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Detecting Criminal Investments in the Dutch Real Estate Sector

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Study prepared for the Dutch Ministry of Finance, Justice and Interior Affairs by

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Introduction

The real estate sector is a prominent candidate for money laundering and criminal abuse. Real estate objects can be used in two ways for criminal purpose. They can be traded in order to hide the origin of illicit funds on a non transparent and speculative market, or they can be used as a final investment, where criminals park their money in business or houses permanently.

Given the importance of this sector in the Netherlands, both with regard to its economic size and its relevance for criminals, several studies on criminal behavior in the real estate sector have been made. Most prominently the study of the WODC by Ferwerda et al (2007), which gives a good overview over maleficent behavior in the Dutch real estate sector, and the Financial Expertise Center (FEC) report of 2008 on money laundering techniques. However, so far, no systematic study on the importance and frequency of diverse maleficent behavior constructions for money laundering in this sector has been conducted. This study tries to use all information available, to operationalize it into measurable indicators, and to systematically analyze criminal investment in the Dutch real estate sector.

So far, the real estate sector has mainly been perceived as a problem of crime by and for the city of Amsterdam. In 1996, Dutch criminologists Fijnaut and Bovenkerk reported to a parliamentary committee (on police investigation methods in organized crime cases) that Amsterdam had to be regarded as a ‘centre’ for both national and international organized crime (Fijnaut & Bovenkerk, 1996). With regard to the Red Light District, the researchers concluded that ”criminal individuals and groups have, through their illegally acquired property and capital, gained control over the district. As a result, this enabled them de jure and de facto to decide who to what certain extent can develop illegal and/or legal activities. With this, criminals could eventually determine to a high degree the level of public (dis)order in this area” (Fijnaut & Bovenkerk, 1996).

In reaction to these findings, the city of Amsterdam decided to put more emphasis on an administrative approach to prevent organized crime. This approach consisted of a number of instruments, ranging from integrity tests for civil servants, the purchase of

strategically positioned buildings and the refusal or withdrawal of permits, to the screening of companies competing for major contracts. Due to the specific problems in the Red Light District, members of the Amsterdam city council emphasized that additional administrative attention should be devoted to this part of the city centre. In 1997 they instigated the appointment of what came to be known as a "Red Light District manager" or in Dutch "Wallen coordinator". Three years later the name of the project was changed into Van Traa-project (named after the chair of the parliamentary committee mentioned above), and its scope was extended to the city of Amsterdam as a whole. A new project, Emergo, started in 2007. In this project, crime in the real estate sector in the city of Amsterdam is analysed in greater depth by means of a multi-agency approach. Emergo aims to come up with policy advice on how to reduce criminal activities in the Amsterdam real estate sector (Arrondissementsparket Amsterdam, 2009).

The focus on Amsterdam is understandable, but one should not overlook that criminals also have settled in other towns and villages of the Netherlands, which largely remain in the dark. Due to substitution and displacement effects from a tighter anti crime policy in the city of Amsterdam, criminal investment problems in other middle sized or smaller cities and towns, on which there is much less knowledge, might emerge (see e.g Huisman & Nelen, 2007).

In order to fill this gap, we chose to analyze money laundering in the real estate sector for smaller and medium sized cities: the cities of Maastricht and of Utrecht. The same approach can however easily be used for other cities and be applied to all of the Netherlands.

This study tries to combine data and methods from economics and criminology in order to investigate criminal investment in the real estate sector from a multidisciplinary angle. Economists so far could only identify housing objects with unusual price movement, but did not know in how far these were criminal or purely speculative (see Arjen Siegmann's approach in Unger 2007, ch. 3). Criminologists so far could only identify maleficent behavior constructions, but could not quantify how many maleficent transactions existed and which ones appeared more frequently. The methods and data which the two disciplines used were largely isolated and separated from each other.

The pioneer idea of the Dutch Ministries of Finance, Justice and Inner Affaires to jointly finance a project which studies criminal investment in the real estate sector by combining the knowledge of the diverse ministries and by bringing together academic disciplines, allowed us to come up with the following report. The Utrecht University School of Economics and the Maastricht University engaged in a multidisciplinary project of economists and criminologists in cooperation with all three ministries to identify criminal investment in the Dutch real estate sector.

We want to thank the pioneers of the three ministries and all the members of the advisory board who accompanied this project with numerous help and support, especially for data access. In particular we want to thank Erik van Andel, Brigitte Slot, Jan Glimmerveen (the Ministry of Finance), Paul van Voorst (the Ministry of Justice) and Karel Schuurman (Ministry of Interior Affairs). Without Bernd Veldman from the Tax Administration Office (Real Estate Knowledge Center [VKC]), who himself is engaged in writing a PhD on this topic, the study would not be what it is. Nico van Waarden helped to combine the large datasets at the tax office (Belastingdienst). Arjen Cuijpers and Ruud Leijenaar from the Real Estate Intelligence Centre (VIC) helped especially by quickly arranging workplaces at the centre and thereby giving us the opportunity to use their intelligence and sources. We thank Arjen Siegmann for the original idea of using unusual prices to identify strange objects and for graphical support. We thank Jan Rijk and Luud Geerlings for providing us with RIEC and BIBOB data for the region of Limburg-South. We thank Niels Laheij (RIEC) and Grazielena Marcus (municipality of Maastricht) for preparing the essential data. Last but not least, we thank Martin Grimbergen of the Dutch FIU and Eugene Heijnen, Peter Vincent, and Bert Stevens from the Police Limburg-South for access to and the preparation of closed source materials (STR's and Blue View). We thank Henk Polet from the Office of the Land Registry (Kadaster) for his support and the mayor of Utrecht, Aleid Wolfsen, for his interest and support of the project.

During the project we eventually switched from studying money laundering to studying criminal investment. Money laundering is essentially the process of disguising the unlawful source of criminally derived proceeds to make them appear legal. While using the real estate sector for criminal investment or for speculative

purposes has an old tradition, using it for money laundering is quite new, since money laundering has only been criminalized since 2001[1]. The original idea of the project, to focus on money laundering in the real estate sector only, had to be modified. It turned out to be often impossible to distinguish between money laundering and other forms of criminal investment. Therefore, we chose to focus on criminal investments in the real estate sector in general and sometimes more specifically refer to money laundering. For practical reasons we use the terms more or less as synonyms in the study, though we are aware of the differences between these two terms.

We also changed our focus from trying to estimate the amounts of money laundering in the Dutch real estate sector, to developing a 'magic formula', a tool to identify conspicuous real estate objects. We wanted to be able to predict from objective data related to an object, such as its unusual housing price, the likelihood that it might be a criminal investment or a money laundering object. We also wanted to test which criteria of an object (financing method, ownership, etc.) are the most important to identify conspicuous real estate objects. With this, we hope to give tax and investigation authorities a new tool for pre-warning and for investigation. This study can be seen as a first step to develop such a tool, which definitely has to be more tested, improved and refined in the future.

We proceeded in three steps. Part One of this report consisted of a literature survey of maleficent behavior in the real estate sector, and operationalized this behavior into measurable indicators. We then conducted step one of the analysis from top to bottom. We browsed through existing datasets of the Housing Registering Office

[1] In 2001 money laundering was included as an offence in the Dutch Penal Code (Nederlands Wetboek van Strafrecht, artikel 420bis, 420quater and 420ter 18th of October 2004). According to this law, all serious offences are predicate crimes for money laundering and can be punished by up to 4 years in prison in addition to the punishment for the underlying crime. Following the second EU Directive (2001/97/EG) on money laundering, which extended the reporting obligation of unusual transactions beyond financial services to other economic sectors, also car dealers, sellers of ships, art and antiques, and of gold, silver and jewellery and since June 2003 also lawyers, notaries public, tax consultants, accountants and real estate agents are under reporting duty in the Netherlands.The third and most recent EU Directive on money laundering (2005/60/EG) broadened the definition of money laundering by including terrorist financing. It was transposed into Dutch law with the 2008 Act on the Prevention of Money Laundering and Terrorism Financing.

(Kadaster), the Chamber of Commerce and the Tax Authority (Belastingdienst), in order to identify objects with unusual characteristics in the two cities. From the existing literature on criminal behavior and money laundering techniques in the real estate sector we derived 25 characteristics of an object which we classified as 'unusual'. Data availability forced us to reduce these to 17 measurable characteristics. We then looked how many of these 17 unusual characteristics each object has. For each characteristic we gave a 'red flag'. The more 'red flags' an object received, the more unusual it was considered. We analyzed all objects which have been traded at least once between 2002 and 2006. So, from the total of 65,000 objects of the cities Maastricht and Utrecht, 11,895 had to be studied. We finally arrived at a list of 200 objects which we passed on to our criminologist colleagues to analyze informing them. that these 200 objects contained 50 objects which were not unusual and 150 which were unusual according to our data analysis. The criminologists did not know which objects were unusual, i.e. contained how many 'red flags', so that they would treat all objects with equal attention.

As a second step (Part Two) the criminologists of our team used the objective dataset and combined it with other criminological data and knowledge. For each of the 200 objects they described the transactions, the ways the purchases of the objects were financed, the persons involved, and their networks. At the end of their analysis, the criminologists classified objects into non-conspicuous, slightly, medium and strongly conspicuous real estate objects. They also checked in a bottom up analysis, which persons involved in transactions with conspicuous objects were also known to the investigation authorities. They then came up with a list of 36 objects which they identified as conspicuous from the list of 200 objects that had been established by the economists.

In Part Three the economists checked in how far characteristics of an object (unusual purchasing sum, foreign ownership, no mortgage etc) are useful indicators for identifying conspicuous objects and persons suspect of money laundering. Using probit, logit, cloglog, OLS and dprobit models, the economists identified the most important statistically significant characteristics of objects to predict conspicuous objects in the real estate sector in Maastricht and Utrecht.

Part One

Economic Approach

1. Introduction

In Part One of the study, we draw on the existing literature on criminal behavior in the real estate sector in order to derive operationalizable indicators for identifying objects which have unusual characteristics.

The idea to focus on unusual transactions for measuring money laundering is quite successful in the domain of trade based money laundering (see the works of Zdanowicz for the US (e.g. Boyrie, Pak and Zdanowicz, 2004 and 2005) and the recent joint project of the Dutch customs with Italy, Belgium and Austria for measuring it in Europe). So why not apply it to the real estate sector? A 'solid fact' analysis in real estate will first filter out unusually high priced transactions and second try to distinguish speculative price movements from criminal price movements. Arjen Siegmann (University of Amsterdam, UvA) did an interesting first investigation that involved looking at land register prices in the city of Amsterdam. He identified several hundred objects, which changed owners several times within days and which showed unusual changes in prices. He regretted that one could not use these findings for conclusions on money laundering, since one cannot separate purely speculative price movements - price increases from splitting of apartments or office spaces - from criminal price movements. We try to extend his idea to a method for measuring money laundering. Similar to his map of unusual objects in the city of Amsterdam, we want to map the two cities in our study. But we use more data on object characteristics and in a second step combine these findings with case specific data in order to find out if the objects are conspicuous.

The first step of using characteristics of maleficent behavior in the real estate sector allows us to identify potential object candidates for money laundering: those objects that quickly change hands between owners, while displaying unusual price increases, objects with foreign ownership, financed without mortgage, etc.

Unlike with trade based money laundering, an additional step has to be taken in order to judge the validity of the indicators and to modify them. This second step consists of an in depth criminological study of the unusual objects (see Part Two). And in a third step in combining the economic with the criminological findings (Part Three). With this we want to identify conspicuous objects and identify which characteristics these conspicuous objects have.

In the following Part One we will first show the importance of the real estate sector for money laundering and criminal investment (chapter 2), then the most typical money laundering constructions mentioned in the literature (chapter 3). Chapter 4 derives objective indicators from the literature which could point at suspicious money laundering constructions. Chapter 5 describes the data collection. Chapter 6 shows the results of the data analysis and derives the list with the 200 objects that we consider unusual. Chapter 7 analyzes the results of the data analysis and chapter 8 elaborates where one could improve data collection in the future.

2. Market Analysis of the Real Estate Market

Why is real estate popular for money laundering?

The real estate market has sector characteristics which make it prone to money laundering. Eichholtz (2004) points out that the real estate sector has a very large value. In 2007 its market value in the Netherlands was 2485 billion Euro (and the WOZ value 1924 billion Euro), which is about three times the size of the bond market. The real estate sector attracts a lot of wealth, both from legal and from illegal sources. Compared to the bond market, it is less transparent and therefore more attractive for criminals. In 2006 about 150.000 houses have been sold at an average price of 235.000 Euro (NVM). This means that the volume of transactions in this year was 35,3 billion Euro. The Dutch Central Bureau of Statistics (CBS) estimates the size of the real estate sector in 2008 at € 2022 billion euro (CBS, 2008). The real estate sector has, therefore, quite a potential to absorb a substantial volume of laundering activities.

It displays the following characteristics which makes it susceptible to money laundering (see Nelen, 2008):

Real estate

- is a safe investment
- is a prestigious investment.
- where the objective value is difficult to assess
- is a market where speculation is a tradition
- allows to distinguish between legal and economic ownership
- allows to realize “white” returns (e.g. apartment rents)
- can be used to conduct criminal activities

Abuse of legal persons can happen because (van de Bunt et al., 2007)

- they can buy sleeping enterprise licenses
- there is no central registration of foreign corporations
- it is unknown what Dutchmen do with foreign legal persons abroad

- the European Court necessitates that foreign legal persons cannot be refused

This is confirmed also by the study of Meloen et al (2003, p.246), who analysed 52 criminal cases wherein property with unlawful advantages (WVV, wederechtelijk verkregen voordeel) had been confiscated (*ontnemingszaken*). They found out that 30%-40% of the money laundering cases invested money in immovable property. The study points at the importance of the real estate sector for laundering, but given the limited amount of cases, cannot draw conclusions on the overall size of the problem.

The WODC (Kleemans et al 2002, p.132) also finds, from analyzing 80 cases, that investment in real estate is an efficient method to place large amounts of money. The price increase in real estate is profitable and the annual profits on real business create a legal basis for income.

The real estate sector consists of three sub-markets: the business sector (offices, shops, factory halls etc), the private housing sector (first and second hand houses and apartments etc), and the public sector (government buildings, prisons etc). In the following the players on these markets will be described.

2.1 The market players

When talking about the real estate market, we specifically mean the buying and selling of housing, not the rental market. It is almost impossible to monitor the entire rental market, because rental agreements do not have to be officially documented. There is no database in the Netherlands of renters and their payments.

The players of the markets are not bound to a single market; they can be active in all markets.[2] The residential real estate market (from now on, housing market) solely

[2] Because of the complexity of the market and the vagueness of the papers on the real estate market (often because they are too specialized), a meeting was set up with a student at the Erasmus University in Rotterdam. He studies real estate as a part of his study in Economics and is working at a company that trades in real estate portfolios. Paragraph 2.2 is almost entirely based on the results of this meeting.

consists of houses. Nonetheless, there are many forms of houses, like flats, beach houses and farms. In the housing market, six players are active:

- Private consumers
- Developers
- Social institutions
- Investors (institutional and private)
- Government
- Service providers (like banks, notary and real estate brokers)

These players will all be described below, because it is more convenient to combine them with the players on the commercial real estate market (from now on, commercial market), since a lot of players operate on both markets. The commercial market consists of four categories:

- Retail (shops like butchers and bars)
- Office
- Industrial (industrial sites like a petroleum factory, but also the area around the office of a transport company)
- Other (anything that does not fit in the previous categories, like hospitals, hotels and roads)

Five different players are active in this market, which are the same as for the housing market, with the exception of the 'social institutions'. The other difference is that the private consumer for the housing market is a person, and the private consumer for the commercial market is a company. First, all the six market players mentioned above will be discussed.

Private consumer

In case of the housing market, the private consumer is a person, or group of persons (for instance a couple), who want to buy a house to consume the purpose of the house, which is living. In the case of the commercial market, the private consumer is a company, who wants to buy an object to use that object for commercial purposes (for instance a bar, a butcher or a book shop).

Developers

Developers are also active in both markets, although most commonly in the housing market. They purchase objects (land with or without existing buildings) and demolish the old building if necessary and then build something new, or renovate the existing building. The purpose is of the developer is to renew the object and sell it with a profit. This could for instance be to rebuild an apartment block and sell the houses, or renovate an office building and then selling it to an institutional financier. A good example is ING Real Estate, who have a business portfolio of 115 billion Euros and consists of "major urban renewal projects as well as the creation of specific (or mixed-use) office, retail, leisure, residential, logistics or parking buildings and facilities" (ING Real Estate site).

Social institutions

The social institutions are only active on the housing market, because they fulfill a safety net for the poor. People who live below the ceiling of income can use the subsidized rent houses ('sociale huurwoningen' in Dutch). Commonly, an institution renting houses will want to cover the costs and calculates the price on that basis. Because the government subsidizes the subsidized rent houses, the rent is much lower, so that the less fortunate people can afford housing. The social institutions are responsible for these houses and the inhabitants. Some institutions focus only on subsidized rent houses, like Humanitas, but subsidized rent houses can also be a side business of real estate brokers (like DTZ Zadelhoff) or housing corporations (like Vestia).

Investors

Investors can be divided into private investors or institutional investors. Nelen et al (2008) describe five differences between private investors and institutional investors:

- Private investors take more risk, and take risk more often. Institutional investors see real estate as a solid investment. Private investors have a short-term perspective and are driven by expected value increases of their portfolio.

- Private investors invest in the local market, which they think they know best. Investing in their own market is considered to be less risky, especially for private investments in offices.
- Private investors can act much faster than institutional investors. They have good knowledge of the local market and are willing to take higher risks, which mean they can act faster. Also, the decision to invest or not is taken by only one, or a small group in the case of a private investor, as opposed to time consuming procedures for institutional investors.
- The next difference is that that private investors often have an excellent social network for the gathering of relevant information. This because being a private investor often occurs after a real estate related job, like real estate brokers or real estate traders. Research has shown that private investors often exchange tips on interesting real estate objects.
- The last difference is that private investors often focus on multiple segments, while a institutional investor often specializes in one segment. The most private investors start off in the housing segment and then slowly 'grow' into the retail and offices segment.

Although there are some differences between the two, they both use the real estate market to earn money. They do not use the real estate object for exploitation purposes, but try to make profits from trading. Financial institutions play an important role for the investors, because they provide the capital to purchase real estate objects.

Institutional investors are for instance insurance companies (like OHRA) and pension funds (like Philips Pension Fund). A lot of institutional investors publish their real estate portfolio percentages to the ROZ/IPD (Raad Onroerende Zaken / Investment Property Databank), which published an overview of the 2007 percentages of real estate portfolios. This results in table 2.1 below.

Table 2.1: Results of ROZ/IPD of 2007

	Capital value		Number of properties
	€ millions	%	
All objects	44.926	100%	5.020
Residential	19.523	43,5%	2.332
Retail	13.826	30,8%	1.635
Office	9.696	21,6%	718
Industrial	1.144	2,5%	158
Nice/other	737	1,6%	177

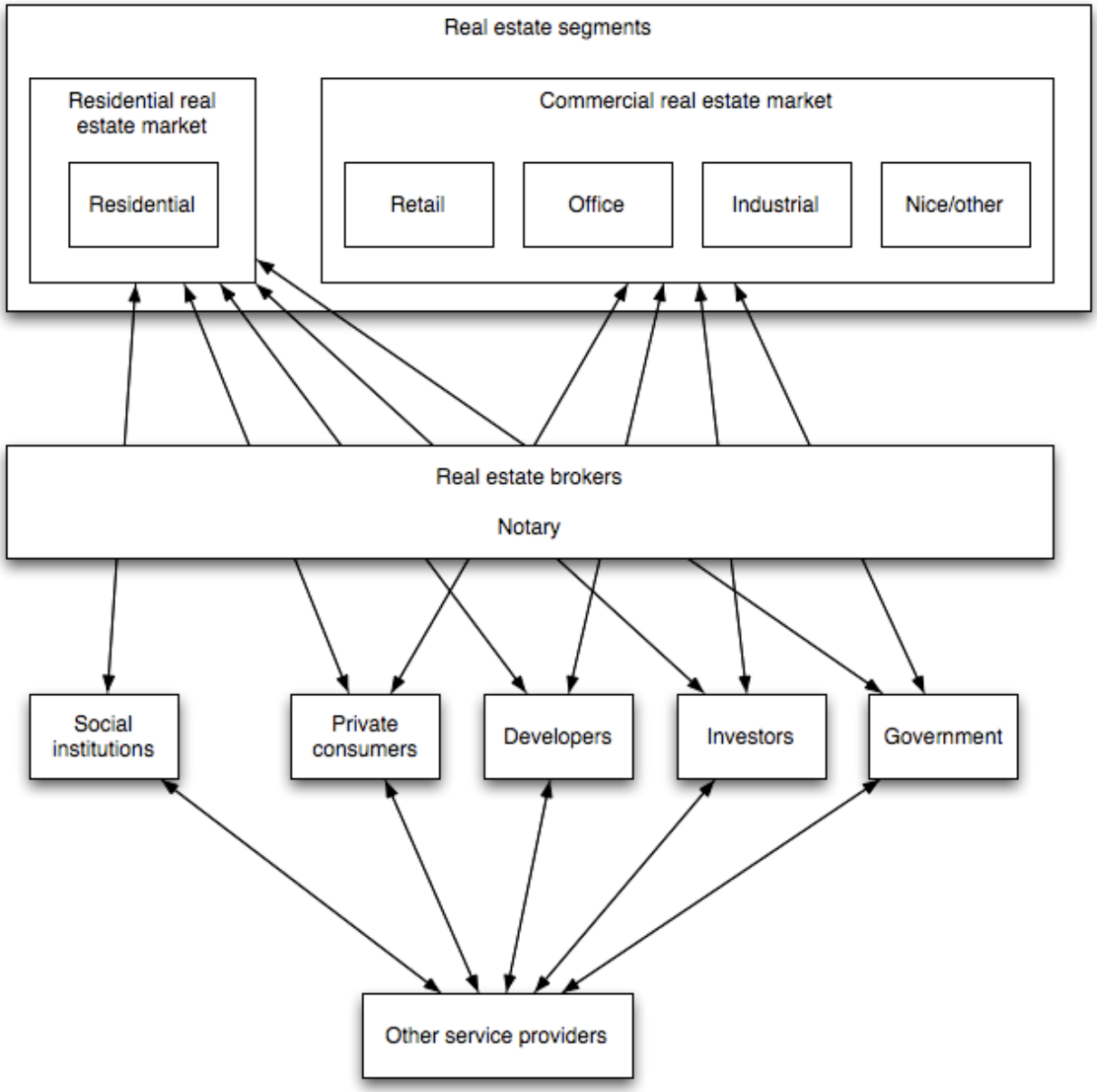
Source: ROZ/IPD Dutch Property Index. A total of 43 funds and a total of 5.020 properties result in the displayed distribution among segments the institutional investors invest in on average.

Table 2.1 shows that almost all trade is in the segments residential, retail and office. The reason is, that industrial objects are most often objects custom build for a single company. This can mean that, other than to the company itself, it has very little value to other companies, because they might use different processes. Also the segment 'nice/other' is a small category in terms of capital value, again, because these are specialized objects. It is difficult to establish a good value of a road or a hospital, because they also serve a social purpose.

Government

The government is active in the real estate sector in different ways; as a user, the lawmaker, the owner of parcels (that will be build on) and the role of a landlord. (KLPD, 2008, p. 75) The Service of Housing and Construction (in Dutch: Rijksgebouwendienst) owns, develops and renovates several real estate objects (about 2000 according to Nelen et al (2008)). The traffic police owns a parking area where towed cars can be stalled. The government is similar to the private consumer, but the main difference is that the real estate objects of the government serve often a social purpose. Furthermore the government serves as a stabilizer in the market, for instance by purchasing objects from defaulted homeowners and selling them again to the market at market prices.

Figure 2.1: The real estate market



Source: made by author. The five different active players buy through real estate brokers and notary on the residential real estate market and the commercial real estate market. The other service providers like banks support these active players, as described previously.

Service providers

The service providers are, in principle, never the actual owner, buyer or seller of the real estate object, but are involved in the process. The three main service providers for the real estate markets are the notaries, real estate brokers and financial institutions. Notaries are involved because by law, a notary has to write the deed of conveyance

(see also chapter four on legislation). Real estate brokers are the intermediary between the buyer and the seller. Banks and other financial institutions provide mortgages and loans with which other players can purchase objects on the real estate market. Other service providers are for instance independent appraisers, websites like Funda.nl that offer an online overview of the market and advisory bureaus that can be hired to find the perfect location and object. To conclude, figure 2.1 shows graphically how the two markets and its players are integrated in the real estate market.

As can be seen, the six players (where five players are active players and the service providers are supporting these five players) are active in five segments in two different real estate markets. Keep in mind that even though this version looks a little complicated, it is still a very simplified version of reality.

2.2. Speculation

Supply and demand on the market are very heterogeneous. Each object differs, so does the need of the buyers. This also means that there is no market-clearing price (Smith et al, 1988) and therefore the 'true' value of an object is difficult to assess.

Another feature of this market with respect to the heterogeneity is that the product 'house' includes the product 'land'. If two identical houses were constructed, they would not be worth the same, or have the same characteristics. The product of housing services has spatial fixity, which means that the distance from important locations (a shopping mall for instance), the nature of land use in the neighborhood and the local government all play a role in the characteristic of the product according to Smith et al (1988).

On top of that, the amount and type of land is a constraint for the housing services. This means that an enormous castle cannot be built on a steep mountain slope, or in the middle of a city for that matter. The product is bounded in its possibilities, making it again impossible to create the right product for every consumer.

Another very specific feature is the very inelastic supply curve of the market. In times of high demand, supply does not react immediately. A plan has to be made, land has to be bought and the buildings have to be constructed. This takes some time, making it nearly impossible to track the actual demand of the market. Policy makers try to predict the future demand of housing services in order to match this demand with the supply.

The advantage of the good in this respect is its long durability. Although it is quite sensitive to maintenance, the good can last for decades easily. In 2007, 87.537 new houses were built, which is about 1,3 percent of the total number of houses (in the last 20 years, each year about 1,4 percent of the total number of houses is newly build according to CBS StatLine). This means that it takes about 70-80 years to renew the entire housing stock, which shows the durability of the good. And this does not even include the rise in objects due to the rise in demand, because of the ever-growing population.

The above characteristics already indicate that the real estate market is far from being a perfect economic market and prone to speculation. Gau (1985) uses an asset pricing model to estimate the abnormal returns resulting from public information, major changes in government taxation and rent control policies as well as unanticipated changes in interest rates (Gau1985). Since real estate investors were not able to achieve abnormal returns, he concluded that the market for real estate is 'semi-strong form' efficient. The price fully reflected all public available information, including past price movements. Private information did however not show in the price of the real estate object, which makes the market no 'strong-form' efficient market. The research of Clayton (1998) further proves the semi-strong form efficiency of the market, by finding consistent results for "a market that overreacts to changes in fundamentals and pushes house prices above fundamental value in market upswings" (Clayton, 1998, page 52). Current housing prices partially predict future housing prices, which means that the current price includes previous price movements, consistent with the semi-strong form efficiency definition. This means that in a booming market objects are overpriced, because the "[p]redictable components in housing returns may represent irrational expectations, or time-varying risk considerations, or model misspecification due to neglect or transactions costs and

other market frictions that drive a wedge between observed house price dynamics and those predicted by the frictionless asset-based, rational expectations model" (Clayton, 1998, page 52).

The current state of the real estate market shows that these conclusions still hold. Especially the real estate market of the United States supports this approach. The rise in the housing prices in the past decade offered a way to expand the credit maximum, as everybody, including banks were convinced the price would never stop rising. This caused an enormous bubble, which, when it eventually burst, caused a lot of trouble for a lot of homeowners (followed by their banks and then the world economy).

2.3. Mortgages and taxes

About 90 percent of houses have been purchased with a mortgage (CBS StatLine). A mortgage is a loan where the house serves as collateral. If the borrower cannot pay its down payments, the house is sold and the lender can get its money back. By Dutch law (article 227 of the Civil law (Burgerlijk Wetboek)) the lender has a priority over all other lenders to redeem its debt. The advantage the borrower of a mortgage has is obvious, because of the mortgage, he or she can purchase an object that would otherwise be too expensive to purchase. Furthermore the rents paid on the mortgage can be deducted from the taxes, so it gives a tax advantage too.

Two taxes are important in the real estate sector. The 'eigenwoningforfait' is applicable to homeowners. Because the comfort of having a house is seen as a sort of income, tax has to be paid on the house. This is about 0,55 percent of the appraised value (WOZ value, see paragraph 2.5), with a maximum of 9.300 Euros.

The 'overdrachtsbelasting' (conveyance duty) is applicable to transfers (not for new houses or for offices and other large real estate, on these objects the subject has to pay BTW (VAT)) and is 6 percent of the purchase sum. The buyer of the house most often pays the conveyance duty, which is why it is called 'kosten koper' (costs of buyer). If A purchases an object from B it has to pay 6 percent conveyance duty. If B then sells the object within 6 months to C, C can deduct the conveyance duty B paid from the conveyance duty C has to pay (article 13 of the Tax Law ('Wet Belastingen van Rechtverkeer' or 'WBR'). In practice this means that B and C agree

that what C can deduct will be added to the purchase sum, so that B can gets its conveyance duty back and C pays the conveyance duty as if it was a normal purchase. This is an interesting rule for investors, because they can save 6 percent of the purchase sum by selling it within 6 months.

2.4. Real estate market in numbers

The real estate market is large in volume and absolute values of the objects, has a high number of transactions, is international, has little or no supervision and is a very non-transparent market. (Nelen, 2008)

Table 2.2: Number of WOZ-objects in the Netherlands

Period	Total WOZ-objects	Houses	Recreational or other houses	Non-houses, partially inhabited	Non-houses, not inhabited
1997	7.319.130	6.216.391	287.704	171.839	643.196
2000	7.720.019	6.520.910	350.756	166.448	681.905
2003	7.950.128	6.715.556	391.697	143.115	699.760
2006	8.106.502	6.868.427	404.040	126.760	707.275
2007	8.153.657	6.941.621	406.379	98.002	707.655
2008	8.233.038	6.998.959	410.266	96.951	726.862

Source: CBS. The numbers of 2006, 2007 and 2008 are provisional.

Table 2.2 shows the number of WOZ-objects in the Netherlands, split into different categories. The WOZ stands for ‘Waardering Onroerend Goed’, which is the appraisal value adopted by law in 1994. The WOZ value is set by the municipalities. It is used by the municipalities for ‘onroerend zaakbelasting’, by the Dutch Tax Administration for ‘inkomstenbelasting’ and ‘vennootschapsbelasting’ and by the local Water Board for ‘waterschapsbelasting’. By law all the real estate has to be appraised on the same day, the reference day, which is the first of January. Because this is practically impossible, the real estate is appraised during a longer period and then corrected to this reference date. The price paid for a comparable house in the neighborhood (mostly only the same street) is the basis for the WOZ value. For instance a dormer or a garage can mean the actual value can be quite different. Inhabitants can appeal

against the appraised value. A lower WOZ value will mean they have to pay lower taxes. Because inhabitants will only appeal against a too high value, and not a too low value, and because the reference day is used for the next year (so the first of January 2008 will be used for whole 2009) the WOZ value is on average 30 percent (for instance Ferwerda et al (2007)) lower than the market price. A couple of objects are not appraised for WOZ, such as public roads, churches and farmland.

The table is divided into four categories, houses, recreational and other houses, non-houses that are partially inhabited and non-houses that are not inhabited. The first category, houses, is the most obvious and also by far the largest one. In 2008 about 85 percent of the total number of WOZ objects consisted of houses. This category concerns objects of which the main purpose is to live in them. This also concerns houses that have practices attached to them, for instance with doctors or notaries.

The next category is recreational and other houses. The same reasoning as for houses applies here; the main purpose must be living in the object. However this category is a distinction for objects that are closed for a period of the year (recreational houses), not independent (like old people homes, student rooms or monastery's) and other like garages or barns. For garages there is no distinction between a garage that is separate to the house or a garage that is in the house.

The last two categories are non-houses, with a distinction between partially inhabited and not inhabited objects. Non-houses are objects where the main purpose is business activities. Objects that are partially inhabited are for instance farms that are actively being used for agriculture and shops that have homes attached to them. Not inhabited non-houses are objects that have the sole purpose of business activities such as offices, shops, hotels and pensions but also special buildings like hospitals, prisons and schools. All terrain (excluding farmland) is also embedded in this category, such as parks, sport fields and building sites.

Table 2.2 shows that the number of objects in the real estate market is growing by 13 percent since 1997. Nonetheless, the total market has an average growth of one percent for the last seven years, which shows that the market has a lot of potential for trading. With that the market complies with the first condition. The second condition is that the values of the items that are being traded have to be large enough to exchange large sums of dirty money for clean money. Real estate is known for its

large values. Table 2.3 illustrates the value of the Dutch real estate in millions of Euros.

Table 2.3: Value of Dutch real estate in millions of Euros

Period[3]	Total value of objects	Value of houses	Value of non-houses
1997	717.184	497.622	215.785
2001	764.649	878.075	289.358
2005	1.217.238	1.384.175	376.899
2007	1.924.580	1.523.442	401.139
2008	2.068.697	1.646.255	422.442

Source: CBS. Number of 2006, 2007 and 2008 are provisional.

Compared to table 2.1, this table has only two categories, houses and non-houses. In comparison with table 2.1, the category 'houses' is the combination of houses and recreational and other houses. The category 'non-houses' is the combination of partially inhabited non-houses and not inhabited non-houses. Again it shows that the category 'houses' is the largest category, with about 80 percent of the total in 2008. If we use table 2.1 on table 2.2 the average growth of value per object can be calculated, which is about 11 percent for houses and about 7 percent for non-houses between 2001 and 2008. This also shows that the market has a large potential, although it might not be for the next year or so, because of the credit crisis.

The average price of houses (excluding recreational and other houses) was 232.000 Euros in 2008. Including recreational and other houses it was 222.190 Euros and for non-houses (both partially and not inhabited) it was on average 512.789 Euros. These figures show that the objects that can be traded are indeed of a very large value. A

[3] The years that have been used are the years where all the objects have been valuated, except for 1997, which is the first year that is available. For 1997, 1998, 1999 and 2000 the reference day the first of January 2005 is used. For 2001, 2002, 2003 and 2004 the first of January 1999 is used, for 2005 and 2006 the first of January 2003, for 2007 the first of January 2005 and for 2008 the first of January 2007. The discrepancy in dates is because of changes in the law on WOZ valuation that has been changed to a yearly valuation in 2008.

quick look at Funda.nl[4] shows that the cheapest house in Utrecht (total number of offered houses is 2.002) is for sale at 62.000 Euros, and the most expensive is 1.430.000 Euros. This not only illustrates the values that are possible in this market, but also the sheer diversity of the market. For non-houses in Utrecht (total of 20 objects offered) the cheapest is for sale at 78.000 Euros and the most expensive at 2.600.000 Euros. Although a significant proportion is not shown on Funda (think of large office buildings and entire brain parks that are for sale for several millions of Euros), this again shows the diversity and large values of the market. In addition as an illustration, if the 18,5 billion Euros that Unger (2006) estimated is laundered completely in the real estate market this would only be 0,9 percent of the total value of real estate. On the other hand, 18,5 billion Euros would be enough to buy the city of Leeuwarden (and still have three billion Euros change).

The characteristics of the real estate sector which have been shown, such as the heterogeneity and inefficiency as well as the non-transparency make it prone to speculation and a good potential for money laundering. The numbers have shown that the market is large enough to launder large amounts of money. With over 8,2 million objects, a money launderer can easily hide its activities in the mass of the market. And with the wide range of values for these objects and the true value which is difficult to determine, all different amounts of money can be laundered, from millions to relative small numbers of a couple of thousand Euros.

