of intermediary; it is not a hybrid platform that also sells its products. In this case, it simply facilitates transactions between private individuals.

The typical sales page for a good will in most cases consist of photos, a brief description of the product or service, the price, payment methods, the location of the good, the possibility of sending it and finally a tab rating the seller.

In terms of price efficiency, Leboncoin uses an immediate purchase system for sellers. Efficiency may therefore be debatable, as the price is set by the seller and not by the market, as may be the case with a platform that uses auctions. Efficiency is also affected by the relatively high level of information asymmetry on this type of platform. On the other hand, the presence of a very large number of properties in the same category can give customers a quick idea of the average market price.

The C2C nature of the platform already warns us about the many risks of information asymmetry. Customer-to-customer sales involve a transaction between two non-professional parties who wish to maximise their utility (the seller wanting to maximise the price and the buyer the opposite). As the seller is often an occasional buyer, he will be more concerned with obtaining the best price than with trying to maintain his reputation.

As a result, two types of case may arise. The first is adverse selection. This is the type of information asymmetry we will find most often. Adverse selection occurs when the seller has more information than the buyer (e.g., when buying a phone and the seller drops the phone in water but does not inform the buyer, even though the phone could be damaged). This type of misinformation will happen very often, as Leboncoin has no warranty policy for products sold by their customers. What's more, the seller can easily hide the real condition of a product in an advert in order to present the item in the best possible light.

Another type of misinformation can also appear, that of moral hazard. In this case, the misinformation appears after the transaction due to a change in behavior that causes harm. On Leboncoin, this type of misinformation can occur when sellers exaggerate about the condition of an item, knowing that it will probably be sent by post and that they will never have to meet the buyer. Conversely, buyers who have met a seller and seen the item in person may try to renegotiate the price of a property.

To limit these different types of misinformation, Leboncoin recommends that its users use tools such as internal messaging to communicate. It also invites potential buyers and sellers to report any type of abuse or fraudulent behaviour and, above all, encourages buyers to exercise greater diligence.

In order to make transactions more reliable, but also to reduce the asymmetry of information, Leboncoin is implementing a policy of evaluation of sellers by buyers. Before a transaction, buyers can consult the seller's rating and the opinions of other buyers.

The platform then allows them to leave a review by answering a few questions about the seller, such as:

- Did communication go well?
- Is the product as described?
- Was the parcel properly packed?
- Would you recommend this seller?

This drastically reduces the asymmetry of information and enables us to quickly isolate sellers who are behaving in an unethical manner.

On platforms of this type, liquidity is crucial. The goods exchanged are often of relatively low value, and the aim here is not to attract connoisseurs as in an art gallery, but rather to offer a high volume of sales.

In this case, a high level of liquidity makes it possible to obtain a wide variety of products, which stimulates competition and creates a dynamic platform. This is an added value for sellers, since with high liquidity they have a much better chance of selling their goods or services quickly.

We can consider that in the case of Leboncoin, liquidity is very important. This will obviously depend on the geographical area or the category of goods, but overall, the number of buyers and sellers is very high. Leboncoin has more than 28 million visitors every month (Source: Médiamétrie Net Ratings) and more than 800,000 new ads published daily.

On the other hand, volatility is much less pronounced than liquidity. In the case of Leboncoin, volatility can be seen as the fluctuation in seller prices. Volatility is relatively low. Most often, volatility comes from the fact that sellers lower the price of their goods over time. They want to sell at any price, so after a few days or weeks they tend to lower the price of the property. However, the opposite phenomenon is never observed. On the other hand, volatility can easily be explained by external factors. A simple example that puts this into context is the price of masks, air purifiers, etc. during the COVID crisis. The prices of these goods soared simply because demand far outstripped

supply at the time. These are obviously major external factors, and volatility cannot be considered significant daily. In general, volatility is low.

Lastly, Leboncoin must keep a strict inventory of all the listings on the platform. Indeed, if properties persist on the platform, this can disrupt the experience of potential buyers who, as a result, are unable to see all the new listings arriving and thus have a negative impact on liquidity. As a reminder, liquidity means ease of transaction and the presence of too many ads can undermine this ease of transaction (the customer simply cannot see all the offers). For this reason, Leboncoin has implemented a policy whereby all ads are automatically deleted after 60 days (Source: Leboncoin).