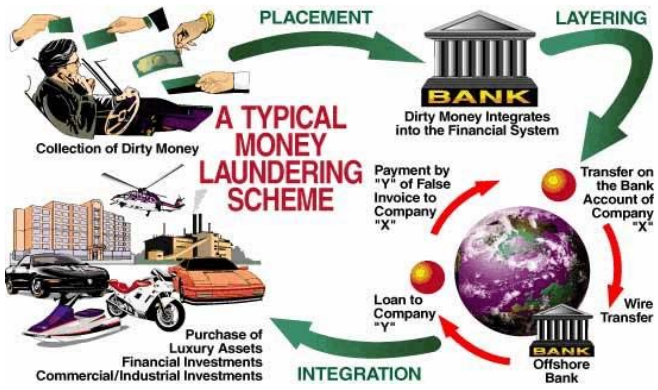
To sum up, the real estate sector is by its very nature complex and prone to criminal abuse and, therefore, gave rise to a number of studies which will be presented in the next chapter.

[4] Checked on 10th of Oktober 2008. Funda.nl is a website where almost all houses and a proportion of non-houses that are for sale are shown.

3. Criminal abuse of real estate

Real estate objects can be used in a number of ways for criminal purpose. In the literature, a distinction is made between criminal exploitation and criminal speculation. Money laundering belongs to the latter category and is defined as a series of activities meant to disguise the origin of illicit funds. It can refer to the first phase of laundering, where one tries to place the illegal money into a real estate construction (e.g. giving partly cash money to a real estate agent in order to buy a house), to the second phase of laundering, where one tries to pump the money around the world (e.g. a foreign bank giving a loan to a person buying a house, where the loan is in reality the hidden money of the person buying the house) and to the third phase of laundering. Here the criminal parks the money in the real estate sector and is not interested in trading in real estate but in investing.

The three phases of money laundering



Source: UNODC (2006)

However, real estate can also be used for criminal investment with no intention to launder money. For example an ecstasy producer who buys a house in order to use it for ecstasy pill production, might not do this with the intention to hide the illicit origin of his money, but just to do criminal business. In this study, we did not (and could not) distinguish between money laundering, an offense which is criminalized only since 2001 in the Dutch penal law, and criminal investment without the intention to hide illicit origin of money.

3.1. Methods

In the literature (for instance Ferwerda et al (2007) and Belastingdienst/FIOD-ECD (2008)), generally four different money laundering methods are identified; the' loan back' method, the 'back to back loan' method, the 'ABC-construction' and 'carousel fraud'. The first two methods are generally used to hide the Ultimate Beneficial Owner and the other two are used to launder money through the transaction itself.

Loan Back Method

If a criminal would invest criminal money in real estate objects without any concealment efforts he would surely be noticed by the authorities. Most likely, in no time the Tax Authorities Office would start asking questions about the source of the money and without any 'laundering' efforts the criminal would be identified as a criminal. Thus, if a criminal safely wants to invest in real estate objects he must conceal the origin of his money. The loan back method is one way of doing that.

The loan back method involves a loan to oneself, usually through a network of legal persons, in order to conceal the origin of the loan and to conceal the actual ultimate beneficial owner (UBO) (FATF, 2006; FATF, 2007; KLPD- IPOL, 2008; Nelen et al, 2008; Van de Bunt et al, 2007). This method can involve the (ab)use of: foreign legal persons; thrust and company service providers (TCSP's) and; bearer shares (FATF, 2006; FATF, 2007; Van de Bunt et al, 2007). However, it can also involve less complex structures, such as the mere (ab)use of domestic legal persons. The essence of a loan back scheme however – lending to oneself and concealing the origin of the loan – remains the same. An example of a complex international scheme is added in box 1.

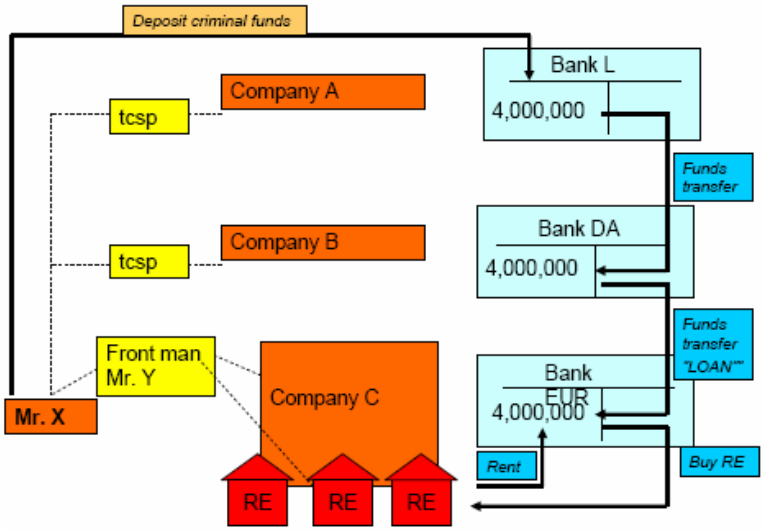
Box 1 (FATF, 2007)

Mr. X deposited money earned from drug activities into Company A's account at offshore bank L. Mr. X set up Company A in order to disguise his identity and to place his criminal funds at the bank under false pretences. Mr. X also held bearer shares issued by Company A. Mr. X established Company B in another offshore jurisdiction under the same circumstances.

Mr. X was shareholder of Company A and B but was not registered as such in the public registers (bearer shares). Mr. X made use of a local TCSP in each location and gave them power-of-attorney to act as his legal representative. The local TCSP opened accounts at Bank L and DA on behalf of Company A and B respectively. The TCSP's explained to the banks that the companies that they represented were part of an international structure and that they wanted to benefit from favorable tax arrangements by means of inter company loans. This was the reason given for frequent debits and credits of the accounts for incoming and outgoing foreign funds transfers.

Mr. X set up Company C in the European country where he is living. Mr. X is owner of Company C however, he uses a front-man, Mr. Y who is the owner and manager according to the Chamber of Commerce and the shareholders register. Company C conducted legal counseling activities. This way Mr. X was able to monitor and control the activities in Company C without becoming known to the authorities. Mr. Y opened accounts on behalf of Company C with Bank EUR.

Mr. X used Companies A,B and C to set up a loan-back scheme in order to transfer, layer and integrate his criminal money. The criminal funds, initially placed in the account of Company A in a bank in an offshore jurisdiction, were ultimately invested into real estate in Europe. The real estate was used to expand his legal counseling activities in Company C. The set up of the international loan-back structure, involving Company A,B and C, complicated the audit trial, legitimated the international funds transfers between the various bank accounts of the companies that Mr. X controlled. Also Mr. X co-mingled the criminal funds, disguised as a loan, with the funds originating from the legal activities of Company C, which made the criminal funds difficult to detect and to trace, thus involving a company with legitimate activities in the money laundering scheme.



Mr. X arranged for Mr. Y to buy real estate. To finance the transaction, Mr. X arranged for a loan agreement to be drawn up between Companies B and C. The parties in the contract were the TCSP of Company B and Mr. Y of Company C. To execute the cash disbursement under the loan, Mr. X ordered the TCSP of Company A to transfer funds from the account in Bank L to the account of Company B in Bank DL. Next he ordered the TCSP of Company B to transfer funds from the account in Bank DA to the account of Company C in Bank EUR. The description given to Bank DA and EUR referred to the loan agreement between Companies B and C. The funds deposited in the account of Company C in Bank EUR were then transferred to the seller of the real estate. Periodically Company C made payments of the principal and interest to Company B from the earnings of the counseling activities. Company B transferred the money to Company A which was used to finance the criminal activities undertaken by Mr. X. The interest costs were deducted from the taxable result and declared in the tax return.

The example in box 1 perfectly illustrates a case of the (ab)use of a complex international structure of legal persons to conceal the origin of criminal money – and the actual UBO – invested in real estate. However, a loan-back scheme can be far less complex and does not necessarily involve an international structure. In some cases it concerns a network of domestic companies, usually owned by a front-man, involved in intercompany loans. In these cases, companies can for example create falsified orders and bills to account for the capital they invest through loans or mortgages.

Back to back method

The 'back to back loan' method is similar to the loan back method, with the main difference that the financier of the mortgage is an independent third party (Belastingdienst/FIOD-ECD, 2008). The cash made from the criminal act is, again, moved to a foreign bank account. After this is done, the bank is asked to issue a bank guarantee. With this bank guarantee, the money launderer can prove to a third party financier that he or she is solvable and thus able to pay for the monthly rents and the debt retirement of the mortgage. The mortgage is issued as it would for any other consumer and the money launderer can use the 'clean' money to purchase an object with the dirty money as a bank guarantee.

ABC-construction

It is important to keep in mind that ABC-constructions are not illegal, as long as the transactions are transparent and in line with the law (Ferwerda et al, 2007). It is a common tool used in the real estate business. An ABC-construction misused for money laundering purposes can work like this. Person A is about to sell his property to person C. Before the purchase is made, A sells it to a helper B for a higher price. The notary (who in this particular case is also part of the game) will show C the last purchase price, which is actually higher than the real value. Person C will buy the property for a too high price, unless he appraises on its own. This might sound like a logical thing to do, but the real estate agents buy several items a day, and can buy a whole block of buildings at the same time. They rely on their experience to determine whether the price is good. An agent can also play a part in this game, e.g. giving a fake taxation, which is too high. Furthermore, real estate can be sold multiple times, thriving up the price even more. What also becomes clear from this ABC-construction

is that notary and agents can also play a role within the criminal organization. A good example was published in the NRC newspaper (07-06-2008, Waakhond zit zelf in 'fout' pand). The "Bureau Financieel Toezicht" (Bureau Financial Supervision) is the supervisory body monitoring the work of notaries. During the execution of this duty, the BFT found a number of money laundering cases. But it turned out that the actual building the BFT is located in, was part of an illegal ABC-construction. The building, located next to the highway A27 near Utrecht was sold in 2007 through an ABC-construction. Former director of "Bouwfonds", Jan van V., prime suspect in the real estate fraud case of the Philips Pension fund, made 2,5 million Euros with this deal in one day. This example shows that the ABC-construction can be used anywhere.

Another example from a Tros Opgelicht episode (Dutch tv-show) about ABC-constructions might be more close to home. Assume you want to sell your house, but the market is slow and it will not sell. You already dropped your price a bit and then after a long wait a broker comes along who offers to buy the house, but at a price far lower than what you ask. Your own broker advises to sell anyway, because the house will not get sold in any other way. You decide to sell against the low price, leaving you with not enough money to pay for your mortgage. The broker that bought the house initially made it look like he wanted the house for himself, but he has a double agenda, because he is actually performing on behalf of an interested buyer. The broker buys your house for a very low price, and immediately sells it to its customer for the higher price, giving him a nice profit.

Carousel fraud

Carousel fraud is the case when an object is sold disproportionate number of times to thrive up the price (Ferwerda et al (2007) and Trouw & Knobbout (2007)). Carousel fraud can be achieved through ABC-constructions, where multiple links are between person A and the person that the object will actually be transferred to. The reason for carousel fraud is often mortgage fraud, where they make it seems the object is very worthwhile, while the price is actually a large bubble created by the carousel. It is believed to be widespread among the market, but according to van de Bunt et al.

(2007), the percentages are very low[5] (In Rotterdam only 0,43% of houses were sold more than four times between 2000 and 2006, The Hague 0,27%, Amsterdam 0,07% and Utrecht 0,05%).

3.2 Other criminal use of real estate

In the study of Ferwerda et al (2007), a distinction was made between fraudulent activities with regard to criminal exploitation and criminal speculation. With regard to speculation, we already described various forms of dishonest ABC-constructions. Reference was also made to mortgage fraud. The essence of this criminal activity is that individuals or groups try to obtain a (higher) mortgage under false pretences (such as falsified income data or fake identity papers). A third category of criminal speculation is tax fraud. This category manifests itself in more than one form. Underhand payments for real estate are probably the best-known and most widespread manifestation (Ferwerda et al., 2007). Parts of the transaction are kept out of the books in order to evade income and property tax. Another form of tax fraud consists of putting forward a straw man in the transaction chain in order to conceal the identity of the selling party. In the Dutch fiscal system, individuals who buy or sell property on an incidental basis are less liable to taxation than persons who are registered as professional real estate agents.

The fourth category in relation to criminal speculation is corruption. Research on criminal cases and convictions on corruption charges in the Dutch Criminal Code support an image that the corruption problem in the Netherlands is rather limited (Huberts and Nelen, 2005). However, publications of Dutch journalists on a number of ‘corruption’ cases resulting from close relationships between local public functionaries and businesses in the construction and real estate industry have revealed that policy makers and politicians sometimes are receptive to corruption and collusion.

[5] The fact that the frequency is low does not mean per se that the impact is also low, carousel fraud could have a significant impact on a neighborhood, especially when these cases are geographically clustered.

In the study of Ferwerda et. al (2007), three different forms of dishonest exploitation were found. The first form is unlawful occupation, i.e. the illegal (sub)letting of private homes to individuals who are legally or illegally residing in the Netherlands. The second form refers to rack-renters exploiting their tenants, mostly migrants who are not allowed to stay in the country. The third form entails wrongful use, which means that the house is used for purposes other than regular housing. This may vary from illegal boarding houses to using the property as a cover for criminal activities such as cannabis farms, trafficking in human beings, money laundering and illegal prostitution (Ferwerda et al., 2007).

A report of the Belastingdienst/FIOD-ECD (2008, page 9) also indicates that real estate can serve many other purposes. It can function as a (luxurious) accommodation for both legal and illegal activities. Often companies that do not hold stocks are being used, so the sales cannot easily be linked to the amount of products sold. One can think of Internet cafe's, transportation companies and companies that have activities in prostitution. The profit of legal activities is supplemented with 'dirty' money. The same trick can be played for renting out rooms. For instance, the renter pays 300 Euros a month, which is supplemented with another 300 Euros a month of dirty money, and 600 Euros of rent is what will be in the contract.

Another trick is buying an empty office building and then finding a renter for this property. An office building with a renter is worth far more than one without a renter. A building that costs 100 million without a renter can go for 300 million with a renter (see also example below). The renter can be fake, for instance a company that goes 'bankrupt' three months after sale. This harms the new owner, but he or she will not have any proof that a con is used. (Trouw & Knobbout, 2007).

4. Research Method and Indicators

4.1 Research method

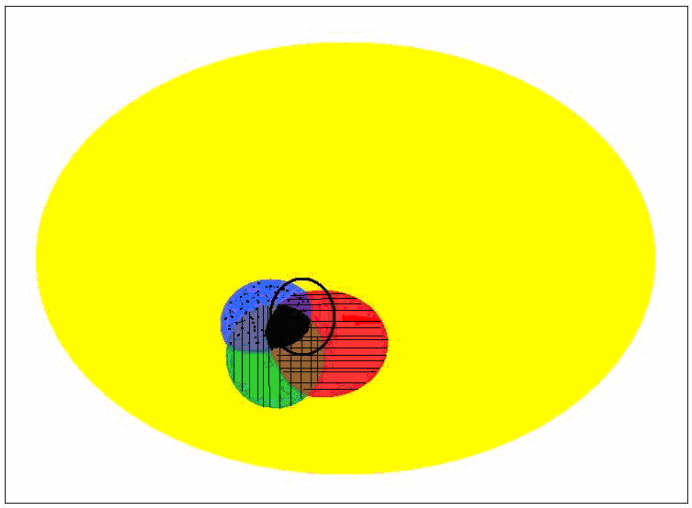
Although "it is often extremely difficult to identify real estate transactions associated with money laundering" (FATF, 2007, p.5), the aim of this research is to develop a data research method which enables its user to filter out conspicuous real estate transactions and distinguish them from all the ordinary ones. We are looking for the transactions of real estate objects with another motive than the standard transactions: the outliers. According to the definition an outlier in general is an observation that deviates so much from other observations as to arouse suspicion that it was generated by a different mechanism (Hawkins, 1980). In this report a 'data mining' or 'outlier mining' technique is developed for the detection of criminal investments in the real estate market. "Outlier mining focuses on the rare data whose behavior is very exceptional when compared with the rest of the large amount of data. This exception identification can lead to the discovery of unexpected knowledge. Outlier mining has been realized from several approaches or technologies in the field of statistics, machine learning, artificial intelligence, visualization and database management. Finding these outliers in large datasets has drawn increasing attention among researchers", (Shaari, Bakar & Hamden (2008), also see; Hodge & Austin (2004), Knorr & Ng (1998), Breunig, Kriegel, Ng & Sander (2000), Chiu & Fu (2003), Aggarwal & Yu (2001), He, Xu & Deng (2003), He, Huang, Xu & Shengchun (2004), Hawkins, He, Williams & Baxter, (2002) and Williams, Baxter, He, Hawkins & Gu (2002)) who developed all kinds of outlier detection methods (for an overview paper about outlier detection in real estate transactions, see Kontrimas and Verikas, 2006).

To find the criminal investments between all the usual transactions of real estate we have developed (in this chapter) a list of characteristics, which are associated with criminal investments in the real estate market, the so-called 'red flags'[6]. This is in line with the remark of Nelen et al. (2008, p.75) that illogical and

[6] With respect to the use of red flags, we follow the phrasing and research method of FATF (2007) and FEC (2008).

unusual behavior in the real estate market indicates an increased risk of criminal behavior. Although a single characteristic is not conclusive by itself to arouse the suspicion of a criminal investment (like also mentioned in Nelen et al., 2008, p.45), we believe that the combination of these characteristics might be. To give an example; although it is often mentioned in the literature (see below the discussion of indicator 1.1) that many criminal investments in the real estate market are financed with money from abroad, we cannot, of course, conclude that all real estate transactions financed from abroad are suspicious. But we can label them unusual[7] and conclude that the more unusual characteristics a transaction has the more it should arouse suspicion (this is in line with the vision of Belastingdienst/FIOD-ECD, 2008, p. 28).

Figure 4.1: Explanation of method used for this research



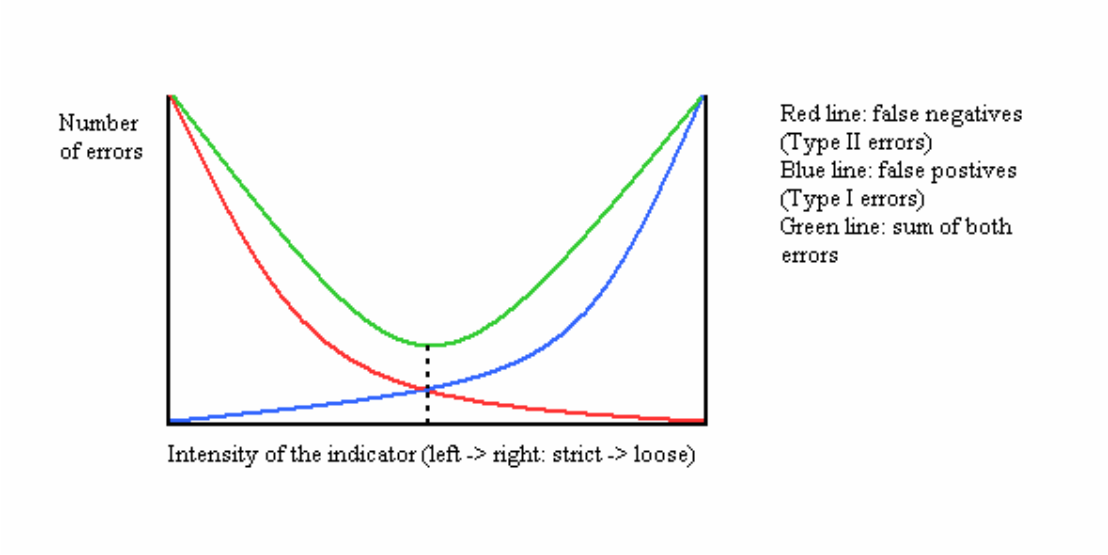
Source: made by author. The outer circle shows all the real estate objects. The red, green en blue circles are three indicators. The black open circle represents the criminal investments in this market.

To present this research method visually, we refer to figure 4.1; the outer circle represents all the investigated real estate objects, the blue, red and green circles are the subgroups found with the indicators. The black surface is the congruent of real estate objects, which have the characteristics of all the three indicators. The black open circle represents the criminal investments in this market (the subgroup we are

[7] By using the word unusual, we follow the phrasing of FIU's which distinct between unusual transactions and suspicious transactions.

looking for), we assume that by using more and more indicators this circle will be filled more and more with darker surfaces. After assigning all the indicators, a threshold level will be chosen, which means that not only the objects with only red flags (like is now the case with the black surface) but also objects with a significant amount of red flags (other dark surfaces) will be marked as conspicuous. When using indicators or proxies instead of actual data, one is always confronted with the trade-off between false positives and false negatives, or the so-called type I and type II errors, respectively. A false positive (or type I error) in this specific research occurs when an object is marked as (potentially) criminal while it actually is not. A false negative (or type II error) occurs when a criminal investment is not detected by our research method. The trade-off between these two errors is visualized in figure 4.2. The figure is best explained by discussing the two extremes; a very strict indicator and a very broad indicator. When one chooses a very broad indicator (right end of the graph), one marks almost all objects as unusual, and therefore has very few false negatives (type II errors, the red, downward sloping line) at the expense of a lot of false positives (type I errors, the blue, upward sloping line). When one chooses a very strict indicator (left end of the graph) one will hardly mark any object as unusual and therefore will have almost no false positives (type I errors, the blue line) at the expense of a large amount of false negatives (type II errors, the red line). The optimal point of this trade-off can be found at the minimum of the sum of these two errors (the green line), when one attaches equal importance to both errors. Since we do not know the amount and type of errors we are making, we decided to circumvent this dilemma by choosing a different research method. We will not mark any object unusual based on just one indicator, but only based on the combination of several indicators. Since we assume that real criminal activities have an increased chance of receiving more red flags than normal activities, we can conclude that the number of false positives (type I errors) will diminish soon, once we start looking at the combination of several indicators. Therefore we focus more on the false negatives (type II errors) of a single indicator than the false positives (type I errors). This means that we will use relatively broad indicators in the first step (and therefore accept an increased degree of false positives).

Figure 4.2. Trade-off between false positives (type I error) and false negatives (type II error)



Source: made by the author

Since it is unclear which characteristics should arouse the most suspicion, we decided as a logical first step that all the characteristics are of equal importance. We gave every real estate object a so-called 'red flag' when it has a characteristic, which is associated in the literature with criminal investments in the real estate market. This leaves us with the question when a real estate object is unusual and when it is not, or, put differently: how many red flags makes a real estate object unusual? What is the threshold level? These questions, together with the question on the relative importance of every indicator, cannot and will not be answered in this part of the research. We will leave these questions for now and try to answer them at the end of the research when we evaluate the research method. In the second step of this research project (the in-depth criminological research) it will become clear whether the real estate objects which aroused the most suspicion by means of this method are indeed conspicuous or not. This information (together with the same information on a control group) will give us enough information to find the threshold level for conspicuous objects and the importance of every single indicator by use of statistical methods like factor analysis, sensitivity analysis, regressions, correlations and others.

4.2 Indicators

After an extensive literature research table 4.1, which is shown below, was compiled. This table lists all the characteristics mentioned in the literature that are associated with criminal investments in the real estate market in general and money laundering in the real estate market in particular. In this chapter we will explain and discuss all these indicators in detail and give the most important references.

Table 4.1: List of indicators

1.1	Financier is from abroad
1.2	Financier is a person not a company
1.3	Financier is a non-business party
1.4	Financier has unregistered shareholders
2.1	Financing has an unusual amount compared to income
2.2	Financing has an unusual amount compared to appraised value (WOZ)
2.3	Financing is not used (no mortgage)
2.4	Financing has a creditor and a debtor being the same subject
3.1	Owner is from abroad
3.2	Owner is a person with antecedents
3.3	Owner is a person with a disproportionate number of objects
3.4	Owner is a person with a disproportionate number of purchases
3.5	Owner has a fast growing real estate portfolio
3.6	Owner is a straw man
3.7	Owner is a company with an unclear Ultimate Beneficial Owner
3.8	Owner is a company with a particular exploitation
3.9	Owner is a company just established
3.10	Owner is a company almost closed
3.11	Owner is a company without employees
3.12	Owner is a ‘world citizen’ (unknown by the Tax Administration)
4.1	Real estate object has multiple transactions
4.2	Real estate object is in a very bad neighborhood
4.3	Real estate object is in a very good neighborhood
5.1	Purchase sum is unusual compared to the appraised value (WOZ)
5.2	Purchase sum is unusual compared to previous purchase sum

1. Financier

The financier provides the mortgage for the purchase of the property. Most often this will be a known Dutch bank but there are many other financiers possible. Some characteristics of the financier can be seen as unusual and are often mentioned as a characteristic of criminal investments in the real estate market.

1.1 Financier is from abroad

When conducting a criminal activity in the real estate market, like investing proceeds derived from criminal activities, it gives certain advantages to use a foreign financier. The misuse of a foreign legal person as a financier is according to van de Bunt et al. (2007, p. 67) the prototype of disguising the fact that you invest your ill-gotten gains into the real estate market. The idea is that it becomes harder to discover the origin of the money when a, preferably anonymous, foreign company is used for the financing of the investment. Also the Dutch Tax Administration (de Belastingdienst) and the Dutch financial intelligence and investigation unit (FIOD-ECD) warn in their report (2008, p. 12, p. 20, p. 23, p.32 and p.33) about the use of foreign companies providing the finance of real estate, because they cannot retrieve the necessary information to check the legitimacy of the money. The Dutch financial expertise unit FEC (2008) mentions that the financing of real estate from countries with bank secrecy or where the beneficial owner can be anonymous should be treated as a red flag.

Many cases can be found in the literature where foreign companies play an important role in money laundering constructions. For instance case 1.1 in FATF (2007), which gives an example of money that was invested in the Dutch real estate market with loans from several foreign companies, which were actually controlled by the person receiving the loan. This is a perfect example of the loan-back method explained in the previous chapter. The idea is that you can invest your own (dirty) money by first transferring it to a foreign country and then lend it back to yourself. This disguises the origin of the money, which is exactly the aim of money laundering. The use of foreign companies for the loan-back method is for example described in Nelen et al. (2008, p. 54-55), Trouw & Knobbout (2007, p.10) and Belastingdienst/FIOD-ECD (2008, p. 13). In FATF (2007) a similar construction can be found in case 4.1, where mortgage loans constituted in entities located in offshore jurisdictions are used to acquire an area of undeveloped land in Spain. This

undeveloped land was re-classified a few weeks later by the town hall where it is located so that it could be urbanized. Also in another report of the FATF (2006) we can find a case where a foreign company (located on Curacao[8] in this case) provides a loan used to buy real estate in Amsterdam (case 18, p. 43).

In some reports foreign countries in general are mentioned, while others mention that countries with bank secrecy or lax anti-money laundering laws are suspicious, but it is rather unclear which set of countries is meant by this formulation. It is rather discriminatory to use a certain blacklist of countries (see Rawlings and Sharman, 2006), so we drop the distinction between certain kinds of countries and consider the use of foreign financiers in general as a red flag.

1.2 Financier is a person not a company

When banks provide a mortgage to finance the purchase of real estate, there are certain control mechanisms in place, like checking the income compared with the wage of the applicant. Because this control is unclear in the case of persons providing a mortgage, this can be an indicator of the fact that this way of financing is used for dubious purposes. Persons are not normal business parties and therefore seen as unusual to finance real estate (Belastingdienst/FIOD-ECD (2008, p.33), van de Bunt et al. (2007, chapter 6) and FEC (2008), see especially the next indicator.

1.3 Financier is a non-business party

When the company providing a mortgage is a non-business party, this means that its activities lie outside the mortgage or banking market. For instance, a computer-selling company providing a mortgage to someone, is at least unusual, because it is not in their field of business. The Belastingdienst/FIOD-ECD (2008, p.33) states that a mortgage by a non-financial institution, together with other indicators, can point in the direction of money laundering, especially the loan-back or back-to-back loan method. See also van de Bunt et al. (2007, chapter 6) and FEC (2008), which

[8] One can discuss whether companies located on Curacao are domestic or foreign for the Netherlands. On the one hand, Curacao is part of the Netherlands Antilles and therefore part of the Kingdom of the Netherlands. On the other hand, Curaçao gained self-government on January 1, 1954 and has its own juridical system.

mentions that a mortgage by a non-business-party, especially foreign, must raise suspicion.

1.4 Financier has unregistered shareholders

The purpose of the loan-back method is to hide the actual owner. This can be done by establishing a company with unregistered shareholders. If you possess all the shares, you are the owner of the company without anyone knowing it. The result is that the Ultimate Beneficial Owner (UBO) is hidden, which is the purpose of the construction: to disguise the link between the owner and the money. This construction and the special attention to the use of companies with unregistered shareholders is mentioned in FATF (2007, p. 14), van de Bunt et al. (2007, chapter 2,4 and 6), Ferwerda et al. (2007, chapter 4) and Nelen et al. (2007, p.55 and p. 75). Also FEC (2008, p.16) raises a red flag when the financier of real estate purchases has unregistered shareholders.

2. Financing

Financing refers to the actual mortgage that is used to finance the purchase. The mortgage is provided by the financier, which is discussed above. In most 'normal' cases often you will see an executed mortgage which is lower than the maximum possible mortgage on that specific real estate object and which has a price comparable to the market price.

2.1 Financing has an unusual amount compared to income

A mortgage is provided on the basis of how much can be lent on that particular property (so the height of the mortgage cannot exceed the collateral, see the next indicator) and the wage of the applicant. A bank will for instance not give a mortgage of 250.000 Euros to an unemployed person, because the bank knows that it is unlikely that this person will be able to pay the monthly interest. Comparing the wage of a person with the provided mortgage is also proposed by van Duyne (2006, p.38). Later the FATF (2007, p.34) and the FEC (2008, p.17) also mention it as a 'red-flag indicator'. The Belastingdienst/FIOD-ECD (2008) states that in case of a person with a lack of financial possibilities to pay the monthly rent, receives a mortgage this is an indicator that the mortgage might be fictitious (p.13) and/or that a straw man (see also

indicator 3.6) is used (p.31). The Belastingdienst/FIOD-ECD (2008, p. 34-37) states that a mortgage of 5 times the annual income can be seen as the maximum.

This comparison is often mentioned in the literature as an important tool to detect mortgage fraud, like in Van Gestel et al. (2008, chapter 3), Ferwerda et al. (2007, chapter 4) and the Belastingdienst/FIOD-ECD (2008, p.24). The FATF (2007, p.15) describes an interesting case in this respect where a person purchases a real estate object in the Ukraine for 500,000 USD, while this person would have had to work for 200 years to acquire this amount through his legal income.

2.2 Financing has an unusual amount compared to appraised value (WOZ)

Another indication for a fictitious mortgage is when the mortgage is significantly higher than the appraised value of the object, since a bank will normally not provide a mortgage above the actual value of the property (Belastingdienst/FIOD-ECD, 2008, p.24). The FATF (2007, p.36) also mentions in their report that buyers taking a debt, which is significant in relation to the value of the property should arouse suspicion. A significantly high mortgage especially occurs in cases where a 'straw man construction' is used. For more information on the use of straw man, see indicator 3.6 or Belastingdienst/FIOD-ECD (2008, p.20-21).

2.3 No mortgage

Real estate is the most expensive property for most people and there are not a lot of buyers that have the wealth to pay the whole purchase sum without the use of a mortgage. The absence of a mortgage should raise the suspicion of the notary, according to FEC (2008, p. 19). The aforementioned Van Traa team in Amsterdam did a research specifically on real estate that was bought without the use of a mortgage, because they are convinced this is a helpful indication of money laundering (Trouw & Knobbout, 2007, interview 3). The absence of a mortgage when buying real estate is seen by van de Bunt et al. (2007, p. 114) as an indicator for the misuse of foreign legal persons.

This indicator is also apparent in case study 3.5 described by FATF (2007), where two high value properties (of more than 20 million euro) were bought in France with a single payment (not a loan), which later became known as an investment of dirty capital, disguised by offshore companies.

2.4 Financing has a creditor and a debtor that are the same subject

One of the standard methods described in the literature to launder money is the loan back-construction. This method is described in almost all literature on methods of laundering money, like Ferwerda et al. (2007), Nelen et al. (2008, p.55), Belastingdienst/FIOD-ECD (2008, p.12-13) and FATF (2007, p.7-8). The basic idea of this method is to lend the money to yourself to disguise the link between you, the money and the predicate crime. The use of transactions with yourself is mentioned as a characteristic of money laundering in the real estate market (Belastingdienst/FIOD-ECD, 2008, p.10). According to the Belastingdienst/FIOD-ECD (2008, p. 28) and the FATF (2007, p.35) the use of illogical and unnecessary complex financial constructions should arouse suspicion. We consider providing a mortgage to oneself as dubious.

3. Owner

The owner of real estate can be a natural person or a company. In the housing market we usually deal with natural persons. The behavior of natural persons and companies seems to be quite different in the real estate market. We will therefore often make a distinction between them, because both have their own risks. When this distinction is made, it will always be mentioned in the title of the indicator.

3.1 Country of residence

It is possible to buy real estate from all over the world. This is a good thing for foreigners who want to move here, but can also be a good thing for money launderers because they can buy real estate in the Netherlands from their foreign tax haven. Especially in the back-to-back loan construction the purchase of real estate is done from abroad, although it is often mentioned that this is done by offshore companies only (like in FATF, 2007, p.12-13 and p.35, Nelen et al., 2008, p. 75 and van de Bunt et al., 2007), it is also mentioned that it is done by foreigners in general (Nelen et al., 2008, p.54). Although it should be mentioned that offshore companies can be used for perfectly legal reasons like fiscal advantages (Nelen et al., 2008, p.73) we can restate that the suspicion of an object is eventually based on the combination of several indicators and not on a sole indicator, which means that the false positives are not that

important in the first step. This same argument made us decide to use abroad in general and not a set of countries like tax havens, countries with bank secrecy or any kind of blacklist. Like mentioned above at indicator 1.1, these black lists are often discriminating and subjective and therefore not preferable (Rawlings and Sharman, 2006).

3.2 Owner is a person with antecedents

Persons with antecedents seem to be involved more often in criminal investments in the real estate market compared to persons without a criminal record. The study of Meloen et al. (2003, p.246) – which analyses 52 criminal cases wherein property had been confiscated with unlawful advantages[9] – finds that 30%-40% of the money laundering cases invested money in immovable property. According to the FATF (2008, p.34) also persons which are *suspected* of crimes and persons associated with persons with a criminal record should receive a 'red flag' (the last is also mentioned in Belastingdienst/FIOD-ECD, 2008, p.14). The strength of this indicator is enhanced by the fact that persons with a criminal record also have less possibilities to receive a mortgage and therefore to purchase real estate (Belastingdienst/FIOD-ECD, 2008, p.35-36).

3.3, 3.4 and 3.5 Owner is a person with a disproportionate number of objects or purchases or a fast growing real estate portfolio

The traditional purpose of acquiring real estate by natural persons is of course living in their own house; it can therefore be seen as unusual when a person has a disproportionate number of objects or an increasing real estate portfolio. Although we must state here that the perfectly legitimate purchase of real estate as a profitable investment for natural persons becomes more and more 'business as usual'. While this can be seen as unusual for natural persons, owning multiple objects is pretty usual for companies. Therefore this indicator is only applied to natural persons. The reasoning for the number of transactions is quite the same; it is unusual for natural persons to have multiple transactions in a short period of time. The FEC (2008, p.20), FATF

[9] 'Unlawful advantages' is a direct translation of the Dutch term WVV (wederechtelijk verkregen voordeel)

(2007, p.34) and FATF (2006, p. 8) mention that a red flag should be raised when a person has several transactions. The Belastingdienst/FIOD-ECD (2008, p.29) mentions that a sudden increase in the real estate portfolio of someone can indicate the urge to launder a large amount of money within a short period of time. (See also FEC, 2008, p.23)

We must admit that these indicators will most likely generate a vast amount of false positives, because there are persons trading in real estate without any illegal purpose. We will therefore refer again to the argument that it is the combination of red flags that counts, which makes most of the false positives drop out of the process (assuming that when they are really innocent, they will not raise too many other red flags) and become true negatives.