In conclusion, from a purely economic point of view, Leboncoin seems to be meeting its customers' expectations. Despite obvious problems of asymmetry, which seem to be more related to the nature of the business sector and the C2C nature of the platform, it offers significant liquidity, which is the most important thing.

Chapiter 4: Conclusion of the market analyze

Through our analysis of these different platforms, we have been able to establish a number of characteristics, some common and some very different, that the different marketplaces use to try to meet their customers' needs as effectively as possible. In this conclusion, we will attempt to identify the recurring common points between the different platforms, as well as the differences. Finally, we will attempt to develop and explain the different choices of mechanisms that marketplaces make.

We have chosen to analyse the platforms in terms of various elements such as sales liquidity, market efficiency (by also analysing the different types of sales models), different information asymmetries, inventories, etc.

4.1. High liquidity

One of the first and most obvious common points is the relatively high level of liquidity on all the platforms. In fact, all the platforms we have analysed have very high liquidity, which can be explained in a number of ways.

The first main reason is that marketplaces such as Biddit, Leboncoin, AutoTrader, etc. are first and foremost consumer alternatives. Previously, a buyer would go to an estate agent, a car dealership, etc. to make a variety of everyday purchases.

The reason why consumers have changed their habits and consume mainly on online marketplaces is liquidity. Customers wishing to purchase virtually any good will want a very wide range of products on offer, so that they can compare prices, buy easily and quickly, and have guaranteed security of payment... To satisfy these new consumer needs, marketplaces must therefore be highly liquid.

The only case where liquidity is much lower is at Sotheby's. But this can easily be explained by the rarity of the goods sold there. For collectors' items, the liquidity of a marketplace is certainly not the most important factor.

4.2. Efficient sales models:

Within the various marketplaces analysed, we often found 3 widely used sales models. OTC sales, often with immediate purchase prices. This type of method is used by Ebay, Biddit, Vinted, AutoTrader and Leboncoin. This type of sale is often combined with negotiations, but these are at the discretion of the buyers and sellers and are not the responsibility of the marketplace.

However, platforms generally put in place secure means for customers to discuss the property and its price, in order to facilitate liquidity. Ebay and Leboncoin, for example, provide internal messaging systems where customers can discuss the price. Vinted goes one step further by offering potential buyers the chance to send a price offer to the seller, which the seller can then accept directly.

It is important to note that Ebay and Biddit, for example, couple this private sale system with the possibility of an English auction. We can consider that this possibility of diverse means of sale only contributes to liquidity and efficiency in the sense that it enables the needs and utilities of different consumers to be satisfied.

In second place are platforms that use English-style auction systems. This type of auction is found in particular at Biddit, Ebay and Sotheby's. The most important thing about this type of auction is that it allows you to obtain a market price that matches supply and demand.

This is borne out by the fact that even though these three platforms do not sell the same items, they all use this sales system. In the case of art, for example, this means that you don't have to worry about setting a price. This can be extremely complicated in some cases.

4.3. Commission models that boost liquidity

The commission models used by the various platforms are very similar. Overall, platforms will always earn their income by using the proceeds of the sale through commission, for example. But also, by offering paying alternatives either to their selling customers or to potential buyers. A third source of revenue that can also be identified is advertising revenue.

This represents a very significant change compared with traditional retailing. Whereas yesterday's retailer was simply remunerated on his profit margin, today's platforms are competing inventively to multiply their sources of revenue.

Generally speaking, the first source that is often used by the different platforms is commission on sales. Ebay takes a percentage of sales depending on the goods and the amount of the transaction, Sohteby's takes two commissions from the seller and the buyer and eToro does not take a commission as such but applies a spread on the price of assets.

Secondly, most platforms use freemium models, offering packages or lists of paid options to their customers. This type of model is very widespread, particularly at Ebay, which combines it with its commissions, or at AutoTrader, which offers different packages depending on the customer's needs. Customers are comfortable with this type of revenue stream for platforms, as it also helps to maintain liquidity.

Customers' sales needs are all very different, and not everyone necessarily needs their property to be sold as quickly as possible or at the market price. As a result, offering a diverse and varied range of properties for sale attracts a large number of customers, provides a large supply and therefore contributes to liquidity.

Finally, many platforms use advertising revenue. Be careful, however, not to confuse revenue from increased visibility of ads, which are more akin to paying options in a freemium model, with advertising revenue in the strict sense of the term.

Platforms such as Ebay and AutoTrader offer external companies the opportunity to advertise on their platform.

In conclusion, compared with the retail trade of the past, platforms have diversified their sources of revenue, enabling all their customers to find an offer that suits them best.

4.4. Conclusion and observations:

In conclusion, our analysis has shown that the current economic climate is leading consumers to turn increasingly to marketplaces. Against a backdrop of very high inflation, comparing prices has become a necessity above all else.

As a result, there has been a significant growth in the number of online marketplaces. What's more, even for second-hand, low-value items, platforms are putting in place a host of tools to try and make transactions between different parties as secure as possible.

It's also interesting to see that the emergence of new sales platforms like Biddit is completely changing market dynamics. They tend to put a big kick in the anthill of traditional sales and, while being a profitable business, bring new possibilities to consumers. The Biddit example illustrates this perfectly: customers can buy with complete peace of mind, benefiting from the protection of notaries behind the scenes, and buyers are also much more at ease because payments are guaranteed.

So it's safe to assume that marketplaces will continue to develop over the next few years, and will probably affect more and more areas of our daily lives.

There are still many avenues of development to be explored and many platforms to be analysed. We have attempted here, in just a few dozen pages, to show what observations can already be drawn from the current market.

Our general conclusion is that marketplaces have made a crucial place for themselves in modern consumption methods. They have succeeded in capturing the needs of their customers, often by

offering a very large and varied range of products, which means high liquidity and efficiency. The platforms allow any buyer to make a purchase in just a few clicks. What's more, these platforms are also putting in place a huge number of ways of reducing the asymmetry of information.

We believe that the number of marketplaces will continue to grow, offering an even wider but highly competitive range of products.

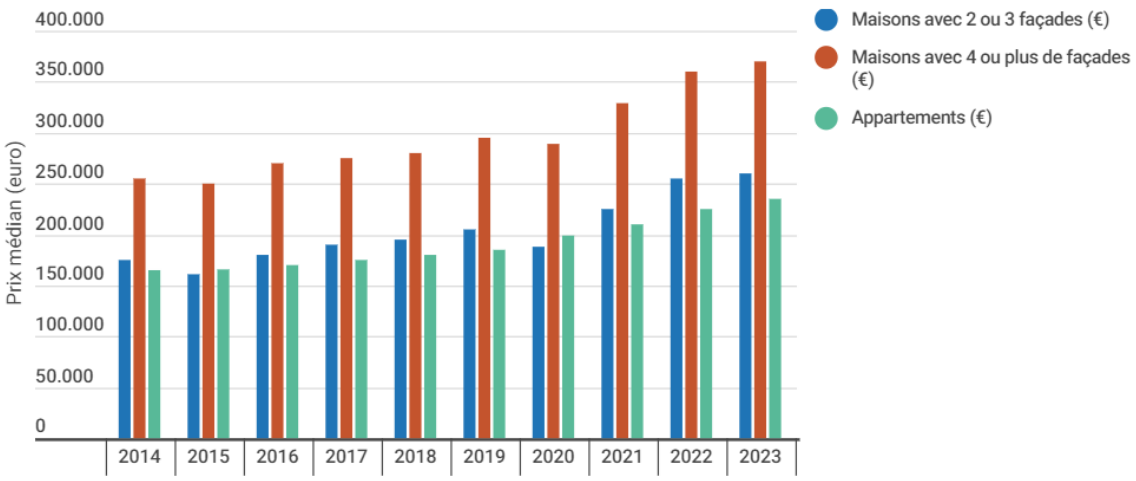
Chapiter 5: Development of a new marketplace

4.1.1. Introduction

As part of this dissertation, we came up with the idea of presenting a project for a platform that could, we hope, facilitate the exchange of goods or services (we're obviously talking about goods for which there isn't yet a platform).

The idea came from a problem that affects a lot of young people at the moment. As we all know, the current economic climate is characterized by very high inflation, and one of the sectors affected by this inflation is property.