3.6 Owner is a straw man

As also mentioned briefly in the description of indicator 1.1 and 1.2: 'straw man constructions' can be used to disguise the actual owner or trader of real estate objects. Straw man constructions can be used for money laundering, tax fraud (see also Nelen et al. 2008, p.58), mortgage fraud and to receive a license (like a license to open a bar), which the actual owner will not be able to receive (in the Netherlands these are the so-called 'BIBOB-sectors'), which is also mentioned at indicator 3.8 (Belastingdienst/FIOD-ECD, 2008, p. 20-21). Such a straw man can be an individual who has not so much to lose and is very interested in making some 'quick cash', but can also be one of the intermediary professionals that could be used in real estate transactions, like notaries, lawyers, real estate agents and appraisers. (Nelen and Lankhorst, 2003) An example can be found in the case discussed in chapter 3. Examples of a lawyer used as straw man can be found in the FATF report (2006, p.44, case 20) where a Swiss lawyer constructs a specific payment system to bribe influential persons and in the FATF report (2007, p.18, case 4.1) where a lawyer created several companies with bearer shares (and thus hiding the actual owner) on one single day for the leader of a criminal organization.

3.7 Owner is a company with an unclear Ultimate Beneficial Owner

The advantage of using legal persons for criminals in order to purchase of real estate objects lies in the ability to hide the actual Ultimate Beneficial Owner (UBO) of the

real estate object. Hiding the UBO can be achieved in different ways, like setting up a company with unregistered shareholders (see indicator 1.4) or creating a network of companies owning each other, preferably with foreign companies in between. The network analyses of Bielemans et al. (2007) show all kinds of these constructions, according to Nelen et al. (2008, p.76). Nelen et al. (2008, p. 55) states that the possibilities are endless with respect to money laundering, but that the appearance of an unclear UBO is one of the standard characteristics. The FEC (2008, p. 20) mentions that a notary should raise a red flag in case there is insufficient transparency with respect to the ultimate owner. Belastingdienst/FIOD-ECD (2008, p.24) states that one must be able to answer the important question on who the Ultimate Beneficial Owner of a company is. Which is in line with publications like FATF (2007, p.12 and p.14), FATF (2006), Levi (2002), Ferwerda et al. (2007, chapter 4) and van de Bunt et al. (2007, chapter 2, 4 and 6). The case (FATF, 2007, p.18, case 4.1) discussed in the description of the former indicator (3.6) gives an example of setting up businesses with the intention to hide the actual owner, with the use of bearer shares (and thus unregistered shareholders) in this case.

3.8 Owner is a company with a particular exploitation

The FEC (2008, p.16) and Trouw & Knobbout (2007) suggest that money launderers invest in and with companies that they have knowledge of. Also Belastindienst/FIOD-ECD (2008, p.5 and p.37) warns for business sectors with an increased risk for criminal investment. The FATF (2007, p.27) mentions that within the real estate market some areas are more attractive for criminal investment than others. Which sectors are specifically suspicious, have an increased risk or are more important for money laundering? While the FEC (2008) does not remark any sectors, Belastingdienst/FIOD-ECD (2008, p.5 and p.37) mentions illegal exploitation (like illegal pensions, cannabis nursery, trade of women, illegal gambling and illegal prostitution) and risky legal sectors (like hotels, restaurants, ‘coffeeshops’, prostitution, gambling and transport) and Trouw & Knobbout (2007) mention catering services, prostitution and transport. The FATF (2007, p.27) mentions the hotel business, construction firms, development of public or tourist infrastructure (especially luxury resorts) and catering business.

3.9 and 3.10 Owner is a company just established or almost closed

The FEC (2008) suggests that a company that has just been established and is immediately buying real estate is very likely to be part of a construction of companies designed to conceal the UBO and to launder money. This suspicion can also be raised when a company is closed just after the purchase of real estate; this could be an indicator for the paper trail being cleaned after the purchase. It might be even harder to find the Ultimate Beneficial Owner when the company responsible for a purchase of real estate has disappeared. Also Belastingdienst/FIOD-ECD (2008, p.28) and the FATF (2007, p.35) warn for transactions by certain companies, which are just founded. Since most reports are based on the idea of functioning as a preventive measure by remarking the suspicious characteristics of real estate purchases, the closing date is not mentioned, since this can only be checked afterwards.

3.11 Owner is a company without employees

This indicator refers to real estate companies that have no employees working for them. Speculating in the real estate market is very difficult. One needs to keep precise track of the market. To do so, one needs several employees that can manage their own portfolio. According to the FEC (2008), real estate companies that do not have employees are very likely to be part of some sort of money laundering construction (see also van de Bunt et al., 2007, chapter 4). The use of empty companies in money laundering constructions is described by the FATF (2007, p.14), where these companies are called ‘shell companies’; the company only consist of a shell, without having anything inside.

3.12 Owner is a ‘world citizen’ (unknown by the Tax Administration)

When a foreigner purchases real estate in the Netherlands, this leads to a tax payment duty abroad. There occurs a problem with this payment when it is unknown where the purchaser pays his taxes; when the purchaser is unknown to the national Tax Administration. According to the FEC (2008, p.16) the investors, which have no tax payment duty, or at least not in the Netherlands, should raise a red flag. Also Belastingdienst/FIOD-ECD (2008, p.4 and p.28) mentions these kind of foreign real estate owners as an indicator for money laundering.

4. Real estate object

The definition of what an object actually is differs significantly per publication and organization. In this research we will use the broad definition adopted by the Kadaster, the national registering office of real estate in the Netherlands. This means that an object can be anything, from a giant warehouse to an underground parking box or even just a small electricity box. And although an object seems to be something given, it actually is more dynamic than one might expect. Every day, objects are split (which means that the old object disappears from the registry while two or more new objects are registered), founded (which means a new object is registered) and merged (which means that two or more objects disappear and one new object is registered). The Netherlands actually is fortunate with a registering office as the Kadaster, which is up-to-date, accurate and very transparent (everyone can access their information, although one has to pay per case).

4.1 Real estate object has multiple transactions

When an object is bought and sold multiple times this can indicate a swindle to push the price higher than the property is actually worth. FEC (2008), Ferwerda et al. (2007, chapter 4) and Belastingdienst/FIOD-ECD (2008, p.17) all mention that this is done and that it can be a major part of a money laundering process, especially with the use of the ABC-construction and carrousel fraud (driving up the price by successive sales and purchases within the same organization with the eventual goal to make the object appear to be worth more (or less) than it actually is). The FATF (2007) explains that the method of successive sales and purchases, which is in line with the above-mentioned methods, has the specific characteristic that the property is (fictitiously) sold in a series of subsequent transactions, each time at a higher (or lower) price.

4.2 and 4.3 Real estate object is in a very bad or very good neighborhood

Trouw & Knobbout (2007) suggest that criminals want to keep their money and investments close by. The reasoning behind this indicator is similar to the reasoning behind indicator 3.8 (the particular exploitation by the owning company). Bad neighborhoods with high crime rates are more likely to contain conspicuous properties. The FATF (2007, p.37) follows the same reasoning and sees transactions

in high-risk urban areas as an indicator for money laundering in the real estate market. In a Zembla episode[10] the mayor of Maastricht indicates that money laundering in real estate creates criminality and leads to deterioration and dilapidation of the neighborhood. Also Van Gestel et al. (2008, p. 35-36) mention the link between criminal activities in the real estate market and the livability in the corresponding district. The ministry of VROM[11] has recently published the 'Leefbaarometer', which shows how the livability is distributed in the Netherlands. Figure 4.1 below shows an overview of Utrecht (with 2006 as reference year), the distribution is set at cluster level and the area's where livability is given a negative (light red) or very negative (dark red) are highlighted. A cluster represents a cluster of postal codes that have the same livability ratio.

The three highlighted places are the so-called 'probleemwijken', which are specified areas where the (national) government is directing special attention to in order to make these districts more livable. Especially Kanaleneiland is very notorious for its lack of safety and this also shows up as a very red place on the map. Considering our point of view, these areas should have a higher chance of being subjected to money laundering.

[10] Episode "Witwassen doe je zo" (17 september 2006) of Dutch TV-show Zembla
[11] 'Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer', or 'Housing, Spatial Planning and the Environment'.

Figure 4.3: Quality of life in Utrecht according to the VROM

Source: side of VROM Leefbaarometer, edited manually by author to highlight the problem areas.

The relationship between low levels of "livability" – both in a social and an economic sense – on the one hand, and organized crime on the other hand, is not undisputed. Although there is sufficient evidence for the fact that organized crime has a negative influence on the livability of an area or sector, it is tricky to reverse the relationship by formulating the proposition the other way around. In the Dutch context, there is hardly any evidence that deprived areas and marginalized business activities are breeding grounds for organized crime. Areas and sectors that, as a result of

governmental policies, have been uplifted seem to be just as vulnerable (Nelen & Huisman, 2008).

Apart from the fact that criminals want to have their money invested close by, they can also have another consideration when choosing the graphical location of their investment: they want to show off with their purchases and show the rest of world that they are or were successful in business. This consideration might result in investments in very good, fashionable and expensive neighborhoods. It might be that the way of investment, especially the decision on which type of location, gives us some insight on what kind of criminals we are dealing with.

5. Purchase sum

The purchase sum is the amount of money the property is bought for. This normally is comparable to the market price, and is on average 30 percent higher than the WOZ value (appraised value by the government for tax purposes), because of the shortage of real estate in the Dutch real estate market (Ferwerda et al., 2007).

5.1 and 5.2 Purchase sum is unusual compared to the appraised value (WOZ) or previous purchase sum

A purchase sum which is too high or too low can indicate a swindle to thrive up the price, like an ABC-construction or the fraud carrousel (which is also mentioned at indicator 4.1) or play a role in tax fraud. This is one of the most visible indicators for criminal investments in real estate, since the purchase prices are transparent, at least in the Netherlands. This might be the reason that it is so often mentioned in the literature. The comparison of the appraised value with the purchase sum using Dutch data was also suggested by Eichholtz (2006, p.67) and done by Siegman (2006). In the literature a too high purchase sum is seen as suspicious by Nelen et al. (2008, p.47) and the FATF (2007, p.24), a too low purchase sum is seen as suspicious by Nelen et al. (2008, p.56) and the FATF (2007, p.21), but most often both are seen as suspicious, like by FATF (2007, p. 36-37, see also Ferwerda et al., 2007, chapter 4). An interesting case on this matter is described by FATF (2007, p.15, case 3.3) where a building in Ukraine was purchased for a purchase price, which was 10 times higher than the purchase price from three days earlier.

As mentioned above, a research based on this comparison has been done earlier in the Netherlands by Siegman (2006). The result of his research can be seen in figure 4.4. He did not continue his effort to estimate the amount of money laundering in the real estate market, because there was no way he could see a difference between the price increases caused by money laundering and caused by speculation of real estate agents. We think we can tackle this issue, at least partly, because we use many more indicators, which should show the difference between real estate agents making a profit from pure legal speculation and money laundering.

Figure 4.4. Unusual housing price increases in Amsterdam in 2004-2005

Source: Arjen Siegmann (2006), Department of Finance, Free University of Amsterdam, graph published in Unger (2007, p.40). Every 'building' plotted on the map of Amsterdam has an unusual price increase in 2004-2005 equal to the 'height' of the building (see legend).

5. Data Collection

5.1 Introduction

In order to operationalize the indicators described in the previous chapter, we created our own dataset out of larger datasets provided by the Offices of the Land Registry and the Tax Administration. The analysis of the results, as well as the distinction of the results between Utrecht and Maastricht follow in the next chapter. This chapter is important in order to understand how the indicators were tested and why some of the indicators had to be dropped.

The data research builds on two datasets. The first dataset comprises the stock of all the objects in Utrecht and Maastricht as of the 31st of December 2006. The term "objects" does not simply refer to buildings, but also includes green areas, like parks, and parking boxes, garages and electricity boxes. In this dataset, data of the "Kadaster" (Offices of the Land Registry) was combined with data from the "Belastingdienst" (Tax Administration) on income, appraised real estate (WOZ) values and on the type of company activity.

The Offices of the Land Registry data consisted of:

- Object number
- Right of ownership (for example full ownership or lease)
- Purchasing sum and indication whether this concerns multiple objects, multiple subjects or the splitting of an object
- Purchasing year
- Amount of mortgage used and whether this concerns multiple objects or multiple subjects
- Gender of natural person/business form of legal person (for instance 'Besloten Vennootschap' ('private company') or 'Naamloze Vennootschap' ('public limited liability company') for the Netherlands, or (although the dataset labels all foreign companies as 'BR' ('buitenlandse rechtspersoon') for instance limited company for the UK), name, address and subject number (from Offices of the Land Registry)

- A code for the use of the object (for instance whether the object is used as a house, an office or a police station)
- Name and address of financier
- Gender/business form of financier

The Tax Administration data consisted of:

- The WOZ value (appraised value) and the WOZ size in square meters for the years 2005 and 2007
- When the owner is a legal person: the establishment date, the closing date, the branch code (for instance code 3921 for fabrication of musical instruments) and whether the owner pays wage tax (i.e. has employees)
- When the owner is a natural person: the income of the owner and its spouse (if available) of 2006
- The social security number (BSN, or 'Burger Service Nummer') that is linked to the subject number of the Offices of the Land Registry

Each row provided information on a combination of the object number and subject number. For every object number, all the subjects related to the object were described. This meant that some columns had the same data in several rows (for instance appraisal value of the object), because different subjects were involved in the same object. Subject specific information, like social security number, was different in these rows.

To give an idea of how the dataset looks, see table 5.1.

Table 5.1: Abstract view of the stock dataset

Object number	Subject number	Offices of the Land Registry data	Tax Administration data
1	1		
1	2		
2	3		
3	2		

Source: made by author

In this example, the Offices of the Land Registry and Tax Administration data is shown for the objects 1, 2 and 3. In this case subjects 1 and 2 own object 1, subject 3 is the single owner of object 2 alone and subject 2 is the single owner of object 3.

The total number of rows in our dataset is 367.632, which are Utrecht and Maastricht combined. This number is not the total number of separate objects, because multiple persons can own a single separate object. The total number of separate objects in the stock dataset is 143.850, so on average every object concerns 2,5 rows. The total number of rows for Maastricht is 110.843, which consists of 52.367 separate objects. The total number of rows for Utrecht is 256.789 and the number of separate objects 91.483. So we can conclude that Utrecht is about twice the size of Maastricht.

The other dataset consists of all the transactions involving real estate in Utrecht and Maastricht from 2002 up until 2006. The total number of rows is 46.396, which is again not the same as the total number of separate objects, because for every transaction there is at least one purchaser and one seller. Furthermore, an object can be traded multiple times. The total number of separate objects in the transactions is 12.576. For Maastricht this means 12.097 rows (3.352 separate objects) and for Utrecht 34.299 rows (9.224 separate objects). This dataset held the following information on each object provided by the Offices of the Land Registry and the Tax Administration.

Data of the Offices of Land Registry

- Date of the deed of conveyance
- Object number
- Purchase sum and indication whether this concerns multiple objects
- Role of the subject (purchaser or seller), name and date of birth
- Amount of mortgage
- A code for purpose of object (for instance whether the purpose of the object is a house, an office or a police station), address and size in square meters
- Subject number (provided by the Offices of the Land Registry), gender for natural persons and business form for legal persons and address
- Former address of subject

Data of the Tax Administration:

- Indication if subject did or did not pay wage tax (if applicable)
- Income of the subject for natural persons
- Establishment date and closing date of legal persons
- Appraised value (WOZ) of 2005

The dataset was grouped on object number, so that all the transactions of each object were grouped together. This provided a nice overview when checking for irregularities when describing what actually happened with the object (see chapter 8 for the result). To give an idea of how the dataset looks, see table 5.2.

Table 5.2: Abstract view of the transactions dataset

Object number	Subject number	Role	Offices of the Land Registry data	Tax Administration data
1	1	Seller		
1	2	Seller		
1	3	Buyer		
1	3	Seller		
1	4	Buyer		
1	5	Buyer		
1	6	Buyer		

Source: made by author

In this example, the object (object 1) is sold twice. First subjects 1 and 2 sell it to subject 3, and then subject 3 sells it to subjects 4, 5 and 6.

The indicators – described in the previous chapter – have been put to the test on these datasets. The results are described below. They show the way the indicators were measured, the problems that were faced and all the remarks that have to be made with respect to the indicators. Again one has to keep in mind that the indicators were set very broad in order to have as little type II error (false negative) as possible. A single indicator will not provide a sufficient view of unusual behavior; it is the total of indicators that will provide this information.

5.2 Merging the datasets

To compare the different objects, both datasets had to be reduced to a list of separate object numbers. After that, both datasets were combined, to end up with a list of individual object numbers and all the according indicators. The datasets were merged on object basis because the focus of this research is to come to an identification of criminal objects and to show these geographically. Because subjects cannot be displayed geographically (at least not as precise as objects), objects were used.
Furthermore, only the individual objects that had both stock indicators and transactions indicators have been used. Because it is still unknown to what extent the indicators correctly indicate a criminal investment, it is best to test this assumption with objects that have as many indicators as possible. Furthermore, because the indicators are set very broad, thus reducing the amount of type II (false negative) error, but having a lot of type I (false positive) error, using as many indicators as possible will reduce the amount of type I (false positive) error. The object must score on a lot of indicators in order to be called unusual (see also the explanation of the method used in chapter 4).

The reason was that the set up of the datasets is very different. Because the red flags were assigned to objects, the indicators of the transactions dataset could be merged with the indicators of the stock dataset. When the indicators are discussed below, the calculation of the initial dataset is shown, and the results of the merged datasets. In this way, the calculation can be examined and the results are about unique objects, so they actually tell us something.

The first step in merging the datasets was to narrow down the list to separate object numbers and their corresponding indicators. The results of each indicator will be shown in terms of 0's, 1's and missing values. A 0 means a 'green flag' and a 1 means a 'red flag'. This means that every 1 stands for something unusual. A missing value means that no green or red flag could be given, due to various reasons, explained for each indicator in paragraph 4.3. Because an object can have multiple transactions and multiple subjects involved, an object can have several values for a single indicator. For example if an object has three transactions, one can have a red flag and the other two a green flag. Because one value has to be assigned for each

object, a process was developed for the merging of the indicators. For this process the following rules were applied for every indicator and per object:

- If the indicator of the object has only missing values, a missing value was applied
- If the indicator of the object has any green flag (or 0), no matter how many missing values are present, a green flag (or 0) is given to for the indicator of this object
- If the indicator of the object has any red flag (or 1), no matter how many missing values and green flags (or 0's) are present, a red flag (or 1) is given to the indicator of this object

In the transactions dataset, every object has at least two rows, since there is a purchaser and a seller needed for a transaction. But since the object can be sold multiple times and can be owned by more than one person, the amount of rows was different for each object number. The highest amount of rows was 70 for an individual object. An extensive formula had to be written to correct for this issue, which was quite time consuming. The same problem occurred for the stock dataset, more than one subject could own the object. The highest number of persons owning a separate object in the stock dataset was 921, so a far more complex and extensive formula was needed for this dataset. In order to preserve time, only those objects, which were also present in the transactions dataset, were used in the process of creating a list of separate objects. This resulted in the loss of 681 individual objects from the transactions dataset, because they were not present in the stock, for unknown reasons. Examples can be demolition of the object, splitting of the object creating two or more new objects, or the redefinition of an object. After the two datasets were merged, a list of 11.895 separate objects with their corresponding indicators was the result.

5.3 Indicators

In this paragraph, we will discuss the way all the indicators were measured and the results that were gained from this research, which will be presented as the results from the merged dataset. The evaluation of the results, as well as a distinction and comparison between Utrecht and Maastricht will be done in the next chapter.

Indicator 1.1 – Financier is from abroad

As described before, only the stock dataset contained information about the financier, thus this dataset had to be used for this indicator. The remark that has to be made for this indicator is that the stock dataset is automatically updated. This means that the current mortgage is displayed, not the mortgage as it was at the time of the purchase of the object. This could mean that no mortgage is present now in the stock dataset, while this was the case during the purchase, simply because it already has been redeemed. All the historical data has been lost, so the indicator becomes less and less precise the longer away the purchase year is. As also described in the previous chapter, private homeowners will most likely buy their object with a mortgage. Furthermore the repayment on this mortgage will go rather slow, because of the tax advantage and the high amount of money that has to be redeemed. Because the data still holds all the information on the mortgage if there is even a small amount of mortgage left, the assumption is made that every object that has no mortgage information in the stock dataset is bought without a mortgage.

The stock dataset contains the city where the head office of the financier is located. In case of a natural person this is the place of residence. In case of a bank it is the location of the head office, for example when ABN AMRO is the financier the stock dataset displays Amsterdam, but when the financier is a Rabobank establishment, the local city is given (because these are all franchises). Because only cities are given, a new column was made for the country of residence, and every city was looked up in order to find the corresponding country. Every country was abbreviated with the country's ISO code. In total, 18 different ISO codes where assigned to 598 cities (although some are double counted, because of misspelling. For instance 's Gravenhage is written in four different ways because of misspelling). The table 5.3 shows the countries that were found in the dataset, the frequency and the corresponding code. The percentage is relative to the total number of foreign financiers, which is 4.742 for the entire stock dataset, 1.127 for Maastricht and 3.525 for Utrecht.

Table 5.3: 'Financier is from abroad', summary of ISO codes used and according frequencies

ISO-code	Country	Frequency	%	Maastricht	Utrecht
AN	Netherlands Antilles	11	0,23	10	1
AW	Aruba	1	0,02	1	0
BE	Belgium	2.199	46,37	563	1.636
CA	Canada	2	0,04	0	2
CH	Switzerland	343	7,23	50	293
CN	China	4	0,08	4	0
DE	Germany	520	10,97	230	290
GB	United Kingdom	1.384	29,19	332	1.052
FR	France	33	0,70	4	29
IE	Ireland	2	0,04	2	0
IT	Italy	2	0,04	0	2
JE	Jersey	11	0,23	9	2
LU	Luxembourg	3	0,06	3	0
NG	Nigeria	1	0,02	0	1
NL	Netherlands	132.409		44.624	87.785
SP	Spain	10	0,21	1	9
SR	Surinam	2	0,04	0	2
US	United States	214	4,51	8	206

Source: own calculation

This indicator also shows that the total number of rows concerning a financier is 137.151, which is about 37 percent of the total stock dataset. For the merged dataset, the results are described in table 5.4.

Table 5.4: Results of indicator 1.1, 'Financier is from abroad', for the merged dataset

0	%	1	%	Missing	Total
7.266	94%	443	7%	4.186	11.895

Source: own calculation

Indicator 1.1 gave a green flag (or 0) when the country of residence was "NL", a red flag (or 1) when the country of residence was different from "NL" and a missing value when there was no financier, either because the object was bought without a mortgage, or because the mortgage has already been paid for.

Indicator 1.2 – Financier is a person, not a company

This indicator was very straightforward, because the stock held two columns, which indicated what kind of legal person the financier is (in the Netherlands for instance BV or NV, in GB for instance Limited, although this information was not available in the dataset, because all foreign financiers and owners are denoted as "BR", which stands for "buitenlandse rechtspersoon", or foreign legal person) or what the initials of the financier were in case of a natural person. For instance if a financier was ING (bank), it shows NV as business type, but the initials column is empty. But when the financier is for instance 'A. Jansen', the business type is empty and the initial A is found in the initials column. This meant for every row, that if the business type column held information, the financier was a legal person, if this column was empty, but the initials column held information the financier was a natural person, and if both columns were empty, then there was no financier at all. This indicator could only be applied to the stock dataset for the same reason as with indicator 1.1: there is no information on the financier in the transactions dataset.

Table 5.5: Results of indicator 1.2, 'Financier is a person not a company', for the merged dataset

0	%	1	%	Missing	Total
7.578	98%	131	2%	4.186	11.985

Source: own calculation

Indicator 1.2 gave a green flag (or 0) when the financier was a legal person, a red flag (or 1) when the financier was a natural person and a missing value when there was no financier at all, which could either be because no mortgage was used or because the mortgage was already redeemed.

Indicator 1.3 – Financier is a non-business party

Since only the stock dataset held information about the financier, this was the only dataset on which this indicator could be applied. The name of the financier was present, but there was no information on the activities of the financier, so this indicator could not be tested. The Tax Administration combines all information on the basis of subject numbers (or social security numbers) to make sure it is accurate. Because the Offices of Land Registry does not assign a subject number to the

financiers, further information could not be combined with the stock dataset. This indicator was dropped for this part of the research and proposed for use in the criminological part of the research, as it might be possible to find the activities of the financier per case.

Indicator 1.4 – Financier has unregistered shareholders

Both the Offices of the Land Registry and the Tax Administration had no way to retrieve the information on whether a financier did, or did not, have unregistered shareholders which disguises the owner of the financier. Therefore this indicator was dropped for this part of the research and proposed for use in the criminological part of the research, as it might be possible to find out per case whether a financier has unregistered shareholders.

p

Indicator 2.1 – Financing has an unusual amount compared to income

Here the income data was combined with the transactions dataset. Each subject that was a natural person was looked up on the basis of his or her social security number and the income was added to the dataset. The income consists of the "Box 1" income of the owner, and of its spouse (if present), of 2006. In general, the "Box 1" income is the combination of income from wage, pensions and other social securities, income from other activities and profit from their own organization(s). The Box 1 data was used, because according to the Tax Administration, this is the most accurate estimate of someone's income. High amounts of capital are not accounted for, but banks primarily focus on income anyway when providing a mortgage.

As described in chapter 3, the threshold level should be five times the income according to Belastingdienst/FIOD-ECD (2008). After calculating the indicator, 66 percent of the flags were red flags. As a comparison, the site of the Rabobank was used, where the maximum amount of mortgage can be calculated on the basis of the income. As a result, for incomes differing from 10.000 Euros per year up to 500.000 Euros per year, about four to six times the income was the maximum amount of mortgage that could be lent for a single object. This showed that the threshold level set by Belastingdienst/FIOD-ECD (2008) was not very realistic. A new benchmark was set on ten times the income. This indicator resulted in a red flag if the mortgage was more than ten times the combined income of the subject and its spouse, if present.

A mortgage higher than ten times the income can be called unlikely, at least for a "normal" consumer. Still it has to be noted that a threshold level of 10 times the income is an arbitrary choice.

Other remarks have to be made with respect to this indicator. The mortgage data is updated automatically as described previously. This means that the actual amount of mortgage at the time of the purchase might not correspond to the amount of mortgage in the stock dataset. Furthermore, only the income of 2006 was used, which is trivial since income can fluctuate.

The last remark that has to be made is that umbrella mortgage constructions, which involve multiple objects financed with a single mortgage, were left out. This is because no distinction can be made between the amounts of the mortgage which are being used for each individual object. Not even a distinction can be made as to which specific objects this mortgage belongs. Nelen et al (2008, p.44) conclude that criminals often buy real estate in 'packages', for exactly this reason. With the purchase of multiple objects, the purchase sum and mortgage amount is unclear for the separate object. As can be seen from this data research, it is very effective, because this data has to be left out of the calculation. It is therefore important for future research to understand the importance of such indications and that information should always be stored as complete as possible. Currently a money launderer can simply purchase a garage box with the real estate object he or she wants to purchase and the transaction is not taken into account.

Table 5.6: Results of indicator 2.1, 'Financing has an unusual amount compared to income', for the merged dataset

0	%	1	%	Missing	Total
2.923	47%	3.355	53%	5.617	11.895

Source: own calculation

Indicator 2.1 gave a green flag (or 0) when the income was ten times the mortgage or less, a red flag (or 1) when the mortgage was more than ten times the income and a missing value when there was no mortgage, or if the mortgage corresponded to multiple objects.

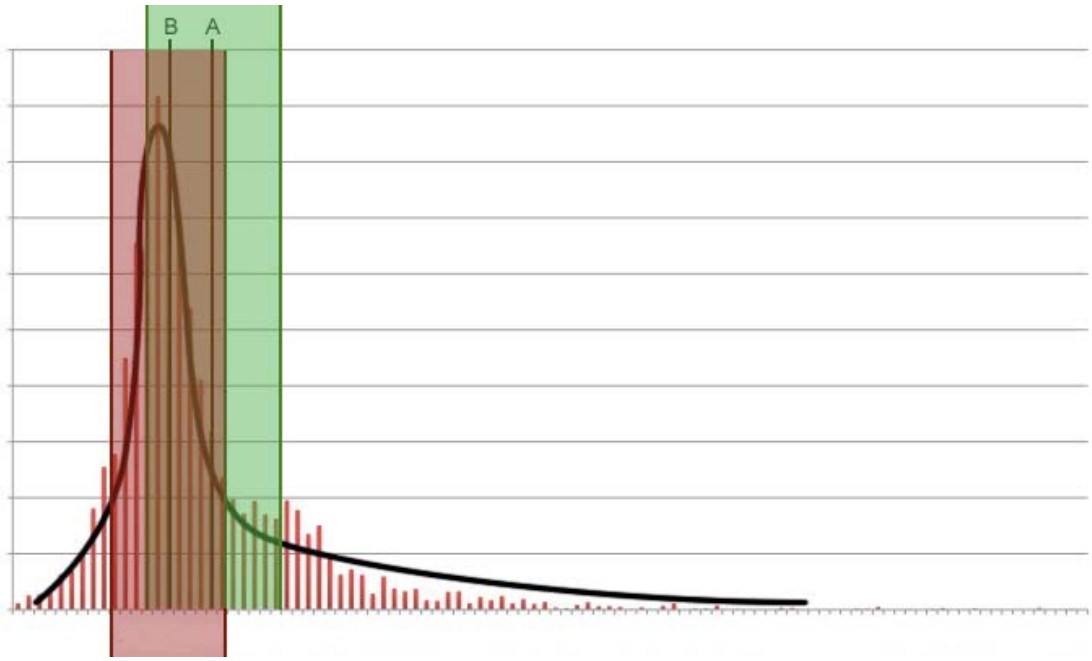
When we examine the results shown in table 5.6, what strikes immediately is the high amount of red flags. According to the results, persons with insufficient funds purchased 53 percent of the objects. This result can have four different reasons. The first is that the foreign credit policy gives persons with insufficient funds the possibility to get a high mortgage, but because only 6 percent is financed abroad, this would not make up for the high number of red flags. Another reason could be large-scale tax fraud, where a lower income is provided to the Tax Administration than is really earned. Alternatively it could be mortgage fraud, where a higher income is provided to the financier to get a higher mortgage than would be possible with the actual income. Both tax fraud and mortgage fraud are known to occur, but not in the scale implicated by this indicator. The last possible reason is a problem with the data. Although we assume and believe all data is correct, we have to be realistic and drop this indicator. Such a high amount of red flags for this indicator is not realistic. This indicator was proposed for the use in the criminological part of this research, because on case level it is possible to check the reliability of the income and mortgage data.

Indicator 2.2 – Financing has an unusual amount compared to appraised value (WOZ)

Because of the automatic updating of the mortgage data this indicator could be applied to both datasets. The mortgage value was the, at that time, current maximum mortgage the subject could execute on the object. This is not the same as the actual executed mortgage, (the financing the subject actually used during the purchase) which would be more interesting.

A new column was made, showing the result of the calculation of mortgage divided by the appraised value. For the threshold levels, the standard statistical method of the average plus and minus two times the standard error could not be used, because of the skewed distribution. This can be seen by in figure 5.1.

Figure 5.1: Distribution of results for mortgage divided by appraised value



Source: made by author. The red bars indicate the frequency of the result of mortgage divided by appraised value. The black line approximates the distribution and the green and red areas indicate the different threshold levels.

The distribution of the calculation is shown, the mark A indicates the average (1.9) and the mark B indicates the median (1.5). Since the standard error depends on the height of the distribution, the red/dark grey area would (approximately) be used as the 'green flag area', which gives a too large proportion of red flags to the left of this threshold level. Because of this skewed distribution, the median will be closer to the top of the distribution, so the median is used. Now the 'green flag area' (indicated by the green/light grey area) is a much better fit to the distribution. Since we have no knowledge of the percentage of red flags that should be given (we do not know the distribution of criminal investments), the arbitrary threshold levels of plus and minus 50 percent were used. This meant an unusually low mortgage (below 100 percent) or an unusually high mortgage (above 200 percent) compared to the appraised value resulted in a red flag for this indicator.

A missing value for this indicator could have several causes. There were indications in case of a purchase sum or mortgage subjected to more objects. Unfortunately, there was no way of telling which objects this concerned, only that it concerned multiple objects. Because no distinction could be made as to which objects this concerned, a

missing value was assigned. As with indicator 2.1, this is very unfortunate, because Nelen et al (2008) indicate criminals often trade in 'packages'. Also when either the purchase sum or mortgage was zero, a missing value was assigned. Because no distinction could be made between a purchase sum or mortgage of zero, and one that is unknown, all of them were assigned missing values. The results for the merged dataset:

Table 5.7: Results of indicator 2.2, 'Financing has an unusual amount compared to appraised value (WOZ)', for the merged dataset

0	%	1	%	Missing	Total
2.959	64%	1.664	36%	7.272	11.895

Source: own calculations

Indicator 2.2 gave a green flag (or 0) when the mortgage was between 100 up until 200 percent of the appraised value, a red flag (or 1) when the mortgage was less than 100 percent or more than 200 percent of the appraised value and a missing value when the appraised value or the mortgage was zero, or if the mortgage was subject to multiple objects.[12]

Indicator 2.3 – Financing is not used (no mortgage)

This indicator was applied to the stock and only for natural persons. During the data research it became apparent that the large real estate traders almost automatically received three red flags for all their objects. This is because the large real estate traders often trade without using mortgages (indicator 2.3), own a lot of objects (indicator 3.3) and conduct a lot of transactions (indicator 3.4). Therefore, indicators 2.3, 3.3 and 3.4 were redefined as to count only for natural persons. For indicator 2.3, this also has another reason; companies often do not use a mortgage as a regular consumer would. They lend at the bank, with the upcoming purchase of the object as collateral, but add the loan to their balance sheet. Then they buy the object with the

[12] Please note that mortgage in our dataset is the maximum amount of mortgage one could execute, and that this is not per se the amount of mortgage executed. In the Netherlands one can register a higher mortgage then needed to be able to execute some mortgage later without some of administrative burden.

capital, thus never showing the 'mortgage' on the deed of conveyance. Including the legal persons would therefore lead to a lot of unnecessary type I errors (false positives).
The indicator was only applied to subjects which were natural persons, and if the purchase sum was not zero (because a free object naturally does not need a mortgage).

Table 5.8: Results of indicator 2.3, 'Financing is not used (no mortgage)', for the merged dataset

0	%	1	%	Missing	Total
6.801	76%	2.178	25%	2.916	11.895

Source: own calculations

Indicator 2.3 gave a green flag (or 0) when the natural person purchasing the object was using a mortgage, a red flag (or 1) when a natural person purchasing the object did not use a mortgage and a missing value when the subject was a legal person, or when the purchase sum was zero.