Table 4.1 - *House price trends.*



Source: Stabel (2023)

The graph above shows a significant change in house prices over the last 9 years. The price of owning a new 4-fronted house has risen by 40% between 2014 and 2023, while the wages of the majority of the population have not risen as much (based on indexation).

In other words, access to new property has become excessively complicated, which does nothing to help interest rates, which have been rising steadily over the past year. According to a study pu blished by Le Figaro Immobilier, the number of new homes sold in France in 2022 will fall below 100,000, representing a drop of 31% compared with 2021. This point has never been reached before, not even during the sub-prime crisis of 2008. In the current economic climate, young people who want to buy a property have to find alternative solutions.

4.1.2. An marketplace: answer to the problem?

One of the most popular solutions is to buy houses to refurbish and renovate, in the hope of reducing the purchase price. On paper, this makes sense, and the Belgian government is encouraging new buyers to renovate their properties by granting financial aid in the form of VAT reductions, reduced registration fees and renovation grants. L'Echo confirms this with a study that estimates the cost of a new build at €1,400 per square metre and of a renovation at €1,100 per square metre.

But is renovating a house really that easy? In most cases, you need to call in a professional builder to renovate your home. These days, however, it's extremely complicated to find competent contractors who won't overcharge for the work. As a reminder, less than 2.5% of the population work in the building industry, so many people are completely unfamiliar with the trades, costs and deadlines involved. By definition, this already creates a major asymmetry of information.

What's more, finding contractors has become a headache. Contacts are generally made by word of mouth, and reputations are also made and lost by word of mouth. In short, to date there is no platform that can list all the trades and enable potential customers to find a contractor, get a quick assessment, check a contractor's reputation, etc.

To do this, we'd like to develop a new online platform that above all puts contractors in touch with potential customers. For this project idea we have decided to name the platform Dvalin.

4.1.3. Dvalin

4.1.3.1 Main structure

The platform will take the form of a search engine. Customers looking to renovate, fit out or simply have their boiler serviced should be able to find what they need. To achieve this, we're proposing a general search tab that will allow users to perform searches such as "electrician renovation farmhouse". However, we want this tab to be able to be refined by the customer with different, more specific tabs.

- Trade. If the customer already knows the trade they want, they can tick electrician, heating engineer, bricklayer, tiler, contractor, roofer, etc.
- Type of work. If the customer knows the type of work to be carried out, they can select maintenance, fitting out, inspection, renovation, etc.
- Location. This tab allows you to select the area of the home where the work is to be carried out.
- Timeframe. We feel that this tab is vital because some owners are in a hurry to get the work done (new owners whose main home is being renovated), while others, for reasons of their own (financial, second home, etc.), are in less of a hurry and may indicate longer deadlines.
- Price. This tab may seem complicated to set up, as prices vary widely depending on the work to be carried out. However, we believe that certain jobs can be priced at the outset. For example, a customer who wants to have his boiler serviced will be able to find out how much it will cost. What's more, if a contractor refuses to take on renovations costing less than €600 per square metre, this could help to redirect customers who don't have the budget to other contractors.

Once the search has been completed, the customer will be presented with a list of contractors specialising in the field the customer is looking for. These different contractors will be able to indicate prices or not if they so wish.

On the various advertisements, the customer will be able to find all the contact details provided by the contractor, his work area and a rating based on evaluations from previous customers.

Our main objective is to act as an intermediary between customers and contractors, trying to keep information asymmetry to a minimum. Our primary objective is to direct the customer to the right trade so as not to waste the time of both the professional and the customer.

Under no circumstances will Dvalin provide any guarantees to its customers, but we will carry out work to certify the authenticity of the company. For example, if a professional wishes to register, we will check his VAT number with the Chamber of Commerce to ensure that his company is registered as working in the building trade.

We believe that the liquidity of Dvalin can be good if the number of professionals is large enough in the early stages. Above all, we want to make it easier for customers to find what they're looking for, but Dvalin will also provide information on the trades they need. To do this, we'd like to implement a

registry first and then an AI that allows customers to consult the type of trades they need for their project. This service would be considered as a paid service for the customer.

4.1.3.2. Commission model

We would like to use a freemium model. Customers will be able to use the service free of charge for basic searches (additional paid services may be introduced, such as assistance from AIs and experts). Professionals will be able to choose the different types of service they require. A basic service will be available for a modest fee, but if the professional wants to add photos, videos or be listed in the top directory, all these services could be considered as premium and therefore chargeable.

In conclusion, Dvalin aims to be an easy-to-use platform and therefore, by definition, one with good liquidity. Customers need to be able to find what they're looking for easily.

We also want to reduce asymmetry of information as much as possible by informing customers via a database/register of the professionals needed for each job and an average price estimate for each task.

4.1.3.3. Conclusion

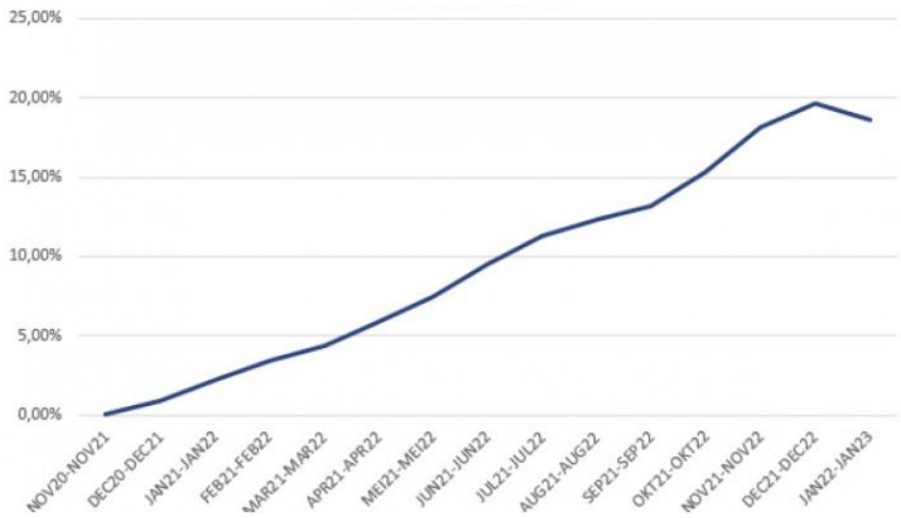
In conclusion, the aim of Dvalin is to try and help young buyers in their desire to renovate. We also believe that this type of platform could be useful to all age groups. Above all, we want to be able to help young people find the right building trades for their needs and direct them to competent professionals. We think that our approach could also be very profitable for professionals, who will gain in visibility but also in time by directing the right customers to the right people.

4.2.1 Consumer price inflation in Belgium

We would also like to propose an alternative to another crucial problem in our society: the soaring price of the average shopping basket for a Belgian citizen.

Over the last few years, Belgians have seen the price of their average shopping basket rise steadily, with record increases over the last two years. What's new about these soaring prices is that they affect all shops, whatever the consumer segment. Whether it's Delhaize in the more upmarket segment, or Colruyt or Cora in the more discount shops, all have been forced to drastically increase the prices of their products.

Table 4.2 - *Belgian supermarket goods inflation.*



Source: Test Achats (2023)

This graph shows inflation in our Belgian supermarkets, with an increase of +18.58% between January 2022 and January 2023. More specifically, the average shopping basket for a two-person household rose from 434 euros in January 2022 to 506 euros in January 2023.

This very substantial rise in prices due to inflation is obviously accompanied by wage indexation. However, this indexation is not directly linked to the rise in the price of goods. The indexation of Belgian citizens will depend on their sector of activity, and the calculation will be different for each.

In any case, indexation always takes place later than increases in the price of goods, and once again, depending on the sector, indexation can take place at different times of the year.

This raises two main issues. The first is that, because there is a time lag between increases in the cost of living and indexation, Belgian citizens find themselves having to shop for products that have gone up without their salaries following suit.

Secondly, Test Achat shows that despite a high indexation for 2022, practically 10.5%, this will not allow Belgian households to compensate for the rise in prices. This leaves us with a problem: how can we help Belgians do their shopping while spending less? We want to help them by setting up an online price comparison and tracking platform.

4.2.2 Demeter

4.2.2.1. Main structure

For this project idea we thought we'd call our platform Démeter. In practical terms, what would this new marketplace be used for? The platform would have several uses.