Indicator 2.4 – Financing has creditor and debtor being the same subject

For this indicator, the stock dataset had to be used, since this is the only dataset holding information on the financier. The name of the subject owning the object was compared with the name of the financier. For this indicator, the comparison of initials was discarded; someone with the same name, but different initials could simply be a relative, like a spouse or son. Giving the mortgage to a spouse or son could be a way to hide the fact that someone is giving a mortgage to oneself. The coincidental fact that a financier has the same name as the owner, but is not related, is considered non-existing. For a legal person, only the name of the company and the financier could be compared. Again, the coincidental fact that a financier has the same company name as the owner, but is not the same company, is considered non-existing. The Tax Administration indicated before the data research was done that this would not be present in the dataset. Nonetheless, the merged dataset returned 62 red flags, so it does in fact occur, although not very often.

Table 5.9: Results of indicator 2.4, 'Financing has a creditor and debtor being the same subject', for the merged dataset

0	%	1	%	Missing	Total
7.647	99%	62	1%	4.186	11.895

Source: own calculations

Indicator 2.4 gave a green flag (or 0) when the name of the financier was not the same as the name of the owner, a red flag (or 1) when the name of the financier and the name of the owner were the same and a missing value when no financier was available.

Indicator 3.1 – Owner is from abroad

In both the transactions dataset and the stock dataset there was information about the previous address of the new owner. Unfortunately, the actual nationality of the subject was not combined with either of the datasets. Furthermore, the information was updated automatically, as with the mortgage data, so it could be somewhat inaccurate. The indicator was applied to the transactions dataset, because of the added information on former transactions of the objects. This means that every time a foreigner was involved in either purchasing or selling an object, a red flag was assigned to the object. For this indicator, no missing values were needed, because the Tax Administration indicated that if the column indicating the country cell was empty, this would be the Netherlands.

Table 5.10: Results indicator 3.1: 'Owner is from abroad' for the merged dataset

0	%	1	%	Missing	Total
11.504	97%	391	3%	0	11.895

Source: own calculation

Indicator 3.1 gave a green flag (or 0) when the country cell was the empty (and thus the Netherlands) and a red flag (or 1) when the country cell was not empty (thus foreign).

Indicator 3.2 – Owner is a person with antecedents

Since the datasets did not contain any police or judicial information there was no information for this indicator. This is partly due to the fact that not all information about antecedents is electronically archived by the police, and mostly due to the fact that permission to combine the data for every subject could not be achieved. This indicator was dropped and proposed for use in the criminological part of the research, as it might be possible to find the antecedents of the subject per case.

Indicator 3.3 – Owner is a person with a disproportionate number of objects

This indicator was only applied to natural persons, as described above for indicator 2.3. The stock dataset was used, as this is a spot sample and therefore gives a good indication of how many objects each subject owns at one given moment. Because it is most common for natural persons to own only one object, a red flag was assigned to every person that owned more than one object. A red flag was applied to all the objects of persons, which owned more than one object. A small remark has to be made: only Utrecht and Maastricht are in the dataset, subjects that own a disproportionate number of objects outside Utrecht and Maastricht, but have only one object in Utrecht or Maastricht, will not receive a red flag.

Table 5.11: Results of indicator 3.3, 'Owner is a person with a disproportionate number of objects', for the merged dataset

0	%	1	%	Missing	Total
4.871	50%	4.857	50%	2.167	11.895

Source: own calculation

Indicator 3.3 gave a green flag (or 0) when a natural person, who owned only one object, owned the object, a red flag (or 1) when the object was owned by a person, who owned more than one object and a missing value when the owner was a legal person.

Indicator 3.4 – Owner is a person with a disproportionate number of purchases

Naturally, this indicator was applied to the transactions dataset. The number of houses sold in 2008 is about 128,000 (NVM real estate brokers) and when compared to the 7

million houses in the Netherlands in total this shows that people live in the same house for quite some time. Because the transactions dataset only covers six years, a threshold level of only one purchase was set for these six years. Thus anyone with more than one purchase in those six years will receive a red flag for all the objects he or she purchased.

The same remark as with indicator 9 has to be made, subjects that trade in large proportions outside Utrecht and Maastricht, but purchased only one object in Utrecht or Maastricht will not receive a red flag. Again this indicator was only applied when the subject was a natural person. Because of the multiple transactions possible with a separate object, the number of missing values is not the same as that of indicator 3.3. Objects can have transactions in the past, with natural persons having more than one purchase. If a legal person now owns them, the object would get a missing value for indicator 3.3, but the object can get a red or green flag for indicator 3.4 because of the historical data.

Table 5.12: Results of indicator 3.4, 'Owner is a person with a disproportionate number of transactions', for the merged dataset

0	%	1	%	Missing	Total
5.651	57%	4.270	43%	1.974	11.895

Source: own calculation

Indicator 3.4 gave a green flag (or 0) when the person has done one purchase during the six years the transactions dataset covers, a red flag (or 1) when the natural person has a number of purchases of more than one and a missing value when the subject is a legal person.

Indicator 3.5 – Owner has a fast growing real estate portfolio

This indicator should be applied to the transactions dataset, but because of the small sample (only six years) it was unlikely to find any basis to test this indicator. To tell whether the portfolio significantly rose compared to previous years, it would first have to show a number of years without any, or very little, transactions and then a significant rise. And since there is only a stock of one year of just Utrecht and Maastricht, it is very hard to tell if someone raised their number of objects from 1,000 to 1,100 or from 0 to 100. This could be a change of interest in the market this subject

is trading in. We can only see the absolute change of the real estate portfolio of the subject in Utrecht and Maastricht, and not the relative change in the total real estate portfolio of that subject. Indicators 3.3 and 3.4 already cover a large part of the indicator, furthermore this indicator would be highly correlated with indicator 3.4. The red flags of this indicator would be a subset of the red flags of indicator 3.4. They measure the same on that behalf. This indicator was therefore dropped and proposed for use in the criminological part of the research, as it might be possible to find this information per case.

Indicator 3.6 – Owner is a straw man

Obviously, straw men are hidden, so it is not possible to just test names on the datasets. Because no list of convicted or suspicious straw men was available, and because there was no list of occupations for the financiers and owners, there was no information to apply this indicator. Therefore it was dropped and proposed for use in the criminological part of the research. It could prove interesting to keep track of the persons (owners and notary for instance) found in the conspicuous cases, to do a bottom-up research afterwards on these names. An indirect way of detecting straw men can be found in indicator 2.2 (Financing is unusual compared to purchase sum).

Indicator 3.7 – Owner is a company with an unclear Ultimate Beneficial Owner

For this indicator, a so-called ‘tree’ would have to be made in order to find every UBO of every company. This is not only a very time-consuming matter, but also nearly impossible to combine with the datasets, as they would grow to enormous proportions. Furthermore, a lot of information remains hidden, for instance if the company is foreign (only the Dutch Kamer van Koophandel (Chamber of Commerce) could be used), or when the shareholder does not hold 100 percent of the shares (in that case he or she is not registered). These facts lead to the conclusion that this indicator could not be tested for the entire dataset, but surely would prove very interesting for investigating per case. Therefore this indicator was dropped and proposed for use in the criminological part of the research.

Indicator 3.8 – Owner is a company with a particular exploitation

As described in the chapter 4.2 (indicator 3.8), criminal activities can cluster in certain branches. Therefore the branch codes that where included in the dataset were compared to a list of branch codes that in theory are found to have an increased risk for criminal investment. The branch codes are:

Table 5.13: Branch codes of a particular exploitation

Branch codes	Exploitation
6700 up until 6799	Catering industry
7200 up until 7299	Road transport
9611 up until 9619	Amusement and gambling
9899	Personal services (code used for companies involved in prostitution)

Source: list of all branch codes provided by the Tax Administration

Three levels of branch codes where combined with the transactions dataset (a company can have multiple branch codes because it is operating in different markets). The four series of branch codes were only found in the primary branch code column. Of the 607 red flags, 347 where in the catering industry, 58 in road transport, 152 in amusement and gambling and 23 in personal services (or prostitution). Converted to the merged dataset this resulted in:

Table 5.14: Results of indicator 3.8, 'Owner is a company with a particular exploitation', for the merged dataset

0	%	1	%	Missing	Total
7.145	94%	460	6%	4,290	11,895

Source: own calculation

The 147 red flags that seem to have been lost during the merging process can be explained by the fact that objects that are traded by specific companies are often custom build for such a company to operate in or have a key location for such a company. Thus the object will often be traded from one 'red flag subject' to the next 'red flag subject', because the new owner is in the same industry, which leads to double counting for several objects, which is corrected for in the merging process.

Indicator 3.8 gave a green flag (or 0) when any, or all, of the subjects involved in the object had a branch code that was not in our list of branch codes (table 4.13), a red flag (or 1) when any, or all, the subjects involved in the object had a branch code that was in our list of branch codes (table 4.13) and a missing value when all the subjects involved in the object had no branch code, which could mean the subject was a natural person or no branch code was recorded.

Indicator 3.9 – Owner is a company just established

Because of the different ways the dates of the purchase and of establishment were put together, a comparison could only be made on yearly basis. A red flag was assigned when the establishment date was the same as the year of purchase. Three remarks have to be made, first of all that someone starting on 31st of December and purchasing on the 1st of January the next year would get a green flag. Likewise, if someone started on the 1st of January and bought on the 31st of December the same year this would get a red flag. This shows that this indicator is quite rough. Another remark is that during the research it became apparent that a lot of establishment dates and purchase dates where missing, making it impossible to compare them. This resulted in a larger than usual amount of missing values. Because about 37 percent of the merged database could still be flagged, the decision was made to keep this indicator. The last remark is that during the examination of the results, it became apparent that some of the purchase years lay even before the establishment years given. This would be impossible, but it was corrected in the calculation and taken for granted, for the sake of being able to use the indicator.

Table: 5.15: Result of indicator 3.9, 'Owner is a company just established', for the merged dataset

0	%	1	%	Missing	Total
4.056	92%	351	8%	7.488	11.895

Source: own calculation

Indicator 3.9 gave a green flag (or 0) when the purchase year was later than the establishment year, a red flag (or 1) when the purchase year was equal or before the

establishment year and a missing value when the subject was a natural person, or when the establishment or purchase year were missing.

Indicator 3.10 – Owner is a company almost closed

This indicator is very similar to the previous indicator. The same remarks have to be made and the same calculation was used to come to the red flags for this indicator. As can be seen from the table below (table 4.16), no red flags have been assigned. We should at least doubt the quality of the data, since it is not very realistic that no single company has either closed or went bankrupt during the six years the transactions dataset covers. Because no red flags were given and thus, no variation can be found for this indicator, the indicator was dropped. Our hunch is that the social security number is removed from the dataset when the company is closed. Because the closing date was combined using the social security number, this might be the reason why the data indicates that no company was closed down from 2001 up until 2006. If this is the reason for the results presented in table 5.16, the data could still be available and thus prove interesting for the criminological part of this research.

Table 5.16: Results of indicator 3.10, 'Owner is a company almost closed', for the merged dataset

0	%	1	%	Missing	Total
4.407	100%	0	0%	7.488	11.895

Source: own calculation

Indicator 3.10 gave a green flag (or 0) when the purchase year was before the closing year, a red flag (or 1) when the purchase year was the same or after the closing year and a missing value when the subject was a natural person, or when the closing or purchase year were missing.

Indicator 3.11 – Owner is a company without employees

An extra column was added to the transactions dataset, which provided an indication whether the subject paid wage tax in 2006 or not. If a company does not pay any wage tax, this is an indication that the company has no employees, and will therefore receive a red flag. The indication was combined for both legal persons and natural persons.

Table 5.17: Results of indicator 3.11, 'Owner is a company without employees', for the merged dataset

0	%	1	%	Missing	Total
5.125	57%	3.944	43%	2.826	11.985

Source: own calculation

Indicator 3.11 gave a green flag (or 0) when all of the subjects involved with the object who should pay wage tax did indeed pay wage tax, a red flag (or 1) when any, or all, of the subjects involved in the object should have paid wage tax, but did not do it and a missing value when all the subjects involved in the object were not supposed to pay wage tax (which means they are not a company).

Indicator 3.12 – Owner is a 'world citizen' (unknown to the Tax Administration)

The social security numbers (BSN, or 'Burger Service Nummer', what was previously called the 'SoFi-nummer') of all the subjects were combined with the transactions dataset. In principle, if the social security number is 0, the subject is unknown to the Tax Administration, which would result in a red flag. Unfortunately, the Tax Administration decided to assign a 0 to all the subjects that are registered with multiple social security numbers, making it impossible to make a distinction between no social security number and more than one social security number. The municipality of Utrecht has multiple social security numbers, and thus appears without a social security number in the dataset. The municipality of Maastricht on the other hand has only one social security number, which shows up and makes sure the indicator gives a green flag. The municipality of Utrecht owns about 60.000 objects in Utrecht, because of this, an exception was made for the municipality of Utrecht. Because it is impossible to correct for all the companies that have multiple social security numbers, a red flag was still assigned to every other subject without a social security number. This was done in the philosophy of the entire research, where broad indicators are used to prevent as much type II error (false negatives) as possible. Because of this, no missing values were assigned.

Table 5.18: Results of indicator 3.12, 'Owner is a world citizen (unknown to the Tax Administration', for the merged dataset

0	%	1	%	Missing	Total
10.834	91%	1.015	9%	46	11.895

Source: own calculation

Indicator 3.12 gave a green flag (or 0) when the social security number of the subject was not zero and a red flag (or 1) when the social security number was zero (with the exclusion of the municipality of Utrecht).

Indicator 4.1 – Real estate object has multiple transactions

This indicator was used in the transactions dataset and counted the number of times an object was transacted. To explain how this was done, refer back to the abstract view of the transactions dataset in the first part of this chapter (table 5.2). A new column was created in the transactions dataset, where the object number would only appear if the role of the subject was buyer, and not seller, and only for the first subject in that separate transaction. In that way, the object numbers could simply be counted to come to the amount of transactions done with that separate object. If this object was sold more than once (same philosophy as for indicator 3.4), it would receive a red flag. No missing values could be assigned because every object is transacted, and for every object the number of transactions could be counted.

Table 5.19: Results of indicator 4.1, 'Real estate object has multiple transactions', for the merged dataset

0	%	1	%	Missing	Total
8.719	73%	3.176	27%	0	11.895

Source: own calculation

Indicator 4.1 gave a green flag (or 0) when the object was transferred only once and a red flag (or 1) when the object was transferred more than once.

Indicator 4.2 – Real estate object is in a very bad neighborhood

The ministry of VROM[13] ("Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer") published a research performed by the research institute RIGO (2008), which shows the quality of life in all Dutch neighborhoods. The rating for the quality of life was based on 50 indicators comprising the following six aspects; the housing stock, public space, level of facilities, composition of the population, social coherence and safety. These aspects were calculated with surveys among neighborhoods and data from, for instance the CBS (Central Bureau of Statistics) and the police. The 'housing stock' aspect covers the type of housing and the density of housing for that postal code. A dense group of large flats has a lower quality of life than wide family homes with nice gardens. The 'public space' aspect covers how clean, well maintained and attractive the public space is. This also includes deterioration and environmental problems like the inconvenience of noise or stench. Not well-maintained public areas and inconveniences cause a lower quality of life. The 'level of facilities' aspect means the availability and distance to for instance schools, shops, hospitals, banks and sport accommodations. The more facilities are close by, the closer they are and the better they are, the higher the quality of life. The 'composition of the population' aspect covers several factors and is a complicated aspect. Elderly people for instance have a high awareness of the neighborhood, while young one-person families (like students or starters) have a much lower awareness of the neighborhood. A higher awareness means that such a group wants a lot of other neighbors with whom they can identify (so for elderly, other elderly). The better the demands are met, the higher the quality of life, although a too homogeneous neighborhood can also lead to problems and thus works against the quality of life. The 'social coherence' aspect is quite straightforward; a higher coherence among neighbors creates a stronger feeling of safety (social control) and more sociability, and thus a better quality of life. The last aspect is 'safety', which is based on crime numbers on for instance burglary and theft.

A special website was launched on which the results of the research by VROM can be found. The picture below (figure 5.2) shows how the results are presented for Utrecht with the problem area's enlarged manually.

[13] Ministry of Housing, Spatial Planning, and the Environment

Figure 5.2: Quality of life in Utrecht

Source: Leefbaarometer on VROM website, edited by author. The problem area's Overvecht, Kanaleneiland and Hoograven are manually highlighted

This research resulted in a list of 392 6 digit postal codes (for instance 1234AB) for Utrecht and a list of 7 6 digit postal codes for Maastricht where the level of quality of life was either 'negative' or 'very negative' (the bottom two of seven possible definitions of the quality of life). These areas can be seen in the above picture (figure 4.2) as the red and dark red spots. Because of privacy reasons, the postal codes cannot be published in this paper. The 392 postal codes in Utrecht cover about 5.5 percent of the total of 7,154 postal codes in Utrecht. The 7 postal codes in Maastricht cover 0.2 percent of the 2,894 postal codes in Maastricht.

These postal codes were compared to the postal codes in the stock dataset and the objects received a red flag if there was a match. Missing values were assigned to those objects that did not have a postal code, which were 2,606 for the merged

dataset. This is because, for instance, small green areas do not have postal codes. Because every object has an X and Y coordinate (which are the 'Amersfoort coordinates' ('Rijksdriehoeksmeting', distributes information on the geometric infrastructure of the Netherlands)), it will still be possible to find them on GPS if needed for further research.

Table 5.20: Results of indicator 4.2, 'Real estate object is in a very bad neighborhood', for the merged dataset

0	%	1	%	Missing	Total
9.226	100%	39	0%	2.630	11.895

Source: own calculation

Indicator 4.2 gave a green flag (or 0) when the object was not located in one of the 399 postal code areas with a negative quality of life, a red flag (or 1) when the object was located in one of the negative postal code areas and a missing value when there was no postal code available.

Indicator 4.3 – Real estate object is in a very good neighborhood

This indicator is virtually the same as indicator 4.2, with the difference that only postal codes where used where the quality of life was either very good or extraordinary good (the top two of a total of seven possible definitions of quality of life). This resulted in 1,183 6 digit postal codes for Utrecht (16.5 percent of the total of 7,154 postal codes) and 564 6 digit postal codes for Maastricht (19.5 percent of the total of 2.894 postal codes), which are defined as a very good neighborhood. Again, due to privacy reasons these postal codes cannot be published in this research. Comparing these with the merged dataset gave the following results:

Table 5.21: Results of indicator 4.3, 'Real estate object is in a very good neighborhood', for the merged dataset

0	%	1	%	Missing	Total
7.676	83%	1.589	17%	2.630	11.895

Source: own calculation

Indicator 4.3 gave a green flag (or 0) when the object was not located in one of the 1,747 postal code areas with a good quality of life, a red flag (or 1) when the object was located in one of the 1,747 postal code areas with a good quality of life and a missing value when no postal code was available.

Indicator 5.1 – Purchase sum is unusual compared to the appraised value (WOZ)

Since the appraised value (WOZ) is based on the purchase sum (see also chapter 2), there should be a one to one relationship between these two numbers. Therefore, the purchase sum was divided by the appraised value and if the outcome was below 50 percent or above 150 percent, a red flag was assigned. The standard statistical method of the average plus and minus twice the standard error could not be used because of the skewed distribution. The plus and minus 50 percent boundaries are arbitrary choices, but seem to be better than the standard statistical method. A missing value was assigned to the objects, which had a purchase sum that concerned multiple objects. Since no distinction could be made between the individual objects it concerned, the purchase sum could not be compared, so these transactions were left out. This is very unfortunate, because Nelen et al (2008) indicate that criminals often buy real estate in 'packages'. By purchasing several objects at the same time, the purchase sum can no longer be linked to a separate object. This method works perfectly, as can be seen from this research, where the objects that were purchased with a purchase sum concerning several objects have to be left out for several indicators (2.1, 2.2, 5.1 and 5.2).

Table 5.22: Results of indicator 5.1, 'Purchase sum us unusual compared to appraised value (WOZ)', for the merged dataset

0	%	1	%	Missing	Total
4.754	91%	496	9%	6.645	11.895

Source: own calculation

Indicator 5.1 gave a green flag (or 0) when the purchase sum ranged from 50 percent up until 150 percent of the appraised value (WOZ), a red flag when the purchase sum was either below 50 percent or above 150 percent of the appraised value, and a missing value when the object had no purchase sum or no appraised value.

Indicator 5.2 – Purchase sum is unusual compared to previous purchase sum

This indicator was calculated using the same method as indicator 5.1 and thus has the same remark of having an arbitrary boundary. For this indicator, an object needs two transactions recorded in the six years the transactions dataset covers to make a comparison. Furthermore a lot of purchase sums are missing, which makes a comparison impossible. This resulted in a high amount of missing values. Again, missing values were assigned to the transactions which concerned a purchase sum which was used for the purchase multiple objects. Since Nelen et al (2008) describes that criminals often use 'packages' for the purchase of real estate, to make sure the purchase sum cannot be linked to a separate object (see also explanation for the previous indicator, 5.1), it is very unfortunate that no distinction can be made which objects this purchase sum concerns. The method seems to work, because we also have to assign missing values to these cases.

Table 5.23: Results of indicator 5.2, 'Purchase sum is unusual compared to previous purchase sum', for the merged dataset

0	%	1	%	Missing	Total
1.200	84%	227	16%	10.468	11.895

Source: own calculation

Indicator 5.2 gave a green flag (or 0) when the purchase price ranged from 50 percent up until 150 percent of the previous purchase price, a red flag (or 1) when the purchase price was either below 50 percent of above 150 percent of the previous purchase price and a missing value when the purchase price or previous purchase price was missing.

5.4 Conclusion

In this chapter all the indicators and the way they were calculated, which problems occurred and which remarks have to be made were described. Because of some missing information, only 17 of the 25 possible indicators could be tested. Table 5.24 summarizes all the results found in this chapter.

Table 5.24: Summary of the results of all the indicators that were used

Nr	Description	0	%	1	%	Missing
1.1	Financier is from abroad	7.266	94%	443	6%	4.186
1.2	Financier is a person not a company	7.578	98%	131	2%	4.186
2.2	Financing is unusual compared to purchase sum	2.959	64%	1.664	36%	7.272
2.3	Financing is not used (no mortgage)	6.801	76%	2.178	24%	2.916
2.4	Financing is given by the owner (same person)	7.647	99%	62	1%	4.186
3.1	Owner is from abroad	11.504	97%	391	3%	0
3.3	Owner is person with unusual number of objects	4.871	50%	4.857	50%	2.167
3.4	Owner is person with unusual number of transactions	5.651	57%	4.270	43%	1.974
3.8	Owner is company with a particular exploitation	7.145	94%	460	6%	4.290
3.9	Owner is a company just established	4.056	92%	351	8%	7.488
3.11	Owner is a company without employees	5.125	57%	3.944	43%	2.826
3.12	Owner is a ‘world citizen’	10.834	91%	1.015	9%	0
4.1	Real estate object has multiple transactions	8.719	73%	3.176	27%	0
4.2	Real estate object is in a very bad neighborhood	9.250	100%	39	0%	2.606
4.3	Real estate object is in a very good neighborhood	7.696	83%	1.593	17%	2.606
5.1	Purchase sum is unusual compared to appraised value	4.754	91%	496	9%	66.45
5.2	Purchase sum is unusual compared to previous sum	1.200	84%	227	16%	10.468

Source: own calculation. The description can differ from what is used in the rest of the paper because of the limited space in the table.

6. Research results

6.1 Introduction

In total there were 11.895 separate objects in Utrecht and Maastricht. The results will be discussed as a total and per city. The indicators can have three different values, either a 0, a 1 or a missing value. A 0 means a ‘green flag’ and a 1 means a ‘red flag’, which stand for something unusual. A missing value was assigned when the indicator could not be applied on the object, or when the data was not available for the object. Each possible outcome of the different indicators, and all possible implications, will be explained in this chapter.

A total of 17 indicators of the 25 possible indicators that were presented in chapter 4 could be tested. The indicators which were used are:

1.1 Financier is from abroad

1.2 Financier is a person not a company

2.2 Financing has an unusual amount compared to appraised value (WOZ)

2.3 Financing is not used (no mortgage)

2.4 Financing has creditor and a debtor being the same subject

3.1 Owner is from abroad

3.3 Owner is a person with a disproportionate number of objects

3.4 Owner is a person with a disproportionate number of purchases

3.8 Owner is a company with a particular exploitation

3.9 Owner is a company just established

3.11 Owner is a company without employees

3.12 Owner is a ‘world citizen’ (unknown by the Tax Administration)

4.1 Real estate object has multiple transactions

4.2 Real estate object is in a very bad neighborhood

4.3 Real estate object is in a very good neighborhood

5.1 Purchase sum is unusual compared to the appraised value (WOZ)

5.2 Purchase sum is unusual compared to the previous purchase sum

The seven indicators which were not used were all proposed for further analysis in the criminological part of this research, because on case level it is far more likely to find data to test these indicators.

6.2 Indicators

Indicator 1.1 – Financier is from abroad

For indicator 1.1, a red flag (or 1) was assigned to the objects of which the financiers were from outside of the Netherlands.

Table 6.1: Results for indicator 1.1, 'Financier is from abroad'

	0	%	1	%	Missing	Total
Total	7.266	94%	443	6%	4.186	11.895
Utrecht	5.157	94%	333	6%	3.327	8.817
Maastricht	2.109	95%	110	5%	859	3.078

Source: own calculation

As can be seen from table 6.1, the distribution is the same for Utrecht and Maastricht. Only 6 percent of the financiers are from abroad. How these are distributed can be seen below in table 6.2. The total number of objects with a foreign financier is displayed together with the percentage relative to the total number of foreign financiers in that city. The distribution is about the same for both cities. The only difference is that Maastricht has a significant higher percentage of German financiers, but this is no surprise, since Maastricht is located much closer to the German border. The high amount of financiers from Great Britain came as a surprise, but geographically, it is one of the surrounding countries of the Netherlands, like Germany and Belgium. The only difference is the 'psychological' larger border of the North Sea. Another reason can be that Great Britain has a credit policy more similar to that of the United States. In these countries it is easier to get a mortgage (BKR Direct, 6-7-2008) if you have a variable income or if you have a bad credit history. In the Netherlands the later would mean that you are registered at the BKR in Tiel, which is the Bureau of Credit Registration and registers subjects that cannot pay their credit back (which makes you a so called 'defaulter'), which will then 'haunt' you for at least five years (source: BKR). The BKR Direct describes this phenomenon as

alarming, because of the alternative route to get extra credit, even though this would not be possible in the Netherlands. This alarming phenomenon could be an explanation for the results in table 6.2.

A significant conclusion that can be drawn from table 6.2 is that either there are no criminal investments in Utrecht and Maastricht, or that the assumption coming from current literature (as described in chapter 4) that criminal money comes from far away is not true (at least for the direct finance). Aside from the surrounding countries Belgium, Germany and Great Britain, only France (which is not exactly far away) forms a one percentage share of the foreign financiers, all the others have a less than one percent share. However one should keep in mind that there might be all sorts of indirect foreign financing, for instance from Panama to Switzerland, and finally through a Dutch financier. This could not be traced through the available data sources in this research.

Table 6.2: Overview of the origin of finance for real estate in Utrecht and Maastricht

Country	Utrecht	%	Maastricht	%
Belgium	227	68%	67	61%
Switzerland	1	0%	0	0%
Germany	5	2%	13	12%
France	2	1%	0	0%
Great Britain	96	29%	30	27%
Nigeria	1	0%	0	0%
Netherlands	5.157		2.109	
United States	1	0%	0	0%
Total	5.490		2.219	
Abroad	333		110	

Source: own calculation

The distribution of the red flags is about the same for all postal codes; see table A1.1 and table A1.4 in Appendix 1.

Indicator 1.2 – Financier is a person not a company

For indicator 1.2, a red flag (or 1) means that the financier is a natural person, not a legal person / company.

Table 6.3: Results of indicator 1.2, 'Financier is a person not a company'

	0	%	1	%	Missing	Total
Total	7.578	98%	131	2%	4.186	11.895
Utrecht	5.400	98%	90	2%	3.327	8.817
Maastricht	2.178	98%	41	2%	859	3.078

Source: own calculation

Again, the distribution of red flags is about the same for both cities. The postal code 3566 scored 17 percent of red flags, but since this is only one of six objects, this percentage is not a reliable estimate for the entire postal code area. For the rest of the analysis the postal code areas that have a total of less than 10 analyzed objects (3528, 3541, 3545, 3546, 3566 and 3585) will be ignored.

We can conclude that there is a rather robust but low proportion of objects, which are financed by a natural person instead of a legal person (about two percent).

Indicator 2.2 – Financing has an unusual amount compared to appraised value (WOZ)

For indicator 2.2, a red flag (or 1) means an unusually low (less than 100 percent) or unusually high (more than 200 percent) mortgage compared to the appraised value.

Table 6.5: Results of indicator 2.2, 'Financing has an unusual amount compared to appraised value (WOZ)'

	0	%	1	%	Missing	Total
Total	2.959	64%	1.664	36%	7.272	11.895
Utrecht	2.349	65%	1.277	35%	5.191	8.817
Maastricht	610	61%	387	39%	2.081	3.078

Source: own calculation

During the data research, a lot of information is lost because everything is converted to green and red flags. To give an indication on the results of this indicator, we even saw that someone had a mortgage which was 8,423 times higher than the appraised

value (WOZ) of the object. The lowest mortgage was only 8.6% of the appraised value. Of the 1.664 red flags, 497 concerned mortgages that were unusually low (mortgage below 100 percent of appraised value) and 1,167 concerned mortgages which were unusually high (above 200 percent of appraised value).

Figure 6.1 displays the distribution of the percentages of red flags compared to the total number of flags. As with appendix A1, postal codes for which 10 or fewer objects could receive a flag (green or red) are discarded from the analysis (and displayed white (No data)). The distribution is quite wide spread, with no obvious clustering.

Figure 6.1: Distribution of red flags for indicator 2.2 in Utrecht and Maastricht

Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 2.2 for Utrecht (left) and Maastricht (right).

Indicator 2.3 – Financing is not used (no mortgage)

For indicator 2.3, a red flag (or 1) means that the natural persons involved in this object did not use a mortgage for the purchase of the object.

Table 6.6: Results of indicator 2.3, 'Financing is not used (no mortgage)'

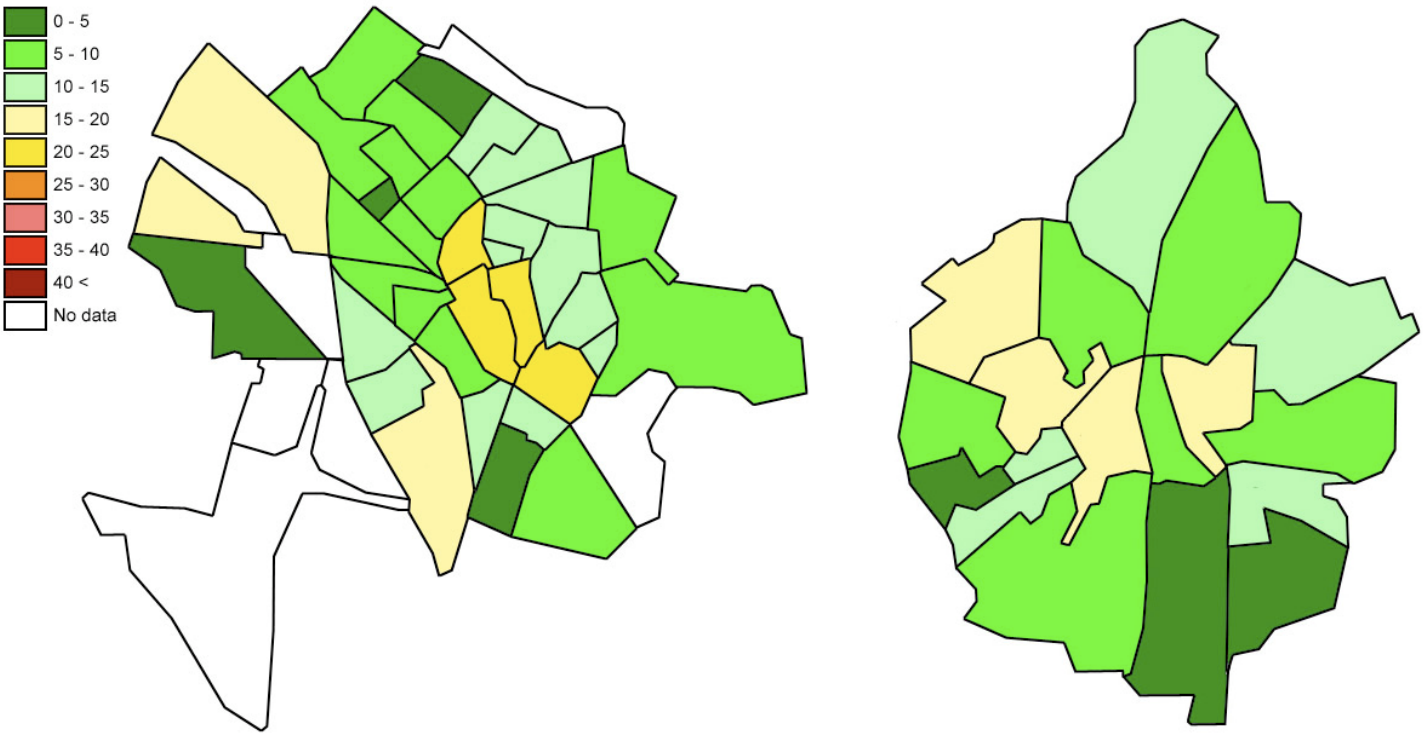
	0	%	1	%	Missing	Total
Total	6.801	76%	2.178	24%	2.916	11.895
Utrecht	4.890	72%	1.902	28%	2.025	8.817
Maastricht	1.911	87%	276	13%	891	3.078

Source: own calculation

The table shows that a significant higher percentage is using a mortgage in Maastricht than in Utrecht. This can be explained by the fact that in Utrecht about 57 percent of the objects without a postal code were purchased by natural persons without a mortgage (see table A1.1 in Appendix 1). If we correct for this, the percentage of red flags is 12 percent for both cities. It could be a city characteristic, for instance the severe parking problem in Utrecht. This can be illustrated with the example of garage boxes (to which no postal code is assigned), for which no mortgage would be needed, because the value is much lower than for regular real estate (think of 10.000 to 35.000 Euros (source: Funda website)). It is also possible that the mortgage on the house is raised for the purchase of the object, or that a regular loan is used in which case no mortgage is recorded for this object.

For both Utrecht and Maastricht, the red flags are mainly clustered in the centre of the city (see figure 6.2). This could indicate that the big players (as these often do not use a mortgage) mainly transact in objects located in the city centre.

Figure 6.2: Distribution of red flags for indicator 2.3 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 2.3 for Utrecht (left) and Maastricht (right).

Indicator 2.4 – Financing has a creditor and a debtor being the same subject

For indicator 2.4, a red flag (or 1) means that the financier had the same name as the subject purchasing the objects. For legal persons this means that a company with the same name, or the company itself has issued a mortgage. For a legal person this means that a subject with the same last name, and therefore possibly the same subject, has issued a mortgage.

Table 6.7: Results of indicator 2.4, 'Financing has a creditor and debtor being the same subject'

	0	%	1	%	Missing	Total
Total	7.647	99%	62	1%	4.186	11.895
Utrecht	5.441	99%	49	1%	3.327	8.817
Maastricht	2.206	99%	13	1%	859	3.078

Source: own calculation

The distribution between cities is the same for all postal code areas, but the most interesting conclusion is that it actually occurred, since the Tax Administration indicated during an interview that this would not be present in the dataset. At this moment, we have no idea why such a construction would be used.

Indicator 3.1 – Owner is from abroad

For indicator 3.1, a red flag (or 1) means that the owner is from abroad.

Table 6.8: Results of indicator 3.1, 'Owner is from abroad'

	0	%	1	%	Missing	Total
Total	11.504	97%	391	3%	0	11.895
Utrecht	8.703	99%	114	1%	0	8.817
Maastricht	2.801	91%	277	9%	0	3.078

Source: own calculation

Table 6.9 displays the countries where the owners are coming from. Of the 391 objects with red flags, 14 objects had more than one owner from more than one country. Owners from Belgium (13), Germany (4), Canada (3), Columbia (3), Italy (2), Japan (1), Spain (1), United States (3) and South Africa (1) were involved in these 14 objects. Because these are not significant numbers, they are grouped as 'multiple countries' at the bottom of the below table.

Three important conclusions can be drawn from table 6.9. First, the list of countries is very diverse and much less clustered than the countries of residence of the financier (see table 6.2). Second, a striking fact is that Utrecht has far less foreign owners than Maastricht, which can be explained by the high number of Belgian owners in Maastricht. Because Maastricht is significantly closer to the border, it is more interesting for Belgian subjects to purchase an object in Maastricht. The third conclusion is that the distribution of the countries of residence of the owners is very different from the distribution of the countries of residence of the financiers. There are far more (both absolute and relative) Belgian financiers active in Utrecht than Belgian owners. For Maastricht, this is the other way around, meaning far more owners from Belgium then financiers from Belgium. The number of owners from Great Britain is far less than the number of financiers, which could prove the point

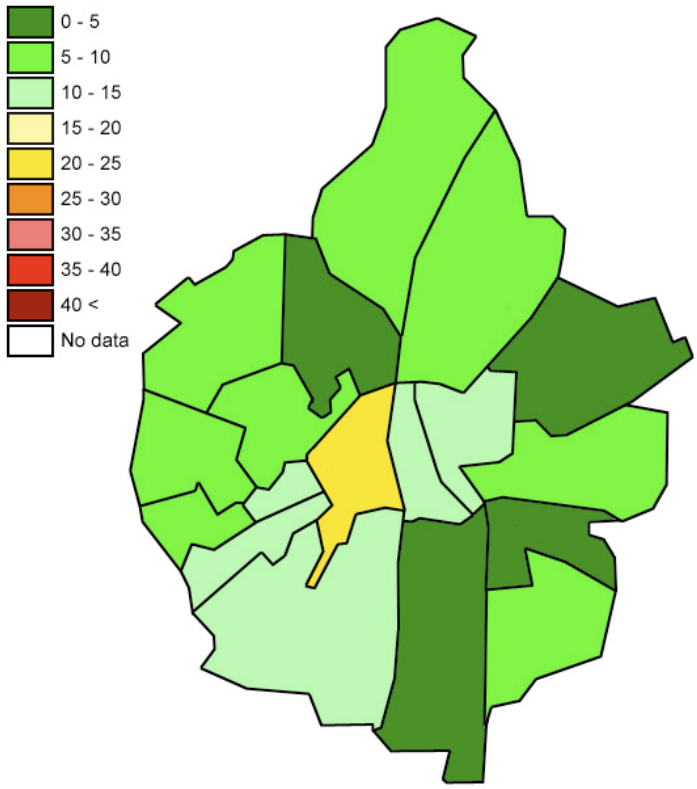
that was made for indicator 1.1; domestic inhabitants are using the relaxed credit rules of Great Britain for their mortgage.

Table 6.9: Country of residence of owners

Country	Utrecht	%	Maastricht	%
Aruba	0		1	0%
Australia	0		1	0%
Belgium	25	22%	216	78%
Germany	14	13%	15	5%
Botswana	1	1%	0	
Brazil	0		1	0%
China	3	3%	0	
Denmark	1	1%	0	
Finland	2	2%	0	
France	4	4%	4	1%
Ghana	0		1	0%
Greece	2	2%	0	
Great Britain	8	7%	7	3%
Ireland	2	2%	0	
Indonesia	1	7%	0	
Iran	1	1%	0	
Italy	5	4%	1	0%
Luxembourg	4	4%	7	3%
Monaco	1	1%	0	
Netherlands Antilles	4	4%	0	
Norway	2	2%	0	
Austria	2	2%	0	
Portugal	1	1%	0	
Saudi Arabia	1	1%	1	0%
Serbia and Montenegro	0		1	0%
Singapore	1	1%	0	
Spain	3	3%	2	1%
Surinam	3	3%	0	
Tanzania	1	1%	0	
Czech Republic	2	2%	0	
Tunis	1	1%	0	
Turkey	4	4%	0	
United States	10	9%	5	2%
South Africa	1	1%	0	
Switzerland	2	2%	2	1%
Multiple countries	2	2%	12	4%
Total	114		277	

Source: own calculation

Figure 6.3: Distribution of red flags for indicator 3.1 in Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.1 for Maastricht.

In figure 6.3, only the city of Maastricht is shown, because Utrecht has almost no distribution whatsoever (see Appendix A1, table A1.2). Maastricht however has a very distinctive cluster in the city centre, which indicates that foreigners are mainly interested in objects located in the city centre.

Indicator 3.3 – Owner is a person with a disproportionate number of objects

For indicator 3.3, a red flag (or 1) means that a, or all, natural persons involved in the object own more than one object in Utrecht and Maastricht.

Table 6.10: Results of indicator 3.3, 'Owner is a person with a disproportionate number of objects'

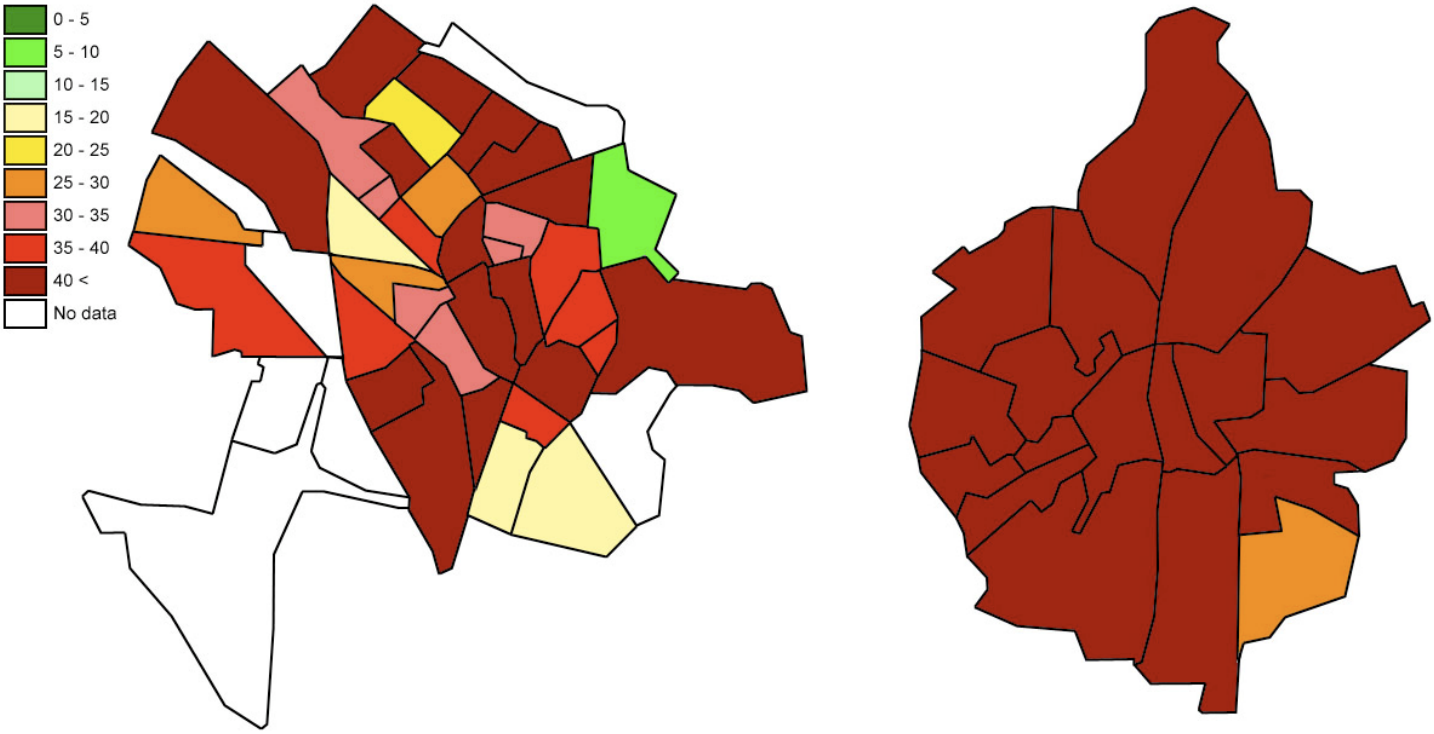
	0	%	1	%	Missing	Total
Total	4.871	50%	4.857	50%	2.167	11.895
Utrecht	3.790	52%	3.526	48%	1.501	8.817
Maastricht	1.081	45%	1.331	55%	666	3.078

Source: own calculation

The percentages do not provide a reliable image for the cities, because a person who owns for instance 20 objects will receive a red flag for all these objects. A total of 2,499 persons (of the total of 12,956 subjects in the stock dataset) were responsible for the red flags on the basis of this indicator, which shows that the percentage should be interpreted differently.

During the data research, a lot of information is lost because everything is converted to green and red flags. To give an indication on the results of this indicator: the highest number of objects a subject owned was 19,228 objects, which was of course not a natural person but a municipality.

Figure 6.4: Distribution of red flags for indicator 3.3 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.3 for Utrecht (left) and Maastricht (right).

Figure 6.4 shows that Utrecht has a far bigger distribution than Maastricht, which is almost completely deep red (more than 40 percent). This means that it is far more common to own multiple objects in Maastricht, which implies that in Maastricht the big players are trading in all postal codes, while in Utrecht their trade is more concentrated in specific areas, such as the city centre.

Indicator 3.4 – Owner is a person with a disproportionate number of purchases

For indicator 3.4, a red flag (or 1) was assigned to the objects where a natural person was involved who had more than one purchase from 2001 up until 2006 in Utrecht and Maastricht.

Table 6.11: Results of indicator 3.4, 'Owner is a person with a disproportionate number of purchases'

	0	%	1	%	Missing	Total
Total	5.651	57%	4.270	43%	1.974	11.895
Utrecht	4.424	59%	3.049	41%	1.344	8.817
Maastricht	1.227	50%	1.221	50%	630	3.078

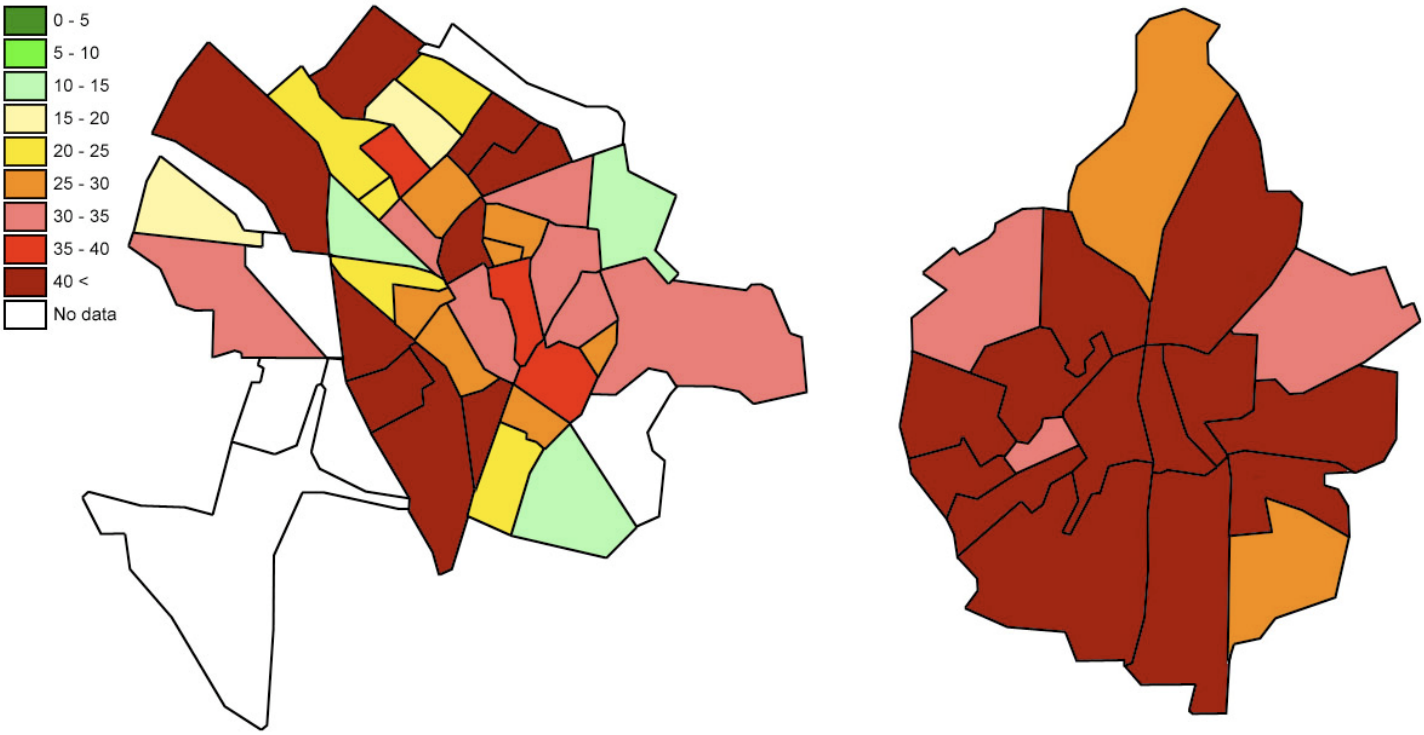
Source: own calculation

Both indicators 3.3 and 3.4 indicate that the turnover rate of the real estate market is higher in Maastricht than in Utrecht. Again, the percentages do not provide a reliable image for the cities, because a person who purchased 20 objects will receive a red flag on all these 20 objects. The red flags can be described to 3,135 persons (of a total of 15,422 subjects in the transactions dataset), who have done more than one purchase from 2001 up until 2006 in Utrecht or Maastricht.

During the data research, a lot of information is lost because everything is converted to green and red flags. To give an indication on the results of this indicator, the highest number of purchases by one subject was 23,422 purchases.

Figure 6.5 again shows a far wider distribution for Utrecht than Maastricht, which is in line with the conclusion of indicator 3.3 that large real estate brokers are trading everywhere in Maastricht, and in more specific postal codes in Utrecht.

Figure 6.5: Distribution of red flags for indicator 3.4 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.4 for Utrecht (left) and Maastricht (right).

Indicator 3.8 – Owner is a company with a particular exploitation

For indicator 3.8, a red flag (or 1) means that the owner of the object operates in a particular branch (see table 5.13).

Table 6.12: Results of indicator 3.8, 'Owner is a company with a particular exploitation'

	0	%	1	%	Missing	Total
Total	7.145	94%	460	6%	4.290	11.895
Utrecht	5.361	96%	249	4%	3.207	8.817
Maastricht	1.784	89%	211	11%	1.083	3.078

Source: own calculation

Surprising is the higher percentage of red flags in Maastricht. Because the majority (about 67 percent, see Table A1.5 in Appendix 1) consists of objects with no postal code, no distinction can be made as to which area this relates to. Another surprise is the low amount of objects in the city centre of Utrecht (postal codes 3511 and 3512) with a red flag, even though a high amount of objects have been traded in these postal

codes (see table A1.2 in Appendix 1). The only postal code in Utrecht that has a high percentage of red flags is postal code 3527 with 27 percent (82 objects). The reason could be the large shopping mall in this area or a large transport company, who might own several objects.

Indicator 3.9 – Owner is a company just established

For indicator 3.9, a red flag (or 1) means that any, or all of the owners are legal persons that were established in the same year as the purchase year.

Table 6.12: Results of indicator 3.9, 'Owner is a company just established'

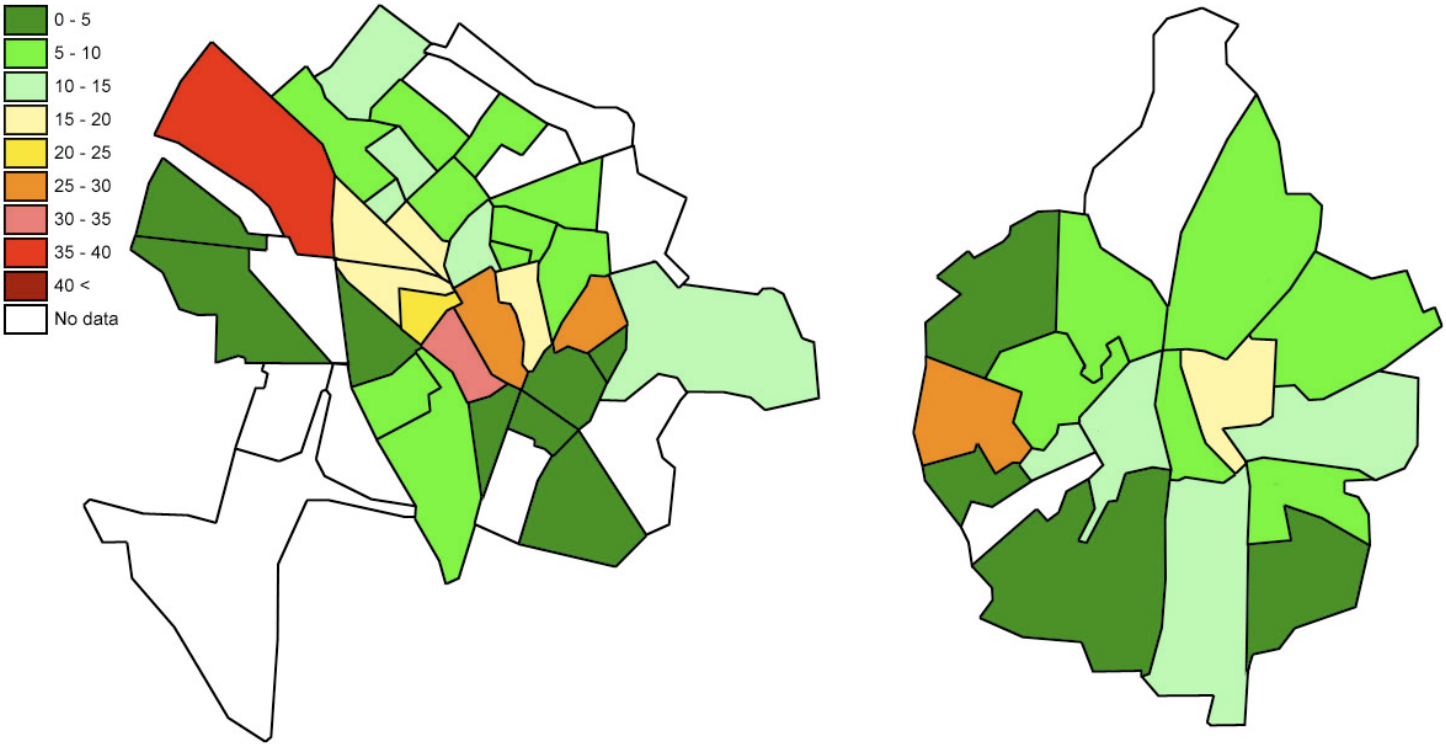
	0	%	1	%	Missing	Total
Total	4.056	92%	351	8%	7.488	11.895
Utrecht	3.011	92%	259	8%	5.547	8.817
Maastricht	1.045	92%	92	8%	1.941	3.078

Source: own calculation

The conclusion for this indicator is that companies that were just established have transacted about 8 percent of the total number of objects transacted by companies. This is a quite significant amount for such a specific group. The table shows the same distribution for both cities, although not if we look per postal code.

Figure 6.6 shows that the red flags for indicator 3.10 are more clustered around the city centre in Utrecht, and more away from the centre in Maastricht.

Figure 6.6: Distribution of red flags for indicator 3.9 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.10 for Utrecht (left) and Maastricht (right).

Indicator 3.11 – Owner is a company without employees

For indicator 3.11, a red flag (or 1) means that the owner is a company without employees.

Table 6.13: Results of indicator 3.11, 'Owner is a company without employees'

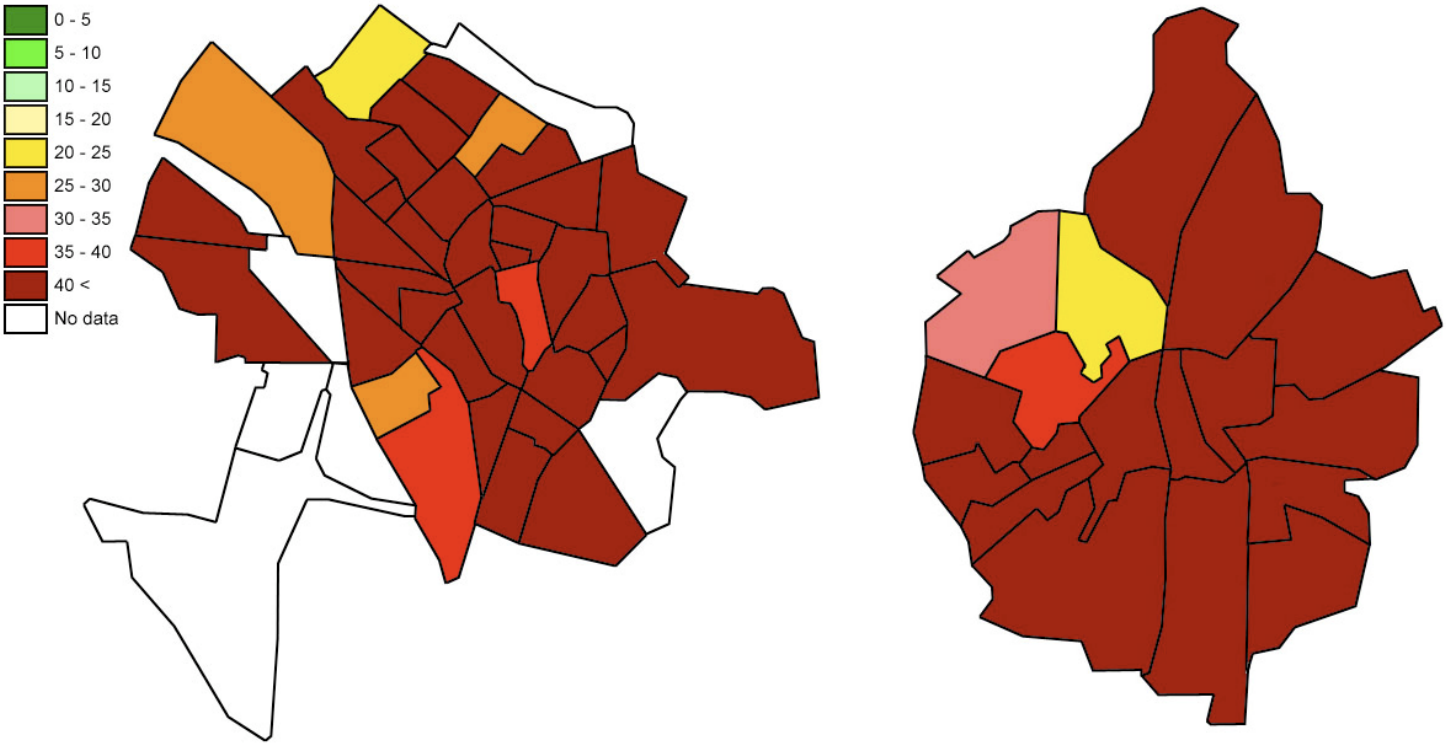
	0	%	1	%	Missing	Total
Total	5.125	57%	3.944	43%	2.826	11.895
Utrecht	3.786	57%	2.904	43%	2.127	8.817
Maastricht	1.339	56%	1.040	44%	699	3.078

Source: own calculation

The surprising conclusion for this indicator is that almost half of the objects are purchased by 'empty' companies (which might be shell companies but can also be perfectly legal real estate trading companies, which often have no employees). When we look at the distribution of these red flags for the postal codes of the both cities, we

see a similar equal distribution among all the postal codes. Apparently empty companies purchase objects all around Utrecht and Maastricht.

Figure 6.7: Distribution of red flags for indicator 3.11 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.11 for Utrecht (left) and Maastricht (right).

Indicator 3.12 – Owner is a 'world citizen' (unknown to the Tax Administration)

For indicator 3.12, a red flag (or 1) means that it is unknown where or whether the subject involved in the object pays its taxes.

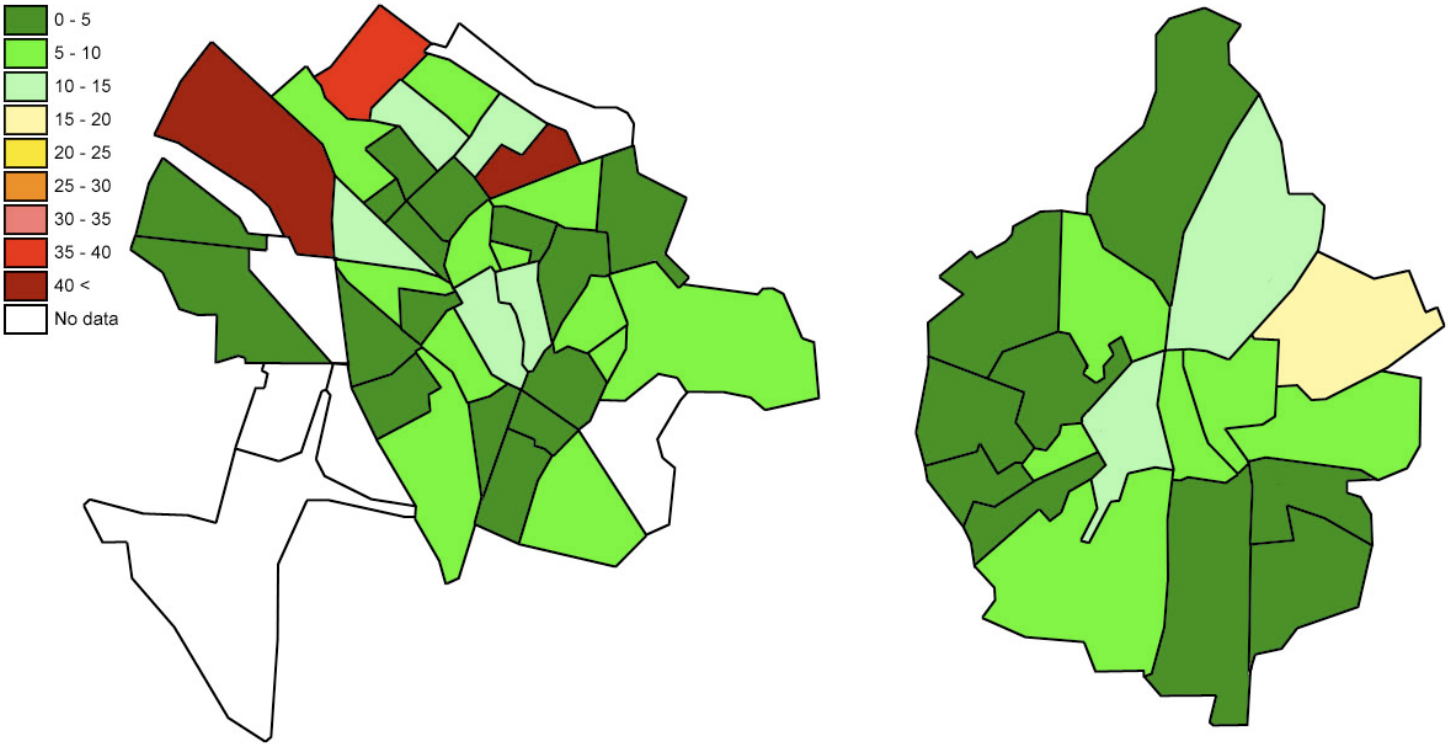
Table 6.14: Results of indicator 3.12, 'Owner is a world citizen (unknown to the Tax Administration)'

	0	%	1	%	Missing	Total
Total	10.834	91%	1.015	9%	46	11.895
Utrecht	7.989	91%	782	9%	46	8.817
Maastricht	2.845	92%	233	8%	0	3.078

Source: own calculation

The amount is higher than we expected, although we should take into account that a subject also has a missing social security number when there are multiple social security numbers available. This makes this indicator difficult to interpret.

Figure 6.8: Distribution of red flags for indicator 3.12 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 3.12 for Utrecht (left) and Maastricht (right).

The postal codes in Utrecht with a high percentage of red flags are located in business areas, which makes sense as these can be large companies with multiple social security numbers (and thus have no social security number in the dataset, resulting in a red flag). For Maastricht, this is not the case. There are no clusters of red flags in certain postal codes, although some areas have a number of business areas.

Indicator 4.1 – Real estate object has multiple transactions

For indicator 4.1, a red flag (or 1) means that the object was transacted more than once from 2001 up until 2006.

Table 6.15: Results of indicator 4.1, 'Real estate object has multiple transactions'

	0	%	1	%	Missing	Total
Total	8.719	73%	3.176	27%	0	11.895
Utrecht	6.469	73%	2.348	27%	0	8.817
Maastricht	2.250	73%	828	27%	0	3.078

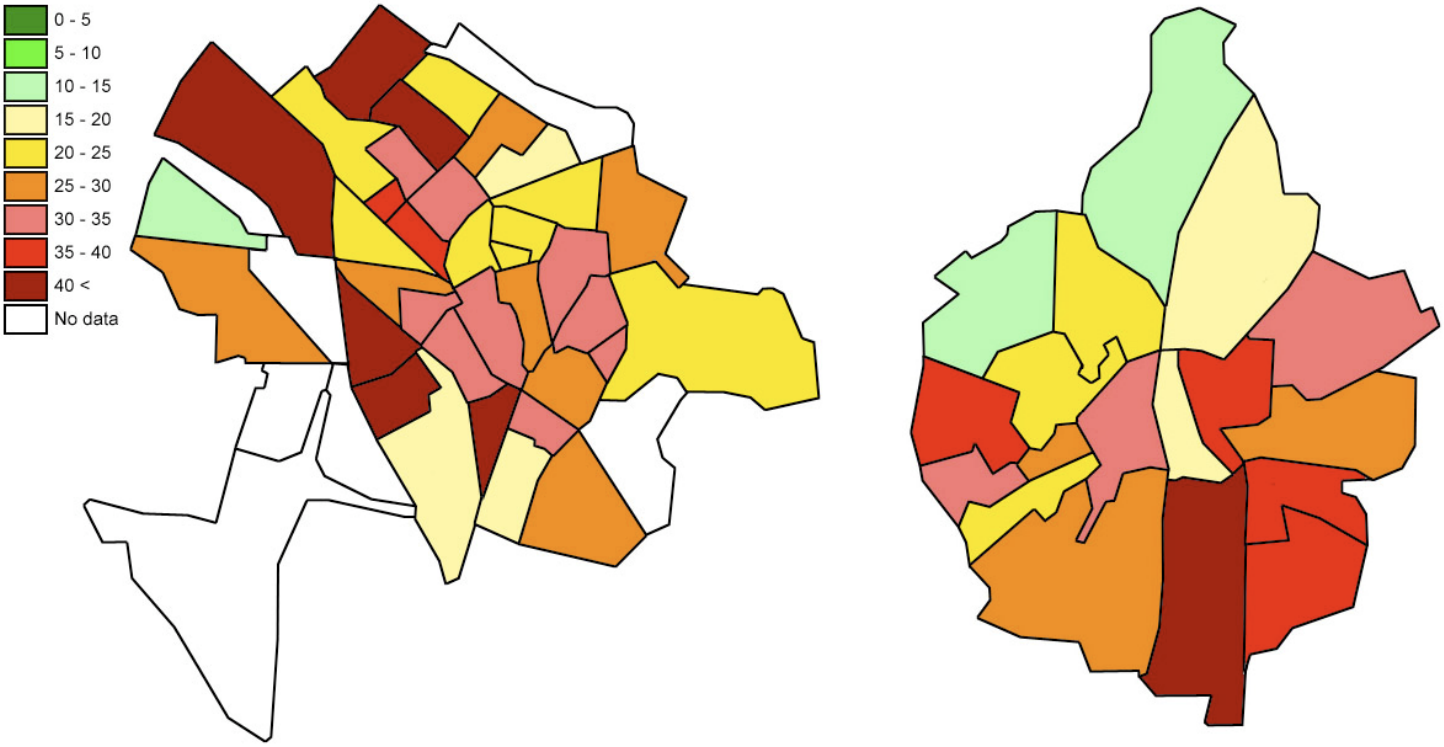
Source: own calculation

Although it seems that 25 percent of the objects are sold more than once between 2001 and 2006, the data used is actually censored data. Since we only look at objects that have been transacted, all objects will have a minimum of one transaction. The number should be compared to the total number of objects. The total number of objects in Utrecht is 91,483, which means that about 2.6 percent is sold more than once. For Maastricht (a total of 52,367 objects) this is about 1.6 percent. By putting the numbers in perspective, a much more logical and expected percentage can be seen.

During the data research, a lot of information is lost because everything is converted to green and red flags. To give an indication of the results of this indicator, the highest number of transactions for a separate object from 2001 up until 2006 was 11 transactions.

Both cities have a wide distribution of red flags, as can be seen in figure 6.9.

Figure 6.9: Distribution of red flags for indicator 4.1 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 4.1 for Utrecht (left) and Maastricht (right).

Indicator 4.2 – Real estate object is in a very bad neighborhood

For indicator 4.2, a red flag (or 1) means that the object's location had a negative or very negative rating for the quality of life, which we call a bad neighborhood.

Table 6.16: Results of indicator 4.2, 'Real estate object in a very bad neighborhood'

	0	%	1	%	Missing	Total
Total	9.226	100%	39	0%	2.630	11.895
Utrecht	6.590	99%	38	1%	2.189	8.817
Maastricht	2.636	100%	1	0%	441	3.078

Source: own calculation

The 399 postal codes of bad neighborhoods add up to 687 objects for Utrecht and 24 for Maastricht. This means a turnover rate (the amount of times a object is traded in this period, on average), for 2001 up until 2006 in bad neighborhoods, of 5.5 percent

for Utrecht and 4.2 percent in Maastricht. The turnover rate for the complete city is 10.1 percent for Utrecht and 6.4 percent for Maastricht. This means that either the inhabitants of bad neighborhoods do not move as much (which could be because these are often the poorer people), that real estate brokers trade less in these neighborhoods (because of the bad name of the neighborhood), or that renting is more common in bad neighborhoods.

Indicator 4.3 – Real estate object is in a very good neighborhood

For indicator 4.3, a red flag (or 1) means the objects had a very good or extraordinary good rating on the quality of life, which we call a good neighborhood.

Table 6.17: Results of indicator 4.3, 'Real estate object is in a very good neighborhood'

	0	%	1	%	Missing	Total
Total	7.676	83%	1.589	17%	2.630	11.895
Utrecht	5.583	84%	1.045	16%	2.189	8.817
Maastricht	2.085	79%	552	21%	441	3.078

Source: own calculation

The total number of objects in the good neighborhoods is 13,173 for Utrecht and 9,186 for Maastricht. As can be seen, Maastricht has relatively more objects in good neighborhoods then Utrecht. The turnover rate for objects in good neighborhoods in Utrecht for 2001 up until 2006 is 7.9 percent and the same turnover rate for Maastricht is 6 percent. Again, the turnover rates are lower than the turnover rates for the complete city (see the previous indicator 4.2). This can indicate that the achievement of owning an object in a good neighborhood is something that people hold on to.

Indicator 5.1 – Purchase sum is unusual compared to the appraised value (WOZ)

For indicator 5.1, a red flag (or 1) means the object was involved in a transaction for which the purchase price was unusually low (below 50 percent) or unusually high (above 150 percent) compared to the appraised value.