The first and main one is to compare and track the prices of all the items sold by supermarket chains. The idea is that, with just a few clicks, consumers will be able to compare the prices of different retailers (of their choice). They will also be able to track changes in the prices of a brand's products or the general trend for products in this segment.

To do this, we will offer consumers an initial interface that will enable them to search for brands and items. A general search bar, where consumers can type in keywords such as "pasta" to find all the types of pasta sold by the various brands and which ones sell them at the best price.

This general search bar will include various filters that consumers are free to use.

- The first filter will allow the consumer to select either all the brands or the one he prefers.
- A filter for selecting the type of general category of item, such as groceries or drinks.
- A filter for selecting more specific items within the general category, such as "Coca-Cola" in the drinks segment.
- A filter that allows the consumer to select only private labels.
- A filter that selects the geographical search area with an adjustable radius.

We will also include another search function that will allow consumers to build up a complete shopping basket. The idea is for consumers to draw up their shopping list, indicating their location, and for our marketplace then to be able to offer them a range of alternative chains with the price of each of these baskets at each of them.

To make all these searches possible for the consumer, we want to list all the items in each store. This is relatively easy, given that almost all of them offer their prices online. Then, using an artificial intelligence tool, we can offer consumers the best consumer alternatives.

We believe that this type of platform has several advantages.

Firstly, it reduces the asymmetry of information almost completely. On Démeter, consumers will be able to see the price of a specific item in each of the stores, compare them, see how the price has changed and, finally, see consumer alternatives such as a cheaper private label for the same item.

By offering a platform with a varied range of products, price comparisons and price monitoring, we believe we can significantly reduce information asymmetry.

In our opinion, Démeter's liquidity can only be good, as a lot of information is already available online on the platforms of the respective brands. We simply want to bring together all this information and therefore the entire offer. We will only play the role of intermediary, so proposing the entire offer of Belgian supermarkets seems to us to indicate good liquidity.

Finally, in terms of efficiency, Démeter wants to be able to enable its customers, in a few moments, to get an idea of the price of an item or a basket and to be directed to the right store. If we can make this service intuitive and easy to use, we think we can be efficient.

4.2.2.2. Commission and conclusion

Our commission model will be based on a subscription that our customers can take out according to their needs. Basic functions will remain free, such as searching for an article. On the other hand, there will be a charge for using the service to create a shopping basket, for example, and for advice on which store is the most effective.

There are still other possible developments for Démeter, such as the inclusion of small local producers. However, we believe and hope that we will be able to help Belgian citizens do their shopping in a more optimal way by comparing the prices of all the chains.

Bibliography

Brunn, P., Jensen, M. & Skovgaard J. (2002). E-Marketplaces: Crafting a winning strategy. *European Management Journal*, 7(3), 286-298.

https://www.sciencedirect.com/science/article/pii/S0263237302000452

Saf agri'Idées. (s. d.). Europarl.Europa. Consulté le 23 mars 5apr. J.-C., à l'adresse

https://www.europarl.europa.eu/cmsdata/97415/PatrickFerrere-presentation_volatilite.pdf

Liang, Y. & Chaturvedi, A. (2001). Competition between B2B Electronic Marketplaces: Differentiation, Pricing Strategy, and Industrial Structure. *AIS Electronic Library.* https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1576&context=amcis2001

Gengatharen, D. & Standing, C. (2003). A conceptual framework to support the development of government sponsored community-portal regional electronic marketplaces for SMEs: A stage approach. *School of Management Information Systems Edith Cowan University*. https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1296&context=acis2003

Sungwook, M. & Wolfinbarger, M. (2005). Market share, profit margin, and marketing efficiency of early movers, bricks and clicks, and specialists in e-commerce. *Journal of Business Research*, 58(8), 1030-1039. https://www.sciencedirect.com/science/article/pii/S0148296304000906

Standifird, S. (2001). Reputation and e-commerce: eBay auctions and the asymmetrical impact of positive and negative ratings. *Journal of Management*, 27(3), 279-295. https://www.sciencedirect.com/science/article/pii/S0149206301000927

Chen, J., Chen, X., & Song, X. (2007). Comparison of the group-buying auction and the fixed pricing mechanism. *Decision Support Systems*, *43*(2), 445–459. https://doi.org/10.1016/j.dss.2006.11.002