Table 6.18: Results of indicator 5.1, 'Purchase sum is unusual compared to the appraised value (WOZ)'

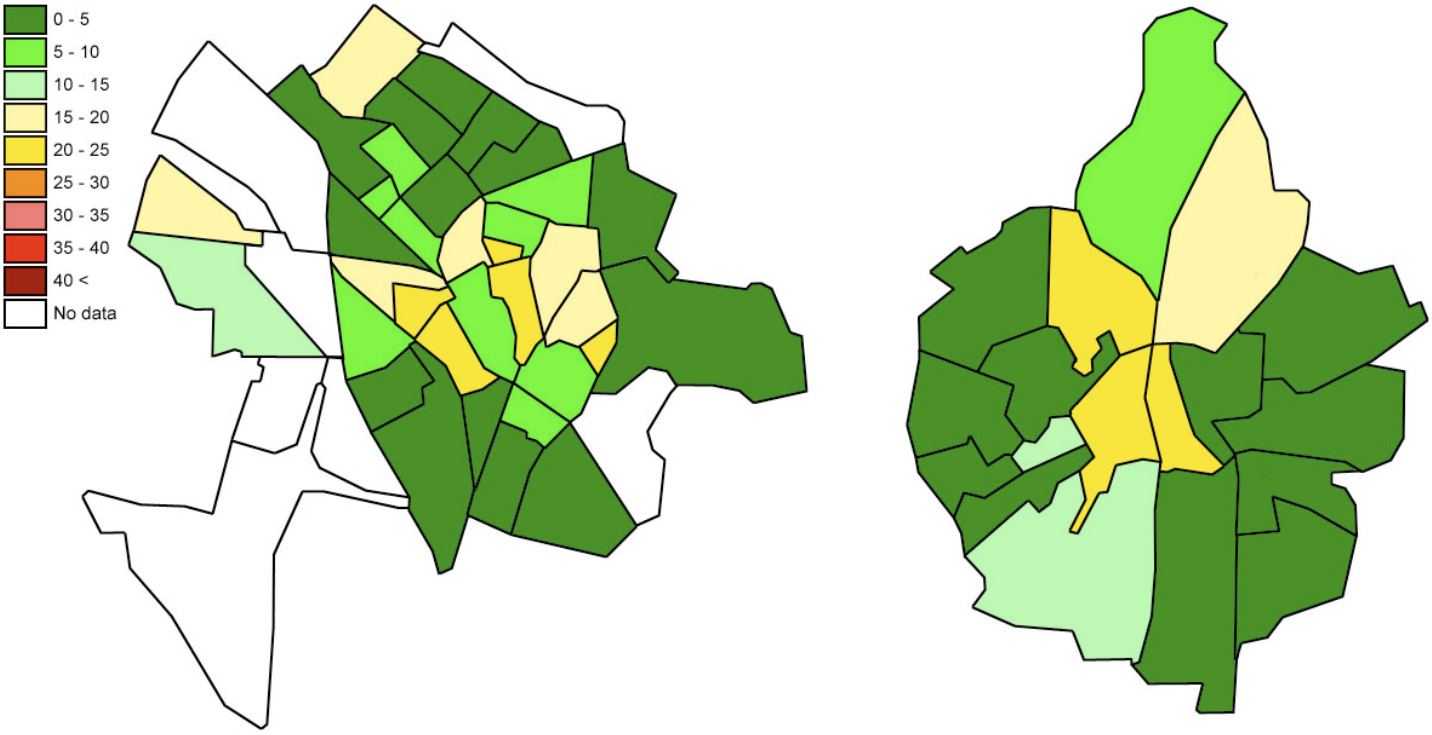
	0	%	1	%	Missing	Total
Total	4.751	91%	496	9%	6.645	11.895
Utrecht	3.663	90%	424	10%	4.730	8.817
Maastricht	1.091	94%	72	6%	1.915	3.078

Source: own calculation

During the data research, a lot of information is lost because everything is converted to green and red flags. To give an indication on the results of this indicator, the highest purchase sum for a separate object was 2.809 times the appraised value (WOZ). The lowest purchase sum was only 10,6 percent of the appraised value.

The percentages are no different from what we expected. The Dutch Tax Administration warned, in an interview during our research, that the red flags of this indicator would mainly be found in the business areas. After examining the results, we could not conclude the same, as the red flags seem to be clustered in urban areas (see also table A1.3 and A1.6 of Appendix 1).

Figure 6.10: Distribution of red flags for indicator 5.1 in Utrecht and Maastricht



Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 5.1 for Utrecht (left) and Maastricht (right).

Indicator 5.2 – Purchase sum is unusual compared to the previous purchase sum

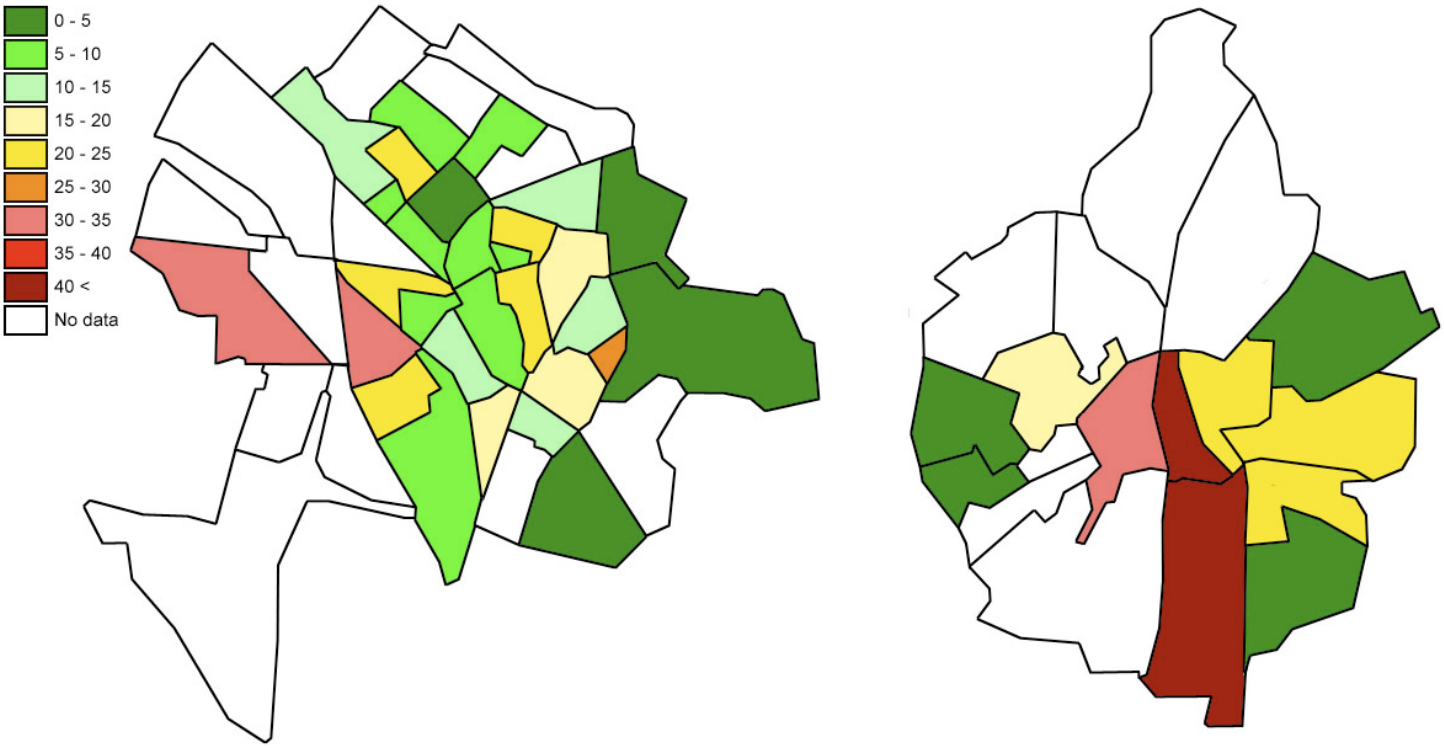
For indicator 5.2, a red flag (or 1) means the purchase sum was either unusually low (below 50 percent) or unusually high (above 150 percent) compared to the previous purchase sum.

Table 6.19: Results of indicator 5.2, 'Purchase sum is unusual compared to the previous purchase sum'

	0	%	1	%	Missing	Total
Total	1.200	84%	227	16%	10.468	11.895
Utrecht	972	85%	175	15%	7.670	8.817
Maastricht	228	81%	52	19%	2.798	3.078

Source: own calculation

Figure 6.11: Distribution of red flags for indicator 5.2 in Utrecht and Maastricht



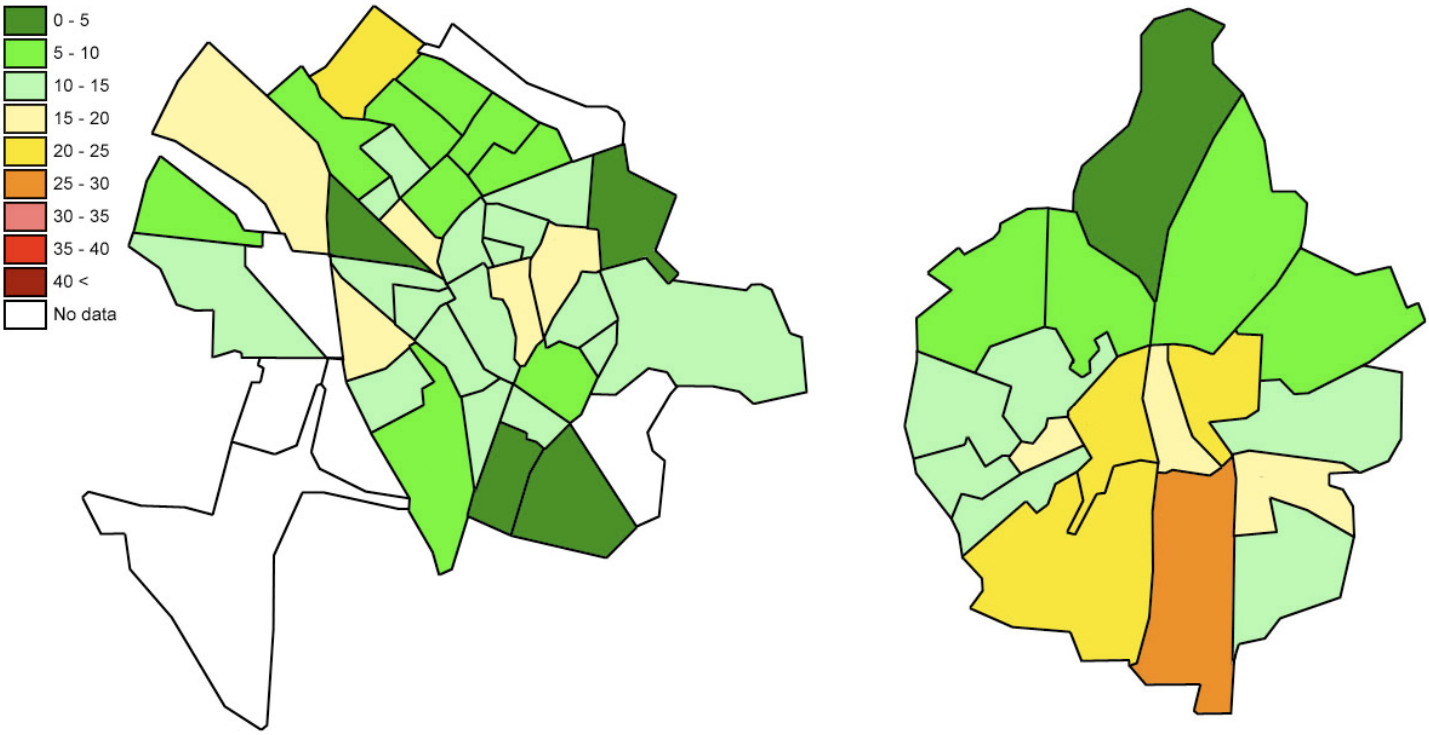
Source: made by author. Distribution of red flags per postal code, in percentage of the total number of flags for that postal code, of indicator 5.2 for Utrecht (left) and Maastricht (right).

Because of the high number of missing values, a lot of areas in figure 5.11, in both Utrecht and Maastricht, are white because of too little, or no data

6.3 Comparison of total number of red flags

Figure 5.12 displays the percentage of objects with more than 3 red flags (so 4 or more). In order to analyze the total results for unusual objects for good or bad neighborhoods, we plotted all objects with more than 3 flags in the graph by postal codes. We see that neighborhood per se does not account for a large variety in unusual objects. The only area that slightly stands out with 25 to 30 percent unusual objects in figure 5.12 , is the South of Maastricht, Neither good nor bad neighborhood seems to be of particularly large influence for the number of unusual objects.

Figure 6.12: Density of objects with more than 3 red flags



Source: made by the authors. Utrecht (left) and Maastricht (right).

6.4 Comparison between houses and industry

One thing experts cannot agree on is whether criminal investments are done in the housing market or the non-houses market (Trouw & Knobbout, 2007). By comparing the culture codes (which indicate the purpose of the object), a distinction can be made between these two groups. Comparing all possible culture codes is a too extensive research, so the objects are grouped in ‘houses’, ‘industry’ and ‘other’. ‘Houses’ covers several forms of housing service, like apartments, recreational houses and trailer parks. The non-houses are for instance offices, industrial objects, but also houses with industry (like shops with houses attached to them). A large group was discarded for the comparison, because for instance ‘parking’, ‘churches’ and ‘terrain’ do not fit in a category.

As can be seen from table 6.20, the differences are very small, with all categories having an average of 2 red flags per indicator. Although ‘houses’ scores on average about 1.5 indicator more than ‘industry’, the amount of objects scoring more than four indicators is over one percent more for ‘industry’ then for ‘houses’. Also, a higher

percentage (although this is a smaller difference) has more than 50 percent of red flags of the total number of flags for that object. This indicates that 'industry' seems to have more unusual transactions than 'housing', although the differences are very small.

Table 6.20: Comparison of houses and non-houses

Category	Frequency	Average red flags	Average maximum	Percentage >4	Average percentage	Percentage >50%
Houses	8,861	2.0	10.8	4.1%	19.5%	2.6%
Industry	760	2.2	9.4	5.4%	23.7%	3.2%
Other	2,274	1.9	7.6	3.6%	23.7%	5.1%

Source: own calculations. Indicators 4.2 and 4.3 on bad and good neighborhood have been left out. The frequency indicates the number of objects in this category, the average number of red flags for each object, the average maximum of received flags (both red and green), the percentage of objects of every category with more than 4 red flags, the average percentage of red flags compared to the total flags of each object and finally the percentage of objects with more than 50 percent of red flags.

6.5 Conclusion

A closer look at the results of the application of the 17 indicators shows that for all the indicators (with one exception: indicator 3.8, owner is a company with a particular exploitation) one can conclude that the relative amount of red flags is more or less the same in Utrecht and Maastricht, which means that we can proceed our analysis without a city bias. In addition, we do not seem to find a bias towards a specific type of real estate (housing, industry or other) or a specific neighborhood in Utrecht or Maastricht.

7. Evaluation of Research Method

7.1 Introduction

The results presented in the previous chapter were created to be as reliable as possible. The research method was based on findings in the literature to create a research method that should give the best possible result for this research. Still the results cannot be statistically tested, because it is unknown which real estate objects are really used for criminal activities. There is no police data available to us that would provide a proof of the results. Also, no other research similar to this research has been performed, so no comparison of results could be made. The aim is that this lack of information will be provided in the criminological part of this research. This would make it possible to find out which indicators are reliable and their – both individual and combined – importance.

As a proof of concept, a test was performed on the preliminary result by means of a correlation matrix and by means of some specific cases filtered out by the research method. The results and specific cases are presented in this chapter. The correlations matrix will indicate whether the indicators measure the same phenomenon, if the method was used correctly and if the most obvious false positives were indeed taken care of (for instance for indicator 3.12, where the city of Utrecht was left out on purpose to create better results). The cases will provide us with a preliminary indication on the quality of the results, if the selected cases raise considerable suspicion of criminal investments in the real estate market, this is an indication of a well-functioning research method. If all the cases filtered out by the research seem to be perfectly normal behavior in the market, we would have to reconsider the research method applied.

7.2 Correlations

The correlation[14] matrix (table 7.1) shows the correlation between all the indicators. Almost all significant correlations are positive, which tells us that the indicators, at

[14] The correlation coefficient of two variables shows the strength and direction of the linear relationship between the two. This means that the correlation between A and B is the same as the correlation

least, point in the same direction. Most correlations are not very significant[15], this shows us that it is uncommon to receive multiple red flags, which supports one of the fundamental assumptions in our research.

Table 7.1: Pair-wise correlation matrix of the indicators

	1.1	1.2	2.2	2.3	2.4	3.1	3.3	3.4	3.8	3.9	3.11	3.12	4.1	4.2	4.3	5.1	5.2
1.1	1.0																
1.2	0.0	1.0															
2.2	0.0	0.0	1.0														
2.3	.	.	.	1.0													
2.4	0.0	0.7	0.0	.	1.0												
3.1	0.0	0.0	0.0	0.0	0.0	1.0											
3.3	0.0	0.0	0.0	0.3	0.0	0.0	1.0										
3.4	0.0	0.0	0.0	0.2	0.0	0.0	0.6	1.0									
3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0								
3.9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	-0.1	0.0	1.0							
3.11	0.0	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1	0.0	0.0	1.0						
3.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.3	-0.1	1.0					
4.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.2	0.1	0.3	0.1	0.0	1.0				
4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0			
4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	-0.1	0.0	1.0		
5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	
5.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.1	-0.1	0.0	0.0	0.0	0.1	0.4	1.0

Source: made by author. All absolute values of 0.2 are marked green ('some correlation'), all absolute values of 0.3 or more are marked red ('strong correlation').

One of the more interesting results found in this correlation matrix is that objects that are purchased by companies which are just established (indicator 3.9) are objects with a relative high turnover (indicator 4.1) that have a relatively high chance of

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between B and A, which is why only half of the correlation matrix is filled. The sign of the correlation coefficient gives the direction of the effect; a negative sign means a negative relation (when A increases, B decreases and vice versa), while a positive (or no) sign means a positive relation (when A increases, B increases). When we are looking at the absolute values of the correlations, like when applying colors to certain values in the table, we only consider the strength and not the direction of the correlation, since using absolute values means in practice that all negative values become the same value positive.

[15] There is not an official boundary point or threshold level, which indicates whether a correlation is significant or not. We decided, also based on the outcomes, that absolute values of 0,2 indicates a weak relation and that 0,3 and higher is strong.

involvement of world citizens (indicator 3.12, subjects which are unknown by the Tax Administration). We can of course imagine shadowy companies that are participating in ABC-constructions and carousel fraud just after their establishment, but whether this really is the case cannot be retrieved from this correlation matrix. The criminological part of our research might give us a good insight in what is actually happening here at the individual level.

The strong relation between indicator 2.3 (financing is not used (no mortgage), 3.3 and 3.4 (owner is a person with a proportionate number of objects and transactions, respectively) shows the presence of 'big players' in the market that rarely use a mortgage to finance their transactions. These big players are probably persons operating perfectly legal as real estate agents, but some of these big players could be straw men operating for a criminal organization handling large sums of dirty money.

The strongest relation between the indicators is between indicator 1.2 (financier is a person not a company) and 2.4 (financing has a creditor and a debtor that are the same person). This result is not very surprising and comes mainly from the result of 2.4: all the financing with the same creditor and debtor involves natural persons. Another, not very surprising, strong relation was found between indicator 5.1 and 5.2 (purchase sum is unusual compared to appraised and previous purchase sum, respectively), which comes from the construction of the indicators: if a strange purchase sum is paid, it is out of proportion compared to the appraised value and the previous purchase sum. Also the missing correlations with indicator 2.3 (Financing is not used (no mortgage)) come from the construction of the indicator; when there is no mortgage used, the indicators concerning the mortgage are not applied and have therefore only missing values.

The only significant (although weak) negative relation is between indicator 2.3 (financing is not used (no mortgage)) and indicator 3.11 (owner is a company without employees). This negative relation was not foreseen and actually comes as a surprise. It is apparently the case that companies without employees use a mortgage more often than companies with employees.

Apart from analyzing the significant correlations between the indicators, looking at the absence of any correlation might also be insightful. We can see in the correlation matrix for example that indicators 4.2 and 4.3 (real estate object is in a

very bad or very good neighborhood, respectively) are not correlated at all with all the other indicators, which seems to tell us that objects in a very good or very bad neighborhood are not prone to have more characteristics of criminal activities in the real estate sector.

7.3 Distribution of red flags per object

To determine whether an object is unusual, it is important to look at the distribution of red flags, as shown in table 7.2.

Table 7.2: Distribution of red flags for the total, Utrecht and Maastricht

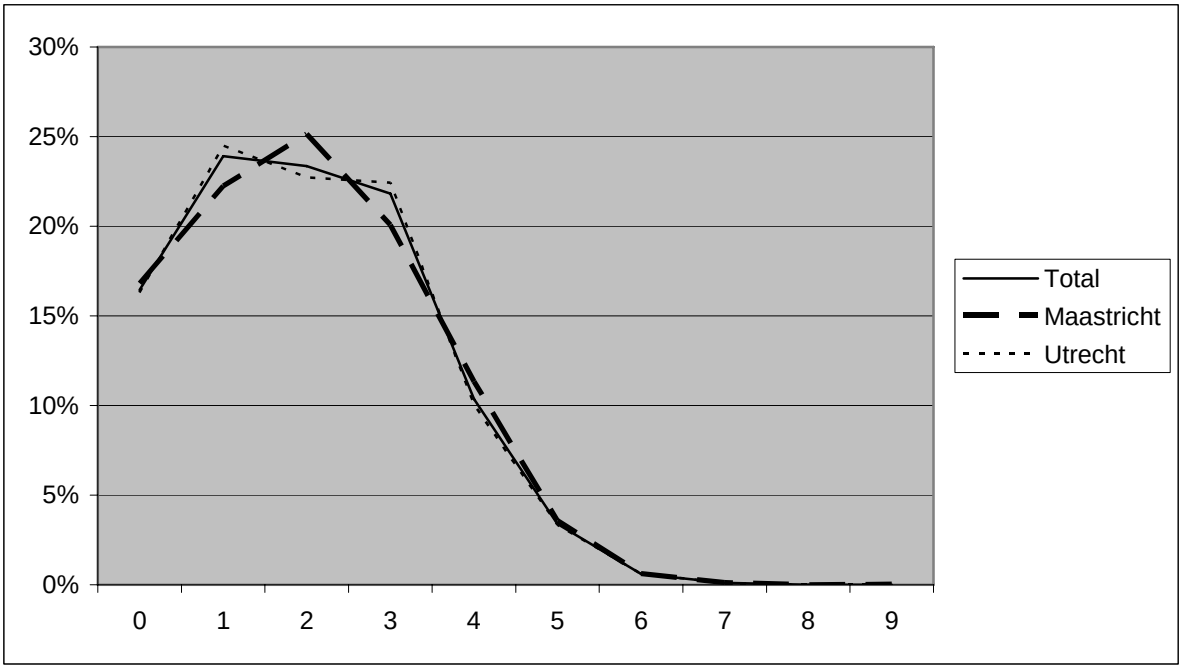
Number of red flags	Total	Utrecht	Maastricht
0	1.956	1.438	518
1	2.844	2.159	685
2	2.778	2.004	774
3	2.595	1.977	618
4	1.232	883	349
5	404	294	110
6	72	53	19
7	13	9	4
8	0	0	0
9	1	0	1
10-17	0	0	0

Source: own calculation. Columns 'Total', 'Utrecht' and 'Maastricht' show the number of objects with an X number of red flags (0 through 9) for the total, the city of Utrecht and the city of Maastricht

The results of table 7.2 are graphically shown in figure 7.1. The lines indicate the relative number of objects that have an X number of red flags. So for 2 red flags, 23.4 percent of the total number of objects has 2 red flags, 25.1 percent of the objects in Maastricht have 2 red flags and 22.7 percent of the objects in Utrecht have 2 red flags. The distribution is about the same for the two cities, although it fluctuates a bit around 2 red flags per object. The important conclusion that can be drawn from this distribution is that it is not very unusual to receive one or two red flags, but that it is

very unusual to receive for instance 5 or more red flags. This again strengthens the robustness of the research method used. The broad indicators cause a lot of false positives (which results in a lot of objects with one or two red flags), but it is the total number of red flags that makes the transaction unusual.

Figure 7.1: Distribution of red flags for Utrecht and Maastricht



Source: made by author. The percentage refers to the percentage of objects with an X (0 through 9) number of red flags relative to the number of objects in the group (Utrecht, Maastricht or the two cities combined).

7.4 Conclusion

The descriptive data analysis and the correlation matrix support our fundamental research assumptions. They show that all our indicators point in the same direction and most correlations are not very significant[16]. This means that it is uncommon for an object to receive multiple red flags, hence many flags make it unusual. One can also see that most objects receive only three flags or less.

[16] There is not an official boundary point or threshold level, which indicates whether a correlation is significant or not. We decided, also based on the outcomes, that absolute values of 0,2 indicates a weak relation and that 0,3 and higher is strong.

Appendix 1

Table A1.1: Results of 1.1 - 2.4 for the different postal codes of Utrecht

4PPC	City	Total	1.1		1.2		2.2		2.3		2.4	
3511	Utrecht	363	19	7%	8	3%	56	33%	73	24%	4	1%
3512	Utrecht	322	9	4%	4	2%	42	43%	55	22%	2	1%
3513	Utrecht	154	11	10%	2	2%	31	44%	29	22%	1	1%
3514	Utrecht	217	7	4%	3	2%	58	45%	19	10%	1	1%
3515	Utrecht	100	3	4%	2	2%	16	25%	12	13%	2	2%
3521	Utrecht	144	3	3%	3	3%	33	36%	11	9%	1	1%
3522	Utrecht	235	17	8%	1	0%	43	31%	24	11%	0	0%
3523	Utrecht	259	13	6%	7	3%	46	27%	36	15%	5	2%
3524	Utrecht	208	9	5%	1	1%	50	32%	13	7%	0	0%
3525	Utrecht	75	2	3%	1	1%	22	39%	2	3%	1	1%
3526	Utrecht	329	18	7%	2	1%	30	29%	30	17%	0	0%
3527	Utrecht	299	16	8%	5	3%	31	30%	25	12%	2	1%
3528	Utrecht	8	0	0%	0	0%	0		0		0	0%
3531	Utrecht	333	19	6%	3	1%	91	40%	28	9%	1	0%
3532	Utrecht	187	13	8%	3	2%	49	36%	12	7%	3	2%
3533	Utrecht	246	10	5%	5	3%	34	28%	31	15%	3	2%
3534	Utrecht	58	3	6%	1	2%	14	36%	3	7%	1	2%
3541	Utrecht	0	0		0		0		0		0	
3542	Utrecht	32	1	4%	0	0%	6	75%	2	17%	0	0%
3543	Utrecht	83	3	5%	0	0%	18	49%	10	18%	0	0%
3544	Utrecht	261	13	6%	1	0%	59	38%	9	4%	0	0%
3545	Utrecht	4	0	0%	0	0%	2	100%	0	0%	0	0%
3546	Utrecht	5	0	0%	0	0%	0		1	100%	0	0%
3551	Utrecht	229	15	7%	6	3%	58	38%	12	6%	4	2%
3552	Utrecht	99	4	5%	0	0%	15	28%	8	9%	0	0%
3553	Utrecht	309	16	6%	3	1%	81	34%	14	5%	0	0%
3554	Utrecht	139	10	8%	2	2%	18	26%	7	5%	2	2%
3555	Utrecht	132	5	5%	0	0%	22	25%	8	8%	0	0%
3561	Utrecht	116	10	10%	1	1%	15	38%	8	12%	1	1%
3562	Utrecht	100	8	10%	1	1%	8	21%	10	11%	0	0%
3563	Utrecht	37	2	6%	0	0%	14	50%	2	7%	0	0%
3564	Utrecht	56	6	12%	0	0%	17	37%	1	2%	0	0%
3565	Utrecht	23	0	0%	0	0%	6	67%	1	8%	0	0%
3566	Utrecht	6	0	0%	1	33%	2	67%	0	0%	0	0%
3571	Utrecht	205	16	10%	2	1%	41	36%	22	13%	0	0%
3572	Utrecht	368	12	4%	11	4%	88	42%	40	12%	8	3%
3573	Utrecht	68	1	2%	2	3%	19	36%	5	7%	2	3%
3581	Utrecht	338	16	6%	1	0%	64	34%	31	11%	1	0%
3582	Utrecht	217	11	7%	4	3%	33	33%	41	22%	3	2%
3583	Utrecht	160	7	5%	1	1%	33	39%	15	11%	1	1%
3584	Utrecht	100	4	5%	3	4%	12	35%	6	8%	0	0%
3585	Utrecht	4	0	0%	0	0%	0	0%	0	0%	0	0%
0	Utrecht	2189	1	4%	0	0%	0		1246	99%	0	0%

Table A1.2: Results of 3.1 - 3.11 for the different postal codes of Utrecht

4PPC	City	Total	3.1		3.3		3.4		3.8		3.9		3.11	
3511	Utrecht	363	11	3%	133	42%	99	31%	11	5%	31	28%	141	47%
3512	Utrecht	322	9	3%	116	44%	96	36%	21	8%	28	18%	115	38%
3513	Utrecht	154	2	1%	73	52%	60	43%	2	2%	7	15%	48	41%
3514	Utrecht	217	6	3%	65	32%	53	26%	6	5%	3	9%	90	56%
3515	Utrecht	100	1	1%	31	33%	25	26%	2	3%	1	5%	43	61%
3521	Utrecht	144	1	1%	39	31%	36	28%	3	4%	10	31%	54	51%
3522	Utrecht	235	0	0%	97	42%	100	43%	2	2%	0	0%	93	62%
3523	Utrecht	259	5	2%	96	38%	74	29%	10	9%	1	3%	90	52%
3524	Utrecht	208	2	1%	37	20%	22	12%	3	3%	1	2%	58	48%
3525	Utrecht	75	0	0%	14	19%	16	22%	0	0%	0	0%	24	63%
3526	Utrecht	329	5	2%	178	68%	162	62%	8	4%	11	9%	86	37%
3527	Utrecht	299	4	1%	117	56%	181	63%	82	38%	17	9%	69	29%
3528	Utrecht	8	1	13%	0		0		0	0%	4	57%	1	13%
3531	Utrecht	333	6	2%	101	32%	86	27%	8	4%	10	20%	151	64%
3532	Utrecht	187	1	1%	45	26%	40	22%	4	4%	6	17%	89	66%
3533	Utrecht	246	2	1%	92	40%	105	44%	3	2%	1	1%	96	52%
3534	Utrecht	58	0	0%	8	17%	5	11%	0	0%	2	15%	20	56%
3541	Utrecht	0	0		0		0		0		0		0	
3542	Utrecht	32	0	0%	11	79%	9	60%	1	3%	8	36%	8	26%
3543	Utrecht	83	0	0%	21	30%	12	17%	2	4%	1	4%	25	40%
3544	Utrecht	261	2	1%	91	37%	84	33%	4	3%	1	2%	77	48%
3545	Utrecht	4	0	0%	1	50%	1	50%	0	0%	0	0%	2	67%
3546	Utrecht	5	0	0%	4	100%	2	40%	0	0%	1	100%	3	60%
3551	Utrecht	229	0	0%	82	38%	66	30%	4	4%	5	19%	103	70%
3552	Utrecht	99	1	1%	27	29%	27	29%	5	8%	2	6%	40	56%
3553	Utrecht	309	3	1%	93	31%	67	22%	17	10%	7	15%	129	64%
3554	Utrecht	139	2	1%	68	50%	50	36%	2	3%	4	14%	66	65%
3555	Utrecht	132	0	0%	34	30%	25	22%	5	7%	2	7%	46	49%
3561	Utrecht	116	2	2%	42	58%	31	43%	4	14%	0	0%	21	58%
3562	Utrecht	100	1	1%	55	62%	48	53%	2	3%	4	9%	21	29%
3563	Utrecht	37	2	5%	7	21%	6	19%	0	0%	1	7%	10	40%
3564	Utrecht	56	0	0%	25	45%	11	20%	0	0%	0	0%	21	64%
3565	Utrecht	23	2	9%	13	93%	9	60%	0	0%	2	10%	5	22%
3566	Utrecht	6	0	0%	0	0%	0	0%	1	33%	0		4	80%
3571	Utrecht	205	1	0%	82	45%	57	31%	0	0%	3	7%	71	52%
3572	Utrecht	368	10	3%	136	40%	113	32%	3	1%	8	9%	168	60%
3573	Utrecht	68	0	0%	5	7%	7	10%	1	3%	0	0%	26	70%
3581	Utrecht	338	8	2%	110	36%	104	33%	3	2%	15	26%	153	59%
3582	Utrecht	217	3	1%	85	44%	79	40%	1	1%	2	5%	88	54%
3583	Utrecht	160	3	2%	53	36%	45	30%	2	2%	0	0%	72	57%
3584	Utrecht	100	0	0%	42	54%	24	31%	1	2%	3	14%	29	41%
3585	Utrecht	4	0	0%	2	67%	1	25%	1	33%	1	100%	2	50%
0	Utrecht	2189	18	1%	1195	85%	1011	72%	25	1%	56	3%	446	23%

Table A1.3: Results of 3.12 - 5.2 for the different postal codes of Utrecht

4PPC	City	Total	3.12		4.1		4.2		4.3		5.1		5.2	
3511	Utrecht	363	39	11%	113	31%	0	0%	50	14%	11	5%	4	6%
3512	Utrecht	322	34	11%	85	26%	0	0%	140	43%	27	23%	9	24%
3513	Utrecht	154	8	5%	35	23%	0	0%	0	0%	12	17%	1	6%
3514	Utrecht	217	11	5%	50	23%	0	0%	48	22%	30	21%	2	6%
3515	Utrecht	100	2	2%	24	24%	0	0%	0	0%	4	6%	3	21%
3521	Utrecht	144	12	8%	44	31%	0	0%	9	6%	22	22%	3	13%
3522	Utrecht	235	6	3%	98	42%	0	0%	0	0%	7	4%	9	15%
3523	Utrecht	259	3	1%	82	32%	0	0%	0	0%	12	6%	7	15%
3524	Utrecht	208	20	10%	56	27%	0	0%	0	0%	2	1%	0	0%
3525	Utrecht	75	0	0%	14	19%	0	0%	0	0%	2	3%	0	0%
3526	Utrecht	329	22	7%	61	19%	16	5%	0	0%	4	3%	2	7%
3527	Utrecht	299	6	2%	186	62%	20	7%	0	0%	3	3%	7	22%
3528	Utrecht	8	6	75%	2	25%	0	0%	0	0%	0		0	
3531	Utrecht	333	14	4%	115	35%	0	0%	0	0%	52	20%	4	5%
3532	Utrecht	187	10	5%	54	29%	0	0%	0	0%	25	16%	8	24%
3533	Utrecht	246	9	4%	99	40%	0	0%	35	14%	9	6%	21	32%
3534	Utrecht	58	8	14%	13	22%	0	0%	0	0%	0	0%	0	0%
3541	Utrecht	0	0		0		0		0		0		0	
3542	Utrecht	32	16	50%	13	41%	0	0%	0	0%	4	40%	0	0%
3543	Utrecht	83	4	5%	9	11%	0	0%	0	0%	5	15%	6	86%
3544	Utrecht	261	9	4%	72	28%	0	0%	9	3%	17	11%	10	31%
3545	Utrecht	4	0	0%	1	25%	0	0%	0	0%	1	50%	0	
3546	Utrecht	5	1	20%	2	40%	0	0%	0	0%	0		0	
3551	Utrecht	229	9	4%	90	39%	0	0%	0	0%	14	8%	5	8%
3552	Utrecht	99	3	3%	31	31%	0	0%	0	0%	1	2%	0	0%
3553	Utrecht	309	8	3%	120	39%	0	0%	0	0%	14	5%	5	6%
3554	Utrecht	139	1	1%	46	33%	0	0%	0	0%	4	5%	5	20%
3555	Utrecht	132	8	6%	29	22%	0	0%	2	2%	4	4%	2	13%
3561	Utrecht	116	46	40%	18	16%	0	0%	0	0%	0	0%	0	0%
3562	Utrecht	100	13	13%	28	28%	2	2%	0	0%	2	4%	1	6%
3563	Utrecht	37	4	11%	18	49%	0	0%	0	0%	0	0%	1	8%
3564	Utrecht	56	3	5%	13	23%	0	0%	0	0%	0	0%	0	0%
3565	Utrecht	23	8	35%	12	52%	0	0%	0	0%	2	18%	2	67%
3566	Utrecht	6	1	17%	1	17%	0	0%	3	50%	0	0%	0	
3571	Utrecht	205	19	9%	42	20%	0	0%	170	83%	13	10%	4	13%
3572	Utrecht	368	14	4%	111	30%	0	0%	297	81%	41	18%	11	16%
3573	Utrecht	68	0	0%	20	29%	0	0%	25	37%	0	0%	0	0%
3581	Utrecht	338	30	9%	111	33%	0	0%	130	38%	42	20%	6	13%
3582	Utrecht	217	8	4%	65	30%	0	0%	0	0%	12	9%	5	15%
3583	Utrecht	160	12	8%	48	30%	0	0%	68	43%	25	24%	9	28%
3584	Utrecht	100	6	6%	20	20%	0	0%	51	51%	1	2%	0	0%
3585	Utrecht	4	1	25%	2	50%	0	0%	4	100%	0	0%	0	
0	Utrecht	2189	348	16%	295	13%	0	0%	0	0%	0	0%	23	77%

Table A1.4: Results of 1.1 - 2.4 for the different postal codes of Maastricht

4PPC	City	Total	1.1		1.2		2.2		2.3		2.4	
6211	Maastricht	283	6	3%	2	1%	34	54%	27	16%	0	0%
6212	Maastricht	136	2	2%	3	3%	25	38%	11	10%	1	1%
6213	Maastricht	70	1	2%	0	0%	14	38%	7	11%	0	0%
6214	Maastricht	49	1	3%	0	0%	9	39%	5	14%	0	0%
6215	Maastricht	177	10	6%	5	3%	36	45%	3	2%	3	2%
6216	Maastricht	191	9	5%	6	3%	42	46%	12	8%	1	1%
6217	Maastricht	142	7	6%	3	3%	17	35%	23	18%	1	1%
6218	Maastricht	97	5	7%	0	0%	13	30%	15	18%	0	0%
6219	Maastricht	79	2	3%	0	0%	9	69%	3	10%	0	0%
6221	Maastricht	274	8	3%	9	4%	28	52%	12	6%	1	0%
6222	Maastricht	116	3	4%	0	0%	7	35%	7	10%	0	0%
6223	Maastricht	36	1	3%	1	3%	4	21%	3	10%	1	3%
6224	Maastricht	176	6	4%	2	1%	13	24%	25	18%	0	0%
6225	Maastricht	163	5	4%	1	1%	28	42%	14	12%	1	1%
6226	Maastricht	186	5	3%	1	1%	32	40%	12	7%	1	1%
6227	Maastricht	133	3	3%	2	2%	28	41%	17	15%	1	1%
6228	Maastricht	155	14	9%	3	2%	25	26%	0	0%	1	1%
6229	Maastricht	174	22	14%	3	2%	23	32%	7	5%	1	1%
0	Maastricht	441	0	0%	0	0%	0		73	95%	0	0%

Table A1.5: Results of 3.1 - 3.11 for the different postal codes of Maastricht

4PPC	City	Total	3.1		3.3		3.4		3.8		3.9		3.11	
6211	Maastricht	283	61	22%	141	66%	126	57%	10	5%	16	13%	121	49%
6212	Maastricht	136	20	15%	69	56%	62	48%	5	7%	0	0%	60	61%
6213	Maastricht	70	9	13%	38	57%	29	43%	3	8%	1	10%	29	59%
6214	Maastricht	49	6	12%	18	45%	12	30%	0	0%	2	13%	17	49%
6215	Maastricht	177	13	7%	89	51%	90	51%	5	8%	0	0%	48	55%
6216	Maastricht	191	15	8%	87	48%	97	52%	0	0%	20	25%	66	53%
6217	Maastricht	142	13	9%	68	51%	57	43%	3	4%	3	5%	37	35%
6218	Maastricht	97	7	7%	40	44%	29	32%	5	10%	1	3%	20	32%
6219	Maastricht	79	2	3%	16	47%	13	41%	0	0%	3	5%	17	24%
6221	Maastricht	274	40	15%	174	73%	158	66%	11	6%	7	5%	93	40%
6222	Maastricht	116	11	9%	54	70%	45	57%	3	3%	5	7%	30	31%
6223	Maastricht	36	2	6%	16	47%	10	29%	1	6%	0	0%	13	65%
6224	Maastricht	176	21	12%	82	57%	75	50%	4	4%	10	16%	86	61%
6225	Maastricht	163	4	2%	56	44%	43	33%	2	2%	3	6%	59	49%
6226	Maastricht	186	14	8%	91	53%	79	46%	5	5%	6	14%	66	50%
6227	Maastricht	133	3	2%	58	45%	59	46%	7	10%	3	9%	56	59%
6228	Maastricht	155	13	8%	42	27%	45	29%	4	4%	1	2%	53	49%
6229	Maastricht	174	5	3%	85	52%	100	59%	1	1%	10	14%	85	69%
0	Maastricht	441	18	4%	107	96%	92	77%	142	34%	1	0%	84	19%

Table A1.6: Results of 3.12 - 5.2 for the different postal codes of Maastricht

4PPC	City	Total	3.12		4.1		4.2		4.3		5.1		5.2	
6211	Maastricht	283	42	15%	97	34%	1	0%	35	12%	20	24%	11	33%
6212	Maastricht	136	12	9%	38	28%	0	0%	119	88%	9	14%	4	44%
6213	Maastricht	70	3	4%	14	20%	0	0%	55	79%	0	0%	1	17%
6214	Maastricht	49	3	6%	13	27%	0	0%	0	0%	3	10%	0	0%
6215	Maastricht	177	0	0%	54	31%	0	0%	33	19%	1	1%	0	0%
6216	Maastricht	191	9	5%	74	39%	0	0%	20	10%	0	0%	1	3%
6217	Maastricht	142	6	4%	33	23%	0	0%	0	0%	2	3%	3	18%
6218	Maastricht	97	1	1%	14	14%	0	0%	17	18%	1	2%	0	0%
6219	Maastricht	79	5	6%	19	24%	0	0%	4	5%	3	20%	0	0%
6221	Maastricht	274	26	9%	54	20%	0	0%	3	1%	14	20%	6	43%
6222	Maastricht	116	16	14%	23	20%	0	0%	0	0%	4	15%	3	43%
6223	Maastricht	36	0	0%	4	11%	0	0%	28	78%	1	5%	0	0%
6224	Maastricht	176	13	7%	65	37%	0	0%	0	0%	3	4%	4	21%
6225	Maastricht	163	32	20%	57	35%	0	0%	108	66%	1	1%	0	0%
6226	Maastricht	186	14	8%	51	27%	0	0%	71	38%	1	1%	4	20%
6227	Maastricht	133	2	2%	47	35%	0	0%	21	16%	2	3%	3	23%
6228	Maastricht	155	2	1%	56	36%	0	0%	0	0%	2	2%	0	0%
6229	Maastricht	174	5	3%	72	41%	0	0%	34	20%	1	1%	9	41%
0	Maastricht	441	42	10%	43	10%	0	0%	0	0%	4	44%	3	50%

Source of table A1.1-6: own calculation. For each postal code, per indicator, the number of red flags is given, together with the percentage relative to the total number of flags given for this postal code. Postal codes with less then 10 objects are grey.

Appendix 2

Table A2.1: Names of the neighborhoods corresponding to the postal codes for the city of Utrecht

4PPC	City	Name of neighborhood
3511	Utrecht	Main centre, between train tracks and Oude Gracht; Wijk C
3512	Utrecht	Main centre, between Oude Gracht and Malie-/Tolsteegsingel
3513	Utrecht	Pijlsweerd
3514	Utrecht	Vogelenbuurt
3515	Utrecht	Tuinwijk
3521	Utrecht	Dichterswijk
3522	Utrecht	Rivierenwijk
3523	Utrecht	Tolsteeg
3524	Utrecht	Lunetten
3525	Utrecht	Hoograven
3526	Utrecht	Kanaleneiland-south; Westraven
3527	Utrecht	Transwijk; Kanaleneiland-north
3528	Utrecht	Papendorp
3531	Utrecht	Lombok
3532	Utrecht	Majellapark
3533	Utrecht	Oog in Al, Welgelegen, Den Hommel
3534	Utrecht	Schepenbuurt
3541	Utrecht	Hogeweide
3542	Utrecht	Lage Weide
3543	Utrecht	Terwijde
3544	Utrecht	Hogewijde
3545	Utrecht	Oudenrijn
3546	Utrecht	Rijnenburg
3551	Utrecht	Staatsliedenbuurt
3552	Utrecht	Ondiep
3553	Utrecht	Tweede Daalsebuurt
3554	Utrecht	Zuilen; Geuzenwijk
3555	Utrecht	Zuilen-north
3561	Utrecht	Overvecht-south
3562	Utrecht	Overvecht-south
3563	Utrecht	Overvecht-north
3564	Utrecht	Overvecht-north
3565	Utrecht	Overvecht – business area
3566	Utrecht	Gageldijk
3571	Utrecht	Tuindorp
3572	Utrecht	Wittevrouwen; Den Hommel; Blauwkapel
3573	Utrecht	Voordorp; De Voorveldse Polder
3581	Utrecht	Oudwijk (=Maliebaan); Wittevrouwen-south
3582	Utrecht	Sterrenwijk
3583	Utrecht	Schildersbuurt
3584	Utrecht	Rijnsweerd; De Uithof
3585	Utrecht	Maarschalkerweerd

Table A2.2: Names of the neighborhoods corresponding to postal codes for the city of Maastricht

4PPC	City	Name of neighborhood
6211	Maastricht	Binnenstad / Statenkwartier / Kommelkwartier / Jekerkwartier / Boschstraatkwartier / Statenkwartier
6212	Maastricht	Sint Pieter / Villapark / Jekerdal
6213	Maastricht	Wolder / Biesland / Campagne
6214	Maastricht	Mariaberg
6215	Maastricht	Daalhof / Hazendans / Dousberg
6216	Maastricht	Pottenberg / Belfort / Brusselsepoort
6217	Maastricht	Malpertuis / Caberg / de Ravelijn / Frontenkwartier
6218	Maastricht	Malberg / Lanakerveld / Oud-Caberg
6219	Maastricht	Bosscherveld / Boschpoort / Belvédère
6221	Maastricht	Wyck / Sint Maartenspoort / Céramique / Heugemerveld
6222	Maastricht	Beatrixhaven / Meerssenhoven / Nazareth / Limmel
6223	Maastricht	Borgharen / Itteren
6224	Maastricht	Wyckerpoort / Wittenvrouwenveld
6225	Maastricht	Amby
6226	Maastricht	Heer / Scharn
6227	Maastricht	Eyldergaard
6228	Maastricht	De Heeg / Vroendaal
6229	Maastricht	Randwyck / Heugem

Part Two

Criminological Analysis

Introduction

In the first part of this project, a red flag analysis was undertaken by researchers of the Utrecht University School of Economics. It concerned a systematic economic analysis to deduce real estate objects which appear to be related to criminal investments and money laundering activities. By systematically labeling an object by means of an indicator list – obtained through current literature studies on the subject – 200 objects where distillated from a total list of real estate property in the cities of Utrecht and Maastricht. If the 'conspicuousness' of the 150 objects with a high number of red flags can – by a certain level of certainty – be validated, this would tell a great deal about the reliability, validity and usefulness of this specific analysis for operational purposes[17]. This part of the report describes this validation process, undertaken by researchers of the department of criminal law and criminology of Maastricht University.

In order to undertake the validation process access had to be obtained to certain (closed/confidential) data sources. Access was obtained through a close collaboration with the local Police offices of Utrecht and Maastricht, the (national) Real Estate Intelligence Center (VIC), the Regional Intelligence and Expertise Center (RIEC) of Limburg-South and the Tax Administration Office (Real Estate Knowledge Center [VKC]). The junior researcher undertaking most of the field work has worked on site for some months at both the Real Estate Intelligence Center[18], the Regional Intelligence and Expertise Center Limburg-South and the Tax Authorities Office (VKC), to obtain the necessary data and perform the actual analysis.[19] The analysis

[17] The Real Estate Intelligence Center and the Regional Intelligence and Expertise Center Limburg already expressed the need for a certain approach for strategic analysis.

[18] The junior researcher acquired a temporarily position as employee at the Tax Authorities Office to gain access to the data he needed from the Real Estate Intelligence Center.

[19] He was accompanied and aided by one of the junior researchers – Joras Ferwerda – from the research group of Utrecht to speed up the data gathering process.

had to be performed at both the object level and the subject level. Specific object and subject information however, will not be mentioned in this report because of the confidential nature of the information and the possible implications it could have for operational purposes.

The validation analysis concerned two ways of looking at the selected objects list acquired by the research group of Utrecht. The first analysis concerned a top-down approach. The selected objects where studied by mapping and analyzing the transaction history over the period of 2002-2006. The top-down analysis was further divided into two phases. The first phase consisted of a study of open source materials (Offices of Land Registry [deeds] and Chamber of Commerce) and in the second phase closed source information was added to the analysis (Tax Authorities Office, FIU [STR], Police [Blue View] and FIOD-ECD [GEFIS]). The bottom-up approach involved gathering information regarding objects and subjects known to the authorities in order to identify possible false-negatives. The analysis presented in this part of the report is primarily based on the following hypotheses:

> H1: a significant higher amount of the 150 flagged objects compared to the 50 at random selected objects, will be labeled conspicuous, by means of the criminological top-down analysis;
>
> H2: subjects and objects identified in the bottom-up analysis will be present on the list of the 150 flagged objects.

In the first chapter of this report, the concept of ´conspicuousness´ will be defined. We will also describe the methodology used to make a distinction between conspicuous and non-conspicuous cases and pay attention to the sources the analysis is based upon. The second chapter presents the results of the analysis and gives an overview of the conspicuous cases. In the third chapter our conclusions and the related implications are presented. Some limitations of our findings are discussed in this chapter as well.

1. Concepts, methods and analysis

1.1. The concept of conspicuousness and the use of narrative theory

As previously mentioned, the primary goal of the criminological analysis was to determine which of the 200 objects, provided to us by the Utrecht University School of Economics, could be linked to some form of criminal investments. Of course, the analysis does not allow us to conclude beyond any reasonable doubt that certain objects have been (ab)used for criminal exploitation or speculation. Hardly any case has been subject of a criminal investigation, so the judicial term ´suspicious´ has to be avoided as it carries too much weight for these cases. Given the information available, it is not possible to establish a 'probable cause' which is a precondition to be regarded as a legal suspect according to article 27 of the Dutch Penal Code. This is the main reason why we prefer to use the term ´conspicuous´ in relation to the findings of our analysis. The conspicuous cases should be considered cases in need of further investigations by the relevant authorities.

The major challenges the researchers faced during the process of data collection and analysis were a) to create clear cut descriptions of all 200 cases and b) to distinguish between conspicuous and non-conspicuous scenarios. The way the case descriptions were created and the sources the researchers had access to, are described in sections 1.2 and 1.3 in more detail. The case descriptions have to be regarded as a series of 'more or less' related facts. This makes it possible to construct a scenario based on these facts. In our analysis two scenarios are relevant: the conspicuous scenario and the non-conspicuous scenario. In each case the research team judged the plausibility of both scenarios, given the gathered facts. This form of analysis is in line with the basic assumptions of the *narrative* theory. This theoretical model is used (amongst others) by forensic psychologists to study the righteousness of the verdict in closed penal law cases (Crombag et al, 2005). Narrative theory states that the presence of a specific number of facts, individually supporting one of the scenarios, is insufficient to judge the plausibility of the scenario. This theory also puts emphasis on the connections between the facts. Research findings (Crombag et al, 2005; Bennett & Feldman, 1981) show that:

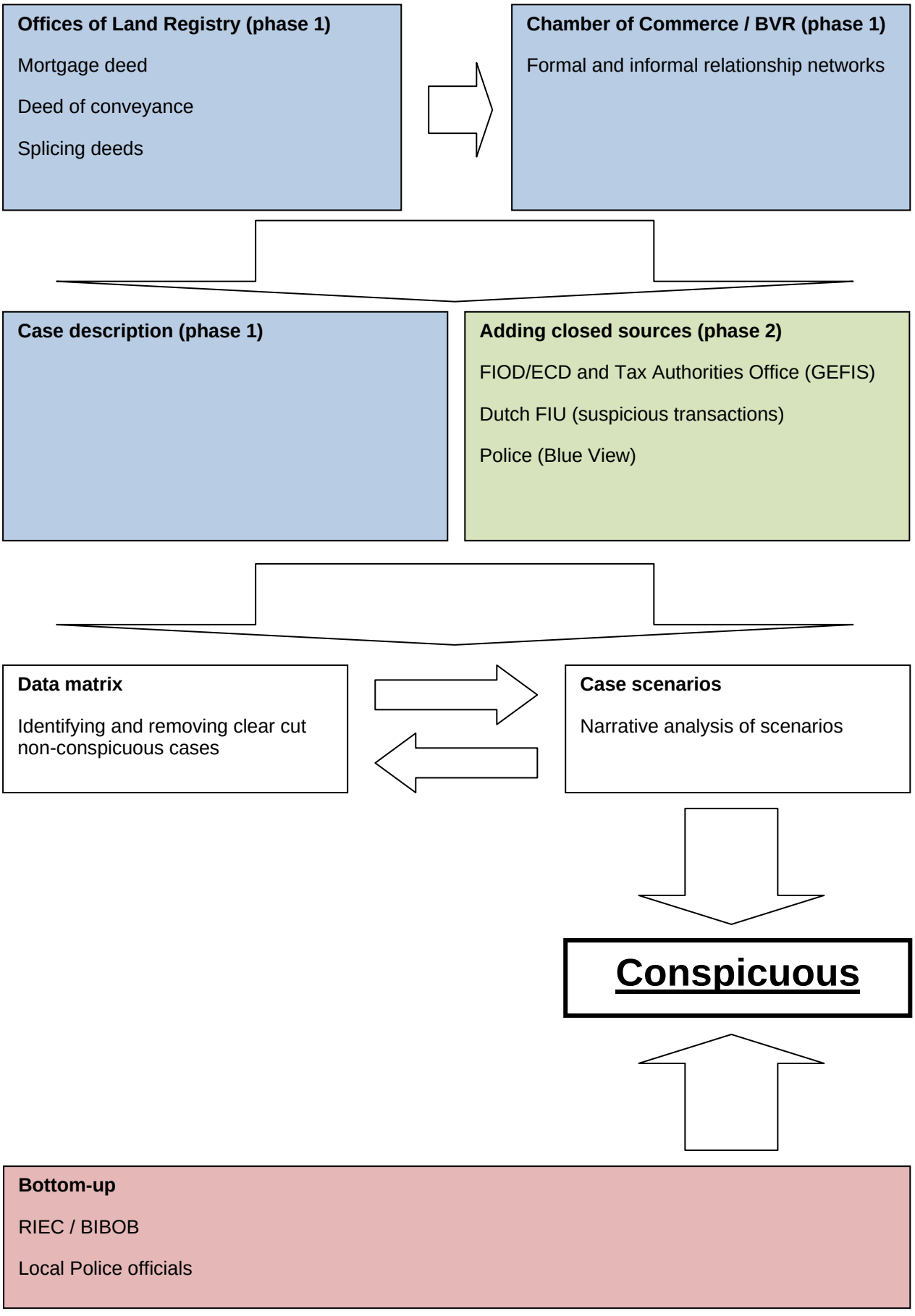
- drawing conclusions about the plausibility of a scenario becomes easier once the amount of relevant (non-ambiguous) information grows;
- what a fact tells the judging party about the plausibility of a scenario is influenced by their own common sense presumptions about these facts;
- what a complex of facts tells the judging party about the plausibility of a scenario is influenced by their own common sense presumptions concerning the relationship between those facts and;
- common sense presumptions can be false.

The most valid 'common sense' presumptions are the ones that are confirmed by scientific literature and empirical research. By means of these sources one can determine the probability that a common sense presumption is in line with reality. The way narrative theory was applied in this project will be elaborated in section 1.4.

1.2. Top down-analysis

The process of data-collection and analysis was split up in two stages. In the first phase, data on the 200 objects (and related subjects) were collected from a number of open sources (offices of land registry, chamber of commerce). In the second stage of the top-down analysis, information on the financial, fiscal and criminal history of the involved objects and subjects was also taken into consideration. In this stage, additional information was gathered from closed sources (e.g. the tax authorities, FIOD/ECD, Financial intelligence unit and the police). Figure 1.1 gives an overview of the steps taken during the research project. As this figure shows, the top-down approach was accompanied by a bottom-up approach as well. The latter approach will be explained in section 1.3.

Figure 1.1 Overview of data-collection and analysis



1.2.1. Top-down phase 1a: creating case descriptions

When it concerns criminal investments and money laundering by means of trading with real estate property, two specific moments in time are important. The moment of transfer of object-ownership and the moment of a mortgage or loan establishment, because these are the moments that money-flows occur (at least on paper), or prices can be manipulated. This can clearly be deducted from current literature about the subject. Criminal investments or money laundering through ABC-transactions, carousel fraud and concealed forms of payment are all related to the moment of transfer (FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007). Criminal investments through (foreign) loan-back constructions and back-to-back loan constructions are both related to a mortgage or loan establishment (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007).

Acquiring notary deeds

In order to generate a general picture concerning the transaction history of the selected objects, first of all the related deeds of conveyance and the mortgage-deeds were gathered. The easiest way of acquiring the most current deeds related to the object was through the website of the Offices of Land Registry[20], therefore this was the starting point. By means of the object-number (assigned by the Offices of Land Registry) the most current deeds were downloaded for analysis. Acquiring previous deeds of conveyance was done by means of the current deeds. In most cases the deed of conveyance contains a reference to the previous acquirement and the related deed number. By means of this specific deed number, the deed could be downloaded from the website of the Offices of Land Registry. In cases were an ABC transaction by means of two deeds of conveyance (A-B and B-C) take place at the same day by means of the same notary, no reference is made in the final (B-C) deed of conveyance to the previous deed (A-B). In these cases we used the program Inforay to deduct the

[20] www.kadaster.nl

previous deeds. Inforay is a data application created by the Tax Authorities Office which stores all deeds of conveyance.

Acquiring previous mortgage deeds was more complex. No reference is made in other deeds (unless it involves a deed of separation). To select the mortgage-deed numbers, associated with the selected objects, a link was made between the object code and the mortgage database (Offices of Land Registry) by means of Smart@Data[21]. The mortgage database however has certain limitations. First of all, the database consists of 'stills', taken at fixed moments. Thus, if a mortgage is granted and retracted in between two stills, the related mortgage deed is not registered. The second limitation is that the mortgage database does not go back further than the 31st of December 2006. In light of this it was (in most cases[22]) only possible to identify mortgages which were established after the 31st of December 2006 or the last mortgage established on the object (if no new mortgage(s) was / were established after the 31st of December 2006). This does not fully cover our period of research.

In cases where the mortgage-deed could not be established, another method was used. Instead of using the mortgage-deed, tax return forms were studied[23]. In the tax return forms, a subject can quantify its loan related to the (private) acquirement of real estate objects. This method has some limitations as well. For one, the tax return form has to be filled out by the subject involved. If the subject intends to conceal the loan to the tax authorities he might be inclined not to report this kind of information on the tax return form.

All deeds where studied and then summarized in a case description for further analysis. The case descriptions were made up with the following information:

- Sort of object(s) (type of real estate);

[21] Smart@Data is an analysis tool developed to perform complex analysis over combined multiple databases and single files. The program is in use by the Real Estate Intelligence Center to perform data analysis over the data sets from the Offices of Land Registry, Chamber of Commerce, tax authorities, justice department, Police departments and FIU.

[22] In cases were a splicing deed was made up it was possible to deduct additional mortgage data.

[23] Access to the tax return forms was acquired through the Tax Authorities Office which is a participant in the Real Estate Intelligence Center (VIC).

- The transactions (date of conveyance, amounts of money, involved notary, involved parties [natural persons and legal persons]);
- The mortgage establishments (date of establishment, amounts of money, involved notary, involved parties [natural persons and legal persons], surety [object(s)]);
- Loan establishments (amounts of money, involved parties);
- Remarks, uncertainties and gaps.

A part of this study consists of a social-network analysis. In order for such an analysis to generate successful results it is important to deduct all of the involved parties in the chain of transactions. The phenomenon of the ABC transaction can create a problem in this respect. The ABC transaction taking place in one day by means of one and the same notary can be registered by means of two deeds of conveyance, however it can also happen by means of one deed in which ownership is immediately transferred from A to C. In these cases it is likely (especially if 'darker' motives are in play) that B is left out of the books[24].

Describing relations

In addition to the information derived from the deeds, all the legal persons were described in the case descriptions. By means of the Chamber of Commerce database, the share holders and board members of these legal persons were deducted and noted. Another check was done by means of the relationship fields in the Management Program of Relations (BVR) from the Tax Authorities Office. With the help of this program, legal persons related to the natural persons derived from the deeds were deducted and also noted. Furthermore, a check was done to discover family relationships or relationships through object-ownership between buyers, sellers and financiers by means of the relationship fields in BVR and the Offices of Land Registry. Regarding the description of legal person networks, restrictions were

[24] If B is mentioned, this will only show up in the original deed of conveyance, B will not be registered in the Offices of Land Registry database as previous owner.

inevitable. Due to limitations in research capacity and time, it was not possible to fully analyze the structure of major corporations.

1.2.2. Top-down phase 1b: preparing a data-matrix

The information gathered in the case descriptions was saved and stalled in a data-matrix in order to get a first impression of the selected objects and to identify any conspicuous aspects. With regard to the latter, a list of "remarkable characteristics" was created. These features were deducted from the scientific literature with regard to criminal investments in real estate. Special attention has been paid to situations in which:

- The seller and buyer in a transaction are related; and/or
- No mortgage or loan is established to acquire the object; and/or
- The purchase of the object is not financed by a regular (well-known) bank; and/or
- The financier and the debt-taker are related; and/or
- The relationships in the case description are not transparent (UBO, involved parties); and/or
- The money transfers do not take place via the notary account.

During the creation of the case descriptions, the following three characteristics were added:

- The presence of inexplicable rectifications, made up by the notary;
- The purchase of objects at public auctions;
- The establishment of unspecified 'umbrella' mortgages.

All these characteristics were added to the data-matrix in which the 200 selected objects were listed. One extra 'remarks' column was added to the data-matrix for notes in case of uncertainties or unusual circumstances which needed further clarification. The characteristics will be described in more detail in the following sections. These descriptions include the reasoning behind the assumption, the way it was used for analysis and the limitations related to the assumption.

Related sellers and buyers

In cases of the misuse of ABC transactions, carousel fraud or concealed payments, it is imperative that a certain relationship exists between one of the (actual) buyers and one of the (actual) sellers (FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; van Gestel et al, 2008), unless the investment or laundering process happens trough rebuilding-, renovation- or splicing-work. This relationship can for instance be based on a certain amount of trust or a certain amount of 'leverage' (Kleemans & de Poot, 2007; Kleemans & van de Bunt, 2008; van de Bunt & Kleemans, 2007). Thus, the first focus was on establishing the existence of (extraordinary) relationships between sellers and buyers. The data allowed us to look for family relationships (BVR), involvement in related legal entities (BVR and Chamber of Commerce) and for combined ownership of real estate objects.

Discovering a relationship between one of the seller(s) and one of the buyer(s) however cannot be labeled conspicuous without taking the context of the specific and unique case into consideration. For example, it is not uncommon for family members or friends to buy or sell real estate property from or to each other. Family and friends are, most likely, the first ones who will be informed about the desire to buy or sell a house within their own network. This information-advantage for subjects within ones personal network can also be applied to networks of legal persons.

A limitation related to this part of the analysis is made up by the fact that the network mapped here is mostly formal. In addition, these relationships are easily traceable through open sources. Literature shows that both formal and informal relationships play an important role in making up the social opportunity structure explaining the formation of organized crime (Kleemans & de Poot, 2009; Kleemans & van de Bunt, 2008). The results noted in the study by van Gestel et al (2008) underline that this is also true for real estate related crime. Thus, both family relationships and business relationships can play a role in the formation of criminal networks. However, since the criminal network wants to conceal its activities from the outside world, it is not likely that these relationships will be found in cases concerning criminal activities. This does not mean that these relationships are not present in these cases, yet they are kept out off the official records for the purpose of concealment, hence the use of front-men and shell companies.

Mortgages and loans

On the Dutch housing market it is very common for private buyers to use a loan in order to finance the acquirement of a house. In most cases this loan takes the form of a mortgage. As stated in the first part of this report, approximately 90% of the houses in the Netherlands are purchased by means of a mortgage. If a private person buys a house without the use of a loan or mortgage, he or she must have a considerable amount of personal wealth. Of course, it is plausible that the buyer is able to account for his or her personal assets by means of legal sources. However, it is also possible that the origins of these assets are illegitimate. The absence of a mortgage is especially interesting when found in combination with the involvement of foreign legal persons (Van de Bunt et al, 2007), a loan provided (by a non business party) without demanding a collateral (FATF/GAFI, 2007) and/or, the involvement of a buyer (or financier) who cannot account for the amount of money invested in real estate by means of legal sources [25].

Regular well-known financiers

According to official statistics, in 76% of real estate transactions mortgages are acquired through well known banks, insurance funds, building funds or mortgage funds, specialized in providing real estate related loans and mortgages (CBS StatLine, 2003). 20% of the mortgages are provided by legal persons, other than such business parties, 2% is provided by natural persons and the remaining mortgages are provided by unspecified foreign providers.

Taking these numbers into consideration, one must notice that almost one quarter of the real estate objects is financed by non-business parties. According to the FEC-report (2008) and the money laundering report by the Tax Authorities Office and the FIOD/ECD (Belastingdienst-FIOD/ECD, 2008) a mortgage or loan provided by a

[25] An additional remark is in order here. Just as the absence of a mortgage in itself does not provide a strong indication for criminal investments, the presence of a mortgage does not indicate the absence of criminal investments. It is not uncommon for criminals to buy real estate by means of a mortgage – possibly acquired through mortgage fraud – and to pay off the mortgage debts with criminal money (Van Gestel et al, 2008).

non-business party in combination with other factors should be considered alarming. This is underlined in the report by Van de Bunt et al (2007). This report shows that foreign non-business parties are often involved in cases of money laundering by means of loan-back and back-to-back-loan schemes. The presence of a non-business party as financier in a real estate transaction becomes all the more interesting in the following circumstances:

- a loan is provided without the establishment of a mortgage (FATF/GAFI, 2007);
- the financier cannot account for the financial assets invested in the loan or mortgage by means of legal sources and;
- the non-business party is a foreign legal person (Van de Bunt et al, 2007).

Related debt-takers and financiers

In cases where criminal investments and money laundering activities take the form of loan-back constructions and back-to-back loan constructions, a (concealed) relationship between the financier and the (actual) buyer has to be present (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007). However, it is not uncommon that a relationship between the debt-taker and the financier exists in a legitimate real estate transaction. In the Netherlands, it is quite common for wealthy parents to provide a mortgage to their children in exchange for a minimal amount of interest.

A relationship between the debt-taker and the financier is interesting though, when found in combination with the following characteristics:

- the financier is known to the authorities (e.g. drug production, fraud or money laundering) (Nelen et al, 2007; Van de Bunt et al, 2007);
- efforts appear to be undertaken to conceal the identity of the UBO (FATF/GAFI, 2007; KLPD-IPOL, 2008; Van de Bunt et al, 2007);

- the financier is a non-business party (Belastingdienst-FIOD/ECD, 2008; FEC-Report, 2008);
- the financier does not demand a collateral (FATF/GAFI, 2007) and;
- the financier is a foreign legal person (FATF/GAFI, 2006; FATF/GAFI, 2007; Van de Bunt et al, 2007).

In cases where mortgages are provided by major financial institutions, specialized in providing mortgages and loans (e.g. banks and insurance companies), recognizing a link between a distant member of the board or an individual shareholder and an individual buyer (debt-taker) cannot be considered a strong indication for money laundering activities.[26] There are too many different actors in the decision tree of such a legal person which would have to be involved in these cases to control the money-flows. It could though, be an indication for fraudulent behavior and so indirectly for the investment of illegally obtained money[27]. The means and research capacity at our disposal however, were insufficient to gain significant relevant information to make reliable statements about this specific phenomenon and thus, these relationships were not mapped.

In cases where a back-to-back loan is used, one of the relationships is covered up by means of a foreign bank guarantee (FATF/GAFI, 2007; KLPD-IPOL, 2008; Nelen et al, 2007). The financier as noted in the Offices of Land Registry though, is usually a well known and legitimate (national) bank. Therefore it is interesting to find out whether the mortgage was provided on the basis of such a bank guarantee. This information however, is only known to the bank and therefore could not be mapped in our case description creating a blind spot in our analysis[28].

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[26] There is no mentioning of this in current scientific work or policy reports, concerning money laundering, through loan-back and back-to-back loan constructions.

[27] If one considers article 420bis of the Dutch Penal Code this should be considered money laundering.

[28] Since the back-to-back loan is known in the scientific literature and policy reports this should be considered a realistic and often applied method. Therefore this blind spot should be considered important.

Level of transparency

The main reason behind the (ab)use of loan-back constructions, back-to-back loan constructions, ABC-transactions, shell companies, front-men, foreign legal persons and complex networks of legal persons for the purpose of money laundering and criminal investments, is to conceal those activities and the actors involved in these activities from the authorities (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007). These concealment efforts act as a 'shroud', covering parts of the transaction, making it less transparent. A perfect example is the use of a foreign financier owned by the actual buyer of the house which is controlled by a local TCSP (loan-back scheme). If these types of concealment efforts appear to be present, this could be considered an indication for maleficent activities. However, consistent with the previous characteristics, there might be legal reasons to make use of this kind of constructions (Van de Bunt et al, 2007).

The notary account

In the Netherlands, it is quite common in real estate transactions to transfer money via the notary account. The notary receives the purchase sum from the buyer, temporarily keeps the money on a special third party account, and transfers the amount to the selling party. Under the condition that the majority of the notaries operate legitimately, the use of the notary account can be seen as proof that actual money flows took place. However, the fact that money flows took place does not say anything about the actual source of the money. Furthermore, the use of the notary account also has a downside. It can be misused by maleficent notaries (FEC-report, 2008; Nelen & Lankhorst, 2008). By means of the notary account, the financing party cannot track the destination of the money, nor can the selling party trace the source, thus making it susceptible for (criminal) abuse (FEC-report, 2008; Nelen & Lankhorst, 2008). Although the use of the notary account does not guarantee a legitimate transaction, transferring money without any interference of a notary is rather exceptional and is worth paying attention to.