Risley, J. (2023). What are the top online marketplaces? *Digital Commerce 360*. https://www.digitalcommerce360.com/article/infographic-top-online-marketplaces/

Richter, F. (2021). The world's largest online marketplaces. *Statista Daily Data*. https://www.statista.com/chart/24405/top-5-online-market-places-by-gmv/

Abdullai, B. & Nuredini, B. (2020). B2B or B2C, this is the question: A case study over implementation of B2B and B2C models in the same sector and a cross-company e-business model evaluation. *UBT International Conference*. 487. https://knowledgecenter.ubt-uni.net/conference/2020/all_events/487

Hausknecht, D. (2006). A Hybrid-Multichannel Approach to Internet Marketing: Think Global, Act Locally. *IdeaExchange@UAkron*. https://ideaexchange.uakron.edu/marketing_ideas/96

Ba, S. & Pavlou, P. (2002). Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behaviour. *MIS Quarterly*, 26(3), 243-268.

Bakos, Y. (1997). Reducing buyer search costs: Implications for electronic marketplaces. *Management Science*. 43(12),1676-1692.

Akerlof, G. (1970). The market for “lemons”: Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84 (3),488-500.

Brynjolfsson, E. & Smith, M. (2000). Frictionless commerce? A comparison of Internet and conventional retailers. *Management Science*, 46 (4),563-585.
Smith, C. (1989) Auctions: The Social Construction of Value. *University of California Press: Berkeley.*

Melnik, N. & Alm, J. (2005). Seller Reputation, Information Signals, and Prices for Heterogeneous Coins on eBay. *Southern Economic Journal*, 72(2), 305.

Alba, J., Lynch, B., Weitz, C., Janiszewski, R., Lutz, A., Sawyer, S., & Wood. (1997). Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplace. *Journal of Marketing*. 61,38-53.

Etro, F. (2022). Hybrid Marketplaces with Free Entry of Sellers. *Review of Industrial Organization*, *62*(2), 119–148. https://doi.org/10.1007/s11151-022-09893-8

Yevheniia. (2022). Horizontal vs Vertical Marketplace: Examples & Benefits of Each Type. *Codica - Custom Software Development Consultancy*. https://www.codica.com/blog/horizontal-vs-vertical-marketplace/#:~:text=Horizontal%20marketplaces%20help%20companies%20to,found%20in%20the%20vertical%20platform.

Fednot. (2020). Biddit: la vente publique online en 11 questions et réponses concrètes. *Notaire.be - Actualités*. https://www.notaire.be/nouveautes/detail/biddit-la-vente-publique-online-en-11-questions-et-reponses-concretes

Biddit. (n.d.-b). https://www.biddit.be/fr/landing

Keppenne, B. (2021). *Les ventes immobilières aux enchères stimulent la hausse des prix - Le blog de Bernard Keppenne*. Le Blog De Bernard Keppenne. https://blogs.cbc.be/bernardkeppenne/2021/12/10/les-ventes-immobilieres-aux-encheres-stimulent-la-hausse-des-prix/

Combien de temps mon annonce reste-t-elle en ligne ? (n.d.). Leboncoin Centre D’aide. https://assistance.leboncoin.info/hc/fr/articles/360000165849-Combien-de-temps-mon-annonce-reste-t-elle-en-ligne#:~:text=Le%20d%C3%A9lai%20avant%20expiration%20de,votre%20annonce%20sera%20automatiquement%20supprim%C3%A9e.

Bianchi, F. (2021). Antoine Jouteau: "Les transactions sur Leboncoin représentent 1% du PIB français" *BFM BUSINESS*. https://www.bfmtv.com/economie/antoine-jouteau-leboncoin-les-transactions-sur-leboncoin-representent-1-du-pib-francais_AN-202102130181.html#:~:text=Leboncoin%2C%20le%20site%20de%20petites,%C3%A0%20393%20millions%20d'euros.

Thomas. (2023). Vinted : ventes et achats responsables en un clic. *GreenKit*. https://greenkit.fr/seconde-main/

Godart, N. (2019). Les chiffres fous de la friperie numérique Vinted en France. *BFM BUSINESS*. https://www.bfmtv.com/economie/consommation/les-chiffres-fous-de-la-friperie-numerique-vinted-en-france_AN-201902140069.html