Extraordinary rectifications

Once in a while it happens that the notary has to rectify deeds which he made up in case of certain developments or in case mistakes were made by the notary (e.g. an involved person is mentioned as unmarried while in fact he or she is married). Both experts from the Tax Authorities Office Real Estate Knowledge Center (VKC) and operational employees at the Real Estate Intelligence Center (VIC) mentioned in interviews that rectifications are a subject worth paying attention to when investigating real estate transactions. Therefore, the presence of a rectification was noted in this analysis. The example given in this section is not very unusual though, nor does it give the impression that something maleficent took place. Thus, when analyzing these rectifications, the nature of the rectification is very important in relation to the conclusions formulated. The focus in this respect was on extraordinary rectifications (e.g. crossing out one of the original mentioned parties).

Public auctions

Public auction sales present an opportunity to buy real estate for a relatively low price, thus making it an interesting investment for real estate traders. The main reason for this relatively low price is the extra risks involved in acquiring an object through public auction (Ferwerda et al, 2007). For example, it is not possible to hold the seller accountable for any defects once the object is bought. Because of this circumstance, objects sold at a public auction are usually sold for a price under the actual market value. Another possible explanation for wedges between price and market value is the opportunity structure – provided by the way business is done at public auctions – which makes public auction sales susceptible for price agreements (Ferwerda et al, 2007). According to the literature maleficent real estate traders abuse this opportunity structure (Ferwerda et al, 2007; Rengers, 2005; Scheltema, 2005). Ritzen (2008) stated – in his theoretical analysis of the criminogenic nature of the real estate sector – that public auctions attract a certain sub-cultural group of real estate traders. This group has a deviating set of collective norms and values and a low level of social responsiveness. It appears that the majority of the involved parties at a public auction are part of this group (Ritzen, 2008). Members of this group are often involved in price agreements, fraud, intimidation and manipulation (Ferwerda et al, 2007). Furthermore, the (ab)use of public auctions is mentioned in current literature as

related to mortgage fraud and tax (VAT-carousel) fraud (Ferwerda et al, 2007; Van Gestel et al, 2008).

Umbrella mortgages

In the case of multiple object ownership it is possible to establish one mortgage to finance the purchase of all of these objects at once. In that case all of the involved objects are part of the collateral for the loan. These mortgages are known as so called 'umbrella' mortgages. According to operational employees of the Real Estate Intelligence Center (VIC) the presence of an umbrella mortgage, which is not specified, should be considered an indication for maleficent investments. The unspecified umbrella mortgage creates a case of non-transparent financing structures (Nelen et al, 2008). These mortgage constructions unable researchers to evaluate specific prices and loans. These constructions are susceptible for fraud because the prices and loan-parts become very difficult to assess.

1.2.3. Top down phase 1c: final considerations

From the individual characteristic descriptions it should have become clear that every individual characteristic has limitations and cannot be viewed as a hard indication for criminal investments on its own. Narrative theory prescribes that the entwinement of certain characteristics makes a case more (or less) conspicuous.

In addition, two limitations related to this part of the analysis have to be addressed. First, the data-sources used for this analysis all concern the "paper reality". Information regarding the transfer of money between subjects is noted in the relevant deeds by the notary. However, what has happened on paper does not necessarily reflect what has happened in reality. In reality, it is possible that the reported money flows did not occur.[29] In order to generate a picture of the actual money-flows information is needed from the involved financial institutions, The Dutch National Bank (DNB) or the involved notaries. This kind of information is hard to get access to and in the context of this project we could not use it.

[29] Especially if the notary is involved in the criminal network.

Second, by only focusing on the moments of transfer and mortgage establishment, another way of investing criminal money or laundering by means of trading with real estate property can be missed. Especially cases where criminal money is invested through rebuilding-, renovation- and splicing-work may stay beyond the grasp of the research project (FEC-report, 2007; Ferwerda et al, 2007). In cases of splicing-work a deed of separation has to be worked out by the notary, thus providing researchers with some helpful information. In cases of rebuilding and renovation, however, the paper trail does not exceed the registration of an increase in value of the real estate object in the following transaction. In such a case it becomes very hard to find out whether criminal money was invested and subsequently laundered because information about money transfers to the workers is not available.

1.3. Top-down phase 2a: adding 'intelligence'

1.3.1. Acquiring fiscal closed source information

In order to speed up the process of data-collection and analysis the Real Estate Knowledge Center (VKC) was closely involved in this part of the study and provided us with the majority of the necessary datasets. Representatives of the VKC were provided with the list of 200 selected objects. They combined this list with data from the Offices of Land Registry. All of the buyers, sellers and financiers involved were deducted from the dataset. In addition, the relations (legal persons, family, and share holders) of these parties were mapped by means of the Chamber of Commerce dataset and the Management Program of Relations (BVR) from the Tax Authorities Office. These efforts resulted in a major list of involved parties and their relations which could be linked to closed source information. The list was subsequently set out to the Dutch Financial Intelligence Unit (FIU)[30], the FIOD/ECD and compared to datasets of the Real Estate Knowledge Center (VKC) itself.

[30] The public prosecution department explicitly gave permission to the research team to obtain information on suspicious transactions of the FIU. The FIU supplied the information to one of the team

1.3.2. Acquiring judicial closed source information

In addition, the 200 selected objects were provided to the Police Limburg-South in order to check any records in the national shell application known as 'Blue View'. Crime analysts of this police force combined the addresses of the objects with information stored in this application. The deducted information was subsequently handed over to the Maastricht research team for additional case analysis. The data which was provided to the research team only involved so called article 8 and article 13 (Police Information Act: WPG) information.[31] This type of information is mainly compiled of information regarding daily Police activities. The data concerning major (ongoing) investigations and, Criminal Intelligence Unit (CIE) records could (and can) not be provided to non-Police officials and employees of the justice department by law.

1.3.3. Top-down phase 2b: finalizing the data-matrix

The Real Estate Knowledge Center (VKC) and the Police Limburg-South provided the research team with additional information. The information was added to the aforementioned data matrix. Two extra columns were made. One to note a 'hit' provided by the Real Estate Knowledge Center (VKC) and one to note a 'hit' provided by the Police Limburg-South. For each hit the nature and source of the hit was also added to the data-matrix. In the following sections the provided data, the sources and the consequences of a certain hit are described in more detail.

Suspicious Transactions Reports

The deducted subjects were compared to a database containing Suspicious Transactions Reports (STRs). The list of STRs is managed by the Dutch Financial

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leaders of the VKC. He made the information anonymous and subsequently transferred it to the researchers.

[31] The public prosecution department explicitly gave permission to the research team to obtain this type of information from the police. The application Blue View enables authorized officials to scan and apply police datasets in all Dutch police regions.

Intelligence Unit (FIU). The FIU receives, stores and analyzes so called notifications of unusual transactions. These notifications are gathered and analyzed on the basis of the Law to prevent money laundering and terrorist financing (*Wet ter Voorkoming van Witwassen en Financiering van Terrorisme; WWFT*). When analysis reveals that an unusual transaction has to be considered suspicious, the transaction will be sent to the police and other law enforcement agencies (e.g. FIOD/ECD). Considering the nature of a STR, a hit in the FIU database was considered relevant in light of our analysis.

GEFIS and VAT [BTW] carrousel fraud

The deducted subjects were also compared to two major databases, administered by the FIOD/ECD. The first is the Integral Fraud Identification System (GEFIS). This is a combined data system of the FIOD/ECD and the Tax Authorities Office. This system is filled with subjects who have been investigated by the Tax Authorities Office and/or the FIOD/ECD. The research team received hits in this system including the nature of the hit. As with the STRs provided by the FIU, the nature of the crimes stored in GEFIS make a hit in this database relevant for the application of the conspicuous label in our analysis. The second database involved a dataset compiled of subjects of which is known that they have been involved in Tax fraud. In the Netherlands this form is known as BTW (which is Dutch for Value Added Tax (VAT)) carrousel fraud. Since this form of fraud might involve the (ab)use of real estate transactions (Ferwerda et al, 2007; Van Gestel et al, 2008), a hit in this dataset was considered relevant in light of our analysis.

Living on air ('Windhappers')

Employees of the Real Estate Knowledge Center (VKC) have compiled several datasets. One of these sets is the so called *windhappers* list. A person 'living on air' (*windhapper* in Dutch) is defined – by the VKC – as a person who's family year income does not exceed €15.000, - and who's personal assets – on face value – appear to be significantly higher than can be accounted for by the family year income. If one of the involved parties in the studied cases is mentioned in the *windhappers* list, the question raises whether this person is financially able – by legal means – to perform the specific role in the studied case. If a subject is known as a *windhapper* and

performs the role of financier or buyer, the studied case should most likely be labeled conspicuous. However, applying the *windhapper* concept is not without limitations and risks. Certain sources of wealth were not taken into consideration when the *windhapper* concept was applied (because the relevant data are not present). For example, students with wealthy parents can have a significantly higher amount of financial assets than their personal income can account for. Furthermore, inheritances and lottery winnings were not taken into account.

Blue View

As mentioned before, police officers of the regional police Limburg-South ran the 200 selected objects through Blue View. All police information related to these addresses was gathered and handed over to the research team for further analysis. The data received by the research team involved a variety of police reports and notes concerning a variety of (deviant, maleficent and criminal) behaviors. A quick scan was performed by the research team on the basis of the following relevant key-words:

- fraud (Ferwerda et al, 2007; Van Gestel et al, 2008);
- money laundering/criminal money, criminal organization(s) (KLPD-IPOL, 2008; Van de Bunt & Kleemans, 2007)
- drugs (Ferwerda et al, 2007; Spapens et al, 2007; Van Gestel et al, 2008);
- renter(s) (Ferwerda et al, 2007; Van Gestel, 2008)
- illegal immigrants (Ferwerda et al, 2007)
- neighborhood complaints (Ferwerda et al, 2007; Van Gestel et al, 2008).

Cases of which the information-index contained any of these key words were marked. In addition, cases with an unspecified information-index were labeled because they could not be taken into account by means of the quick scan. Through this process, irrelevant information (e.g. reporting car theft) was filtered out. The next step involved an additional analysis of the marked cases. For all these cases, the full package of information was studied by the research team. Based on this final analysis it was decided whether the information was relevant for the application of the

conspicuous label. If this was the case, the information was summarized and added to the case descriptions.

1.4. Top-down phase 3: applying the conspicuous label

In order to apply the conspicuous label two steps were undertaken. The first step was the analysis of the compiled data-matrix. By means of this step, a number of non-conspicuous cases could already be identified and taken of the list. If no specific characteristics, as described in section 1.2, were found and the datasets, as mentioned in section 1.3, did not contain any information on the objects and related subjects, the case was considered to be non-conspicuous.

In the second step, the cases which remained on the list were analyzed in detail by means of the complete case description. The aforementioned narrative theory was used for this process. For each case, the research team created both a conspicuous scenario and a non-conspicuous scenario and in addition presented the supporting common sense presumptions for each scenario. Judging the scenarios was based on the (scientific) support for the common sense presumptions that lied at the root of both scenarios. In addition, both the number of supporting facts and the interrelatedness of the facts (the presence of a complex of supporting facts) were taken into account.

In order to illustrate this line of reasoning, we refer to example 1. In this example three facts are relevant in particular. Fact one is that Person X was involved in a real estate transaction between 2002 and 2006 as a private financier; fact two is that person X is a very wealthy individual. In addition, he is not listed by the tax authorities as a person “living on air” (*windhapper*). Fact three is that Person X was involved in a suspicious transaction in 2009 according to the Dutch FIU. A combination of these facts with other facts of the case description may lead to the two following scenarios. Keep in mind that both scenarios are possible, but one of them is best supported by means of the given information.

Example 1

	Non-conspicuous	Conspicuous
Scenario	*Person X has a significant amount of personal wealth. He used this to finance real estate acquired by providing a private mortgage. He sees this as a safe investment for his personal wealth.*	*Person X has invested money earned by means of financial crimes [fraud or money laundering] in real estate. The investment takes the form of a mortgage establishment. By means of forged documents and fraud he made his personal wealth appear to be accountable by legal means.*
Reasoning	*1: Person X does not meet the fiscal standards of 'windhapper' and thus, has enough personal wealth which he can account for by legal means to issue private mortgages.* *2: the transaction between 2002 and 2006 was not labeled by the Dutch FIU and thus this specific transaction was not suspicious.* *3: the suspicious transaction in 2009 is not related to the transaction between 2002 and 2006 and thus, the FIU hit is irrelevant in this case.*	*1: the definition of 'windhapper' is not full proof and people involved in financial crimes are known to use forgery and fraud to make their wealth appear to have a legal source.* *2: Person X is a natural person providing mortgages. It is very unusual for natural persons to provide a mortgage.* *3: Person X is known to the FIU and related to a suspicious transaction.* *4: the labeling process by the FIU is not full proof and thus, not every suspicious transaction is identified as such.*
Presumptions	*1: a person who does not fall under the definition of 'windhapper' has enough personal assets which can be accounted for by legal sources.* *2: most transactions which are not identified by the Dutch FIU as suspicious are unproblematic.* *3: establishing the involvement of a person in a suspicious transaction does not indicate that all of the transactions he was involved in are suspicious as well.*	*1: people involved in financial crimes are usually involved in forgery and fraud and create a deviating paper reality.* *2: natural persons providing a mortgage should be considered conspicuous by nature.* *3: criminal behavior can be considered a habit. Persons linked to crimes are more likely to be or have been involved in other crimes.* *4: not every suspicious transaction is identified by the FIU as such.*

From this example it should become clear that accepting a scenario based on the presented facts involves the acceptance of certain assumptions related to these facts (Crombag et al, 2005). The research team judged the plausibility of both scenarios and decided in the end whether the case had to be added to the list of conspicuous cases or not. Considering example 1, both scenarios are possible and receive support by the presented facts. However, the common sense presumptions on which the conspicuous scenario is based are considered stronger than the presumptions on which the non-conspicuous scenario is based. Scientific literature concerning the topic of criminal investments and money laundering suggests that the combination of the three aforementioned facts (personal wealth, private financier and subject of FIU-report) supports the presumptions of the conspicuous scenario. The fact that Person X is

known to the FIU can be considered as an indicator that Person X is involved in financial crimes.

1.5. Bottom-up: gathering 'field intelligence'

In this section, the last stage of the research process is described in detail. As part of the bottom-up approach, several local officials and authorities were consulted about subjects and objects – in Maastricht and Utrecht – they could link to criminal investments in real estate in these cities. For Maastricht the Regional Intelligence and Expertise Center (RIEC) Limburg-South, the Team Integral Security of the municipality and three local police officials were consulted. Access to these sources could easily be obtained because the researchers of Maastricht University are involved in the RIEC Limburg-South as scientific advisors. For the municipality of Utrecht, only three local police officials were consulted, since – at the time of our research project - Utrecht did not have an operational RIEC yet. In the following sections, the sources and their relevance are described in more detail.

1.5.1. Sources

The RIEC Limburg-South

In 2007, the first Dutch Regional Information and Expertise Center (RIEC) was established in the region of Limburg-South. Within this specific organ the municipalities in the region Limburg-South exchange information with the police, the Public Prosecutions Office, the Tax Authorities Office, the FIOD-ECD and the SIOD (Social Intelligence and Enforcement Service) (KLPD-IPOL, 2008).

The RIEC also hosts the Information Assembly (*informatie-overleg*), in which all involved parties are represented. The partners can introduce cases which they find relevant and appropriate for a multi-disciplinary approach. In the Information Assembly it is decided whether a case will be taken care of by fiscal-, penal or administrative law or a combination of these instruments. The RIEC represents the municipalities and can introduce cases in the name of the local project leaders from the different municipalities. The research team obtained a list of cases, including the objects and subjects, that had been discussed in the Information Assembly of the

RIEC and spoke to several representatives in order to gain insight in the cases of the RIEC Limburg-South.

Municipality of Maastricht: Team Integral Security

Besides the RIEC, the municipalities of Limburg-South have their own project teams involved in the fight against organized crime by means of administrative law. In the municipality of Maastricht this team is led by members of the Team Integral Security. This team is also responsible for the local BIBOB approach. BIBOB is one of many governmental tools that municipalities can use to prevent and contain organized crime. On July the first 2003, the Enhancement for Judging Integrity by the Public Administration Act (BIBOB) came into effect. The goal of the BIBOB act is to prevent the Public Administration from facilitating organized crime as a result of their decision making processes (KLPD-IPOL, 2008). De BIBOB act provides the Public Administration with the possibility – after a thorough background check of the applicant – to refuse the provision of certain licenses, subsidies and public tenders or, to retract these after provision has taken place, in cases were a 'serious risk' exists that the disposal will be used to undertake criminal activities (KLPD-IPOL, 2008; Nelen and Huisman, 2008).

The Team Integral security of the municipality of Maastricht provided the research team with a list of subjects and objects under the attention of the local project team and in addition added the BIBOB list involving all subjects who had received a negative BIBOB outcome during the research period.

Local neighborhood police officers

Local police officers usually are well informed on local 'criminal' activities and dubious reputations of certain people, because of their place in the neighborhood and their close ties to the local community. Therefore the research team considered them a valuable addition to the bottom-up analysis. In both cities,[32] local police officers from

[32] The interviews in Utrecht were performed by an employee of the Police department of Utrecht and, Master student in criminology at the Vrije University of Amsterdam (VU), Thamar Uittenbogaard.

the neighborhoods which had received the most red flags in the economic analysis were interviewed. By means of the interviews, the research team acquired a list of objects and subjects. It has to be stressed that this list reflects *perceptions* of local police officers on objects and subjects that might be linked to criminal investments in the real estate sector. Nevertheless, it is interesting to find out to what extent these objects and subjects match with the objects and subjects in the conspicuous cases filtered out in the top-down approach.

1.5.2. Comparing the data

The original idea was to compare the subjects and objects gathered in the bottom-up process with the selected objects and subjects by means of the initial analysis described in part I. However, the initial analysis only involved objects which had been part of a transaction in the period of 2002-2006. Thus, before the comparison could be undertaken, the research team checked whether the objects gathered by means of the bottom-up analysis had been subject to a transaction in that period. After this check was done, the comparison was performed.

2. Results

In this chapter the results of the criminological analysis are presented. First, the nature of the selected objects is described. Second, the results of the top-down analysis are given. These results are divided in results derived from open sources (first phase) and closed sources (second phase). Third, the conspicuous cases selected by means of the analysis are presented. And fourth, the results of the bottom-up analysis are described.

2.1. The selected objects

Table 2.1 gives an overview of the type of objects found in the list of 200 cases. The majority of the objects (56 %) consists of normal houses and apartments, both part of the housing market. Only a minority of the objects is part of the commercial (and public) market (9 %).

Table 2.1: type of objects

Type of object	Frequency	Percentage
House	79	39,5
Apartment	32	16,0
Parking	19	9,5
Stock room	19	9,5
Land	18	9,0
Garage	11	5,5
Commercial building	6	3,0
Shop-house combination	4	2,0
Building area	4	2,0
Community dump	4	2,0
Cafeteria	2	1,0
Public road	1	0,5
Unknown	1	0,5
Total	**200**	**100,0**

A remarkable finding concerns the extent of housing and apartment related objects (e.g. parking lots, garages and stock rooms). One quarter of the cases is related to these types of objects. Even more remarkable is the fact that in 76 % of these cases the related house or apartment was not on the selected objects list. This is remarkable because in the vast majority of the cases these objects were sold in a combination.

2.2. Results top-down phase 1

Table 2.2 gives an outline of the frequency of remarkable characteristics, as clarified in section 1.2.

Table 2.2: Characteristics of the cases

Characteristic	Frequency	Percentage
Related seller and buyer	55	27,5
No mortgage or loan established	54	27,0
No regular bank as financier	64	32,0
Related financier and debt-taker	23	11,5
UBO is not evident	25	12,5
No use of notary account	13	6,5
Rectifications	2	1,0
Executorial sales	5	2,5
Unspecified umbrella mortgage	18	9,0

Looking at table 2.2, the reader might immediately notice the relatively high percentage of respectively related sellers and buyers, transactions without the use of a mortgage or loan, and the absence of a regular bank as a financier. However, the financier – debt-taker relationship and the absence of a mortgage were – in a broader sense – part of the original economic analysis' indicator list. Thus, this finding is – at least partially – an artifact of the original selection. In addition, one should keep in mind that a case involving the absence of a mortgage or loan, will inevitably be characterized by the absence of a regular bank as financier, since there is no financier involved.

2.3. Results top-down phase 2

In table 2.3 the results of the second phase of the top-down analysis are summarized.

Table 2.3: Closed source information[33]

Indicator	Frequency	Percentage
FIU (STR)	21	10,5
GEFIS	6	3,0
No financial means (*windhapper*)	3	1,5
VAT carousel fraud	2	1,0
Blue view	5	2,5

[33] Hits are case related. For example, the 21 FIU hits concern 21 cases and not the summation of the total number of suspicious transactions per case.

The most striking finding in table 2.3 is the number of 'hits' in the database of the Dutch FIU. These hits all concern subject related suspicious transactions in the past. In some cases, one subject received a high number of hits. However, multiple hits per person were registered as one case-hits in table 2.3. In other cases, multiple subjects received a hit by the FIU. Again, these were labeled as one case-hits[34].

Another finding in need of elaboration is the low frequency of cases involving a windhapper, because this goes against our expectations. The *windhapper* (or subject with no financial means) was identified in three cases. However, two of these cases involved subjects not directly related to the transactions and so, did not perform a role of significance in the particular case. In the remaining case, the subject identified as a *windhapper* was the actual buyer of the object. Yet, in this case the parents were added as additional debt-takers in the mortgage deed as a guarantee for the providing bank that the debt would be relieved. Since the parents were not identified as *windhapper* , the hit in this case became irrelevant (in the sense that it could not be used as evidence for a conspicuous scenario).

The hits in the data deducted from GEFIS and Blue View also need some additional elaboration. Hits in these datasets can further be divided by their nature. In some cases the nature of the hit had stronger implications for the conspicuousness of the case than in others. Six of the cases received a hit in GEFIS: one of these cases involved a criminal case of deliberate money laundering; two (subjects related to the same case) involved deliberate tax fraud; one involved paper fraud and; three involved a rest-category. Five of the cases received a hit in Blue View: three of these hits involved the production of and trafficking in (hard)drugs and; two involved maleficent land lords (criminally) exploiting their renters.

A remarkable finding is that only in four of the 37 cases a combination of hits was found. In two cases this combination involved a *windhapper* in combination with a FIU hit. In the first of these cases the *windhapper* is a child of the buyers in combination with a FIU hit involving the selling party, which makes a relationship

[34] Information on multiple hits in the FIU database, however, is valuable and was added to the case descriptions as input for the developed conspicuous and non-conspicuous scenarios.

between these hits unlikely. In the second case the *windhapper* is the parent of two involved party members (brothers) in combination with a FIU hit for other involved subjects which are unrelated to the brothers. Again, it is unlikely that there is a relationship between these hits. The third and fourth combinations however were relevant. They both involve a hit in GEFIS in combination with a FIU hit. These cases contain strong indications that the FIU hit involves the same subject as the hit in GEFIS.

At first sight it might be considered extraordinary that none of the hits in Blue View were found in combination with a hit in any of the other relevant datasets (in particular the FIU database, the VAT fraud database and GEFIS). However, it has to be stressed that the hits in various data systems concern different entities. The hits in the FIU database, the VAT fraud database and GEFIS are subject related and concern subjects involved in the deducted real estate transactions. The hits in Blue View only concern reports related to the selected object numbers[35].

2.4. The conspicuous cases

By means of the narrative theory, 36 conspicuous objects were deducted from the original list of 200 object numbers. Table 2.4 shows the percentages of characteristics found in the conspicuous cases and the non-conspicuous cases separately. The results in this table show that for most of these characteristics there is a clear difference in prevalence between conspicuous cases as compared to non-conspicuous cases. Generally speaking, this makes perfect sense, since these characteristics were used to identify conspicuous cases in the first place. That's why it is more interesting to focus on the *absence* of an overrepresentation of certain characteristics. The following four characteristics are equally distributed among conspicuous and non-conspicuous cases:

- absence of a mortgage or loan to finance the acquirement of the object;
- absence of a regular bank as a financier;

[35] This can be considered a short coming in our analysis. The problem however, is that Blue View is an application designed for individual requests. Considering the limited time and means at our disposal we decided not to perform the Blue View analysis for all the deducted subjects.

- presence of related financiers and debt-takers;
- the presence of *windhappers* .

The first three of these characteristics were used in the economic analysis to perform the first selection.

Table 2.4: conspicuous vs. non-conspicuous characteristics

Characteristic	Conspicuous (%)	Non-conspicuous (%)
Related seller and buyer	36,1	25,6
No mortgage or loan established	30,5	26,2
No regular bank as financier	25,0	25,0
Related financier and debt-taker	11,1	11,6
UBO is not evident	22,2	10,4
No use of notary account	13,8	4,9
Rectifications	2,8	0,6
Executorial sales	11,1	0,6
Unspecified umbrella mortgage	22,2	6,1
FIU (STR)	55,6	0,6
GEFIS	11,1	1,2
No financial means (*windhapper*)	2,7	1,2
VAT carousel fraud	5,5	0,0
Blue view	13,9	0,0

The 36 conspicuous cases were further divided into nine *strong* conspicuous cases, *eight* moderate conspicuous cases and 19 *weak* conspicuous cases. The extent of conspicuousness depends on the number of relevant facts, the direction of the facts, the intertwinement between the facts and the (empirical) strength of the common sense presumptions related to those facts.

When analyzing the conspicuous cases another categorization was made. In 27 of the cases the main component of the conspicuous scenario was fraud, five cases involved drug related activities and four cases involved irregularities concerning the renting out of property.

In table 2.5 the nature of the presumed criminal activities is crossed by the extent of conspicuousness.

Table 5: categorizing the conspicuous cases

	Weak	Moderate	Strong	**Total**
Fraud	18	6	3	27
Drugs	1	0	4	5
Renting	0	2	2	4
Total	19	8	9	**36**

All case descriptions that received a conspicuous label, including the line of reasoning in these cases and the conspicuous scenario, are added in appendixes one (fraud cases), two (drug cases) and three (irregularities in renting out objects cases). In addition, 13 case descriptions of the cases which did not receive a conspicuous label but did receive a high amount of red-flags in the economic analysis, are added in appendix four.

In the next section the three types of conspicuous cases are described in more detail.

2.4.1. Fraud cases

The fact that 27 of the conspicuous cases contain a main component of fraud, is not surprising. After all, most of the acquired information in the various datasets was of financial nature. Table 2.5 also reveals that the majority of these cases received a weak conspicuous label (66,7%). In these cases, the conspicuous scenario is made up of circumstantial clues. The link between the criminal money and the specific object, relevant to the case, is made on the basis of assumptions that are not directly support by the deducted facts. The subject(s) involved, can be linked to criminal money and to a real estate transaction, but there is no telling whether the two components are linked in the case at hand.

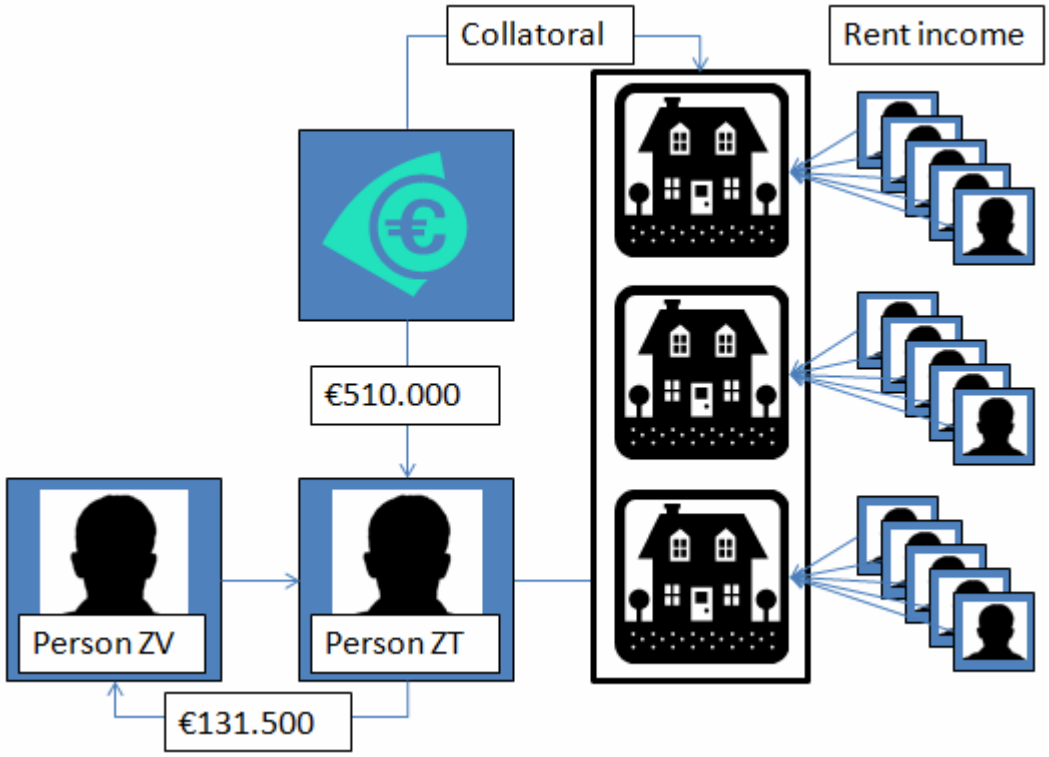
The way in which criminal money possibly was invested in fraud-related cases varied from case to case. Some scenarios involved the investment of personal assets, possibly acquired through fraud. In other cases a mortgage was established by a well-known Dutch bank. Those cases involved a scenario in which the mortgage debts were paid through criminally acquired money (example 1a). The scenarios of the fraud cases which received a moderate conspicuous label involved similar patterns. Yet, in these cases most objects were acquired without a mortgage and in addition these cases involved ABC transactions with unclear UBO's, relationships between the involved parties and appearing over- and/or undervaluation of the involved objects. As for the cases which received a strong conspicuous label, two of these cases appeared to involve mortgage fraud. These assumptions were made on the basis of ABC transactions, relationships between the involved party members, unclear UBO's in combination with *appearing over- and/ undervaluation and executorial sales*

(example 1b). The other case contained strong indications supporting a pure money-laundering scenario. It involved a non-business foreign financier, legal persons with unclear UBO's, the input of personal assets, a hit in the FIU database and a hit specifically mentioning deliberate money laundering in GEFIS.

Example 1a

In 2006 this object was sold by Person ZV to Person ZT for €131.500,--. In order to finance this object and two other objects, Person ZT established a mortgage at a well known Dutch Bank for €510.000,--. The mortgage deed states that Person ZT planned to rent out the objects.

One of the involved persons is known to the FIU in relation to twelve (12) suspicious transactions. After a quick scan in the datasets of the Offices of Land Registry the conclusion was that this person is most likely to be Person ZT.

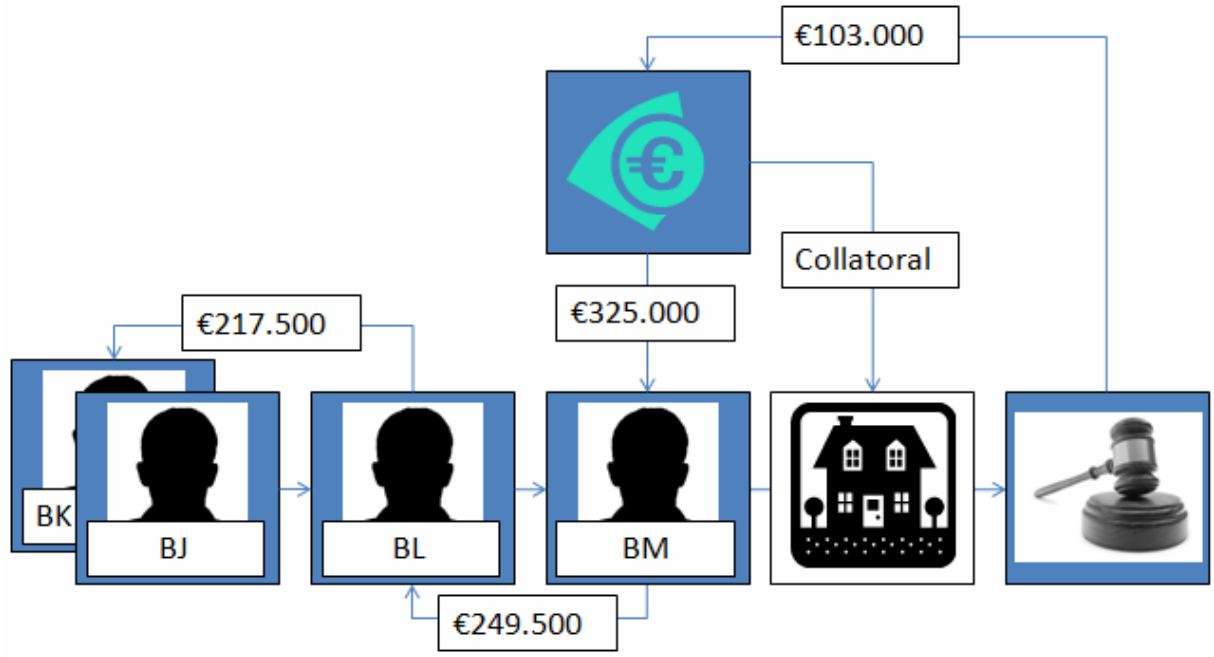


Conspicuous: this case in itself contains no remarkable characteristics. However, the unusual amount of FIU hits for one of the involved parties gave us no other choice but to label this case conspicuous.

Scenario: Person ZT is a maleficent landlord. The money earned through illegal activities undertaken in the objects owned by Person ZT are used to invest in real estate objects, either directly or as cash payments to pay off the mortgage debts.

Example 1b

In 2005 this object was sold by Persons BJ and BK to Person BL for €217.500,--. On exactly the same day the object was sold by Person BL to Person BM for €249.500,-- (the deeds of conveyance were made up by the same notary). The mentioned price was partially paid through the notary account (€233.500,--). The deed of conveyance states that the final part should be paid within a month. Whether this has happened and in what fashion remains unclear. On exactly the same day, the same notary makes up a mortgage deed. The right of mortgage was granted, by Person BM, to a well known Dutch bank for €325.000,--. After four months the object was sold by this bank through public auction because Person BM did not pay the mortgage debts. The object is sold to Company S, for €103.000,--.



Conspicuous: this case was labeled conspicuous because of the major decrease in value of the object, the involvement of a public auction shortly after a normal transaction and the unclear fashion in which ownership by Person BM was established.

Scenario: Persons BJ, BK and BL know each other and are involved in mortgage fraud. They recruited Person BM as a straw man who would buy the house (probably he was recruited by means of earning some quick cash through real estate trade). The deal was, that Person BM would buy the house by means of a mortgage which Person BM could not afford. This was realized through fraud. They also agreed on an ABC transaction in order to create an increase in value to acquire the highest possible mortgage. The money was transferred to Persons BJ, BK and BL and a small part was given to Person BM. Person BM never started paying off his mortgage debts and thus the object was sold through public auction for a heavily decreased price.

2.4.2. Drug cases

Table 2.5 reveals that in five conspicuous cases the main component involves drugs. In the majority of these cases the link to drugs was established through the information retrieved from Blue View. In one case the criminal component was established indirectly. This case concerned a coffee shop owner. It was assumed that coffee shop owners need to be connected to criminal organizations in order to buy supplies for their sales. This case was the only drug case which received a weak conspicuous label. The other four received a strong conspicuous label because the facts in these cases supported the means (real estate objects), the opportunities (transactions), the motive (profits from criminal activities) and the overall narrative of the scenario (interrelatedness of facts).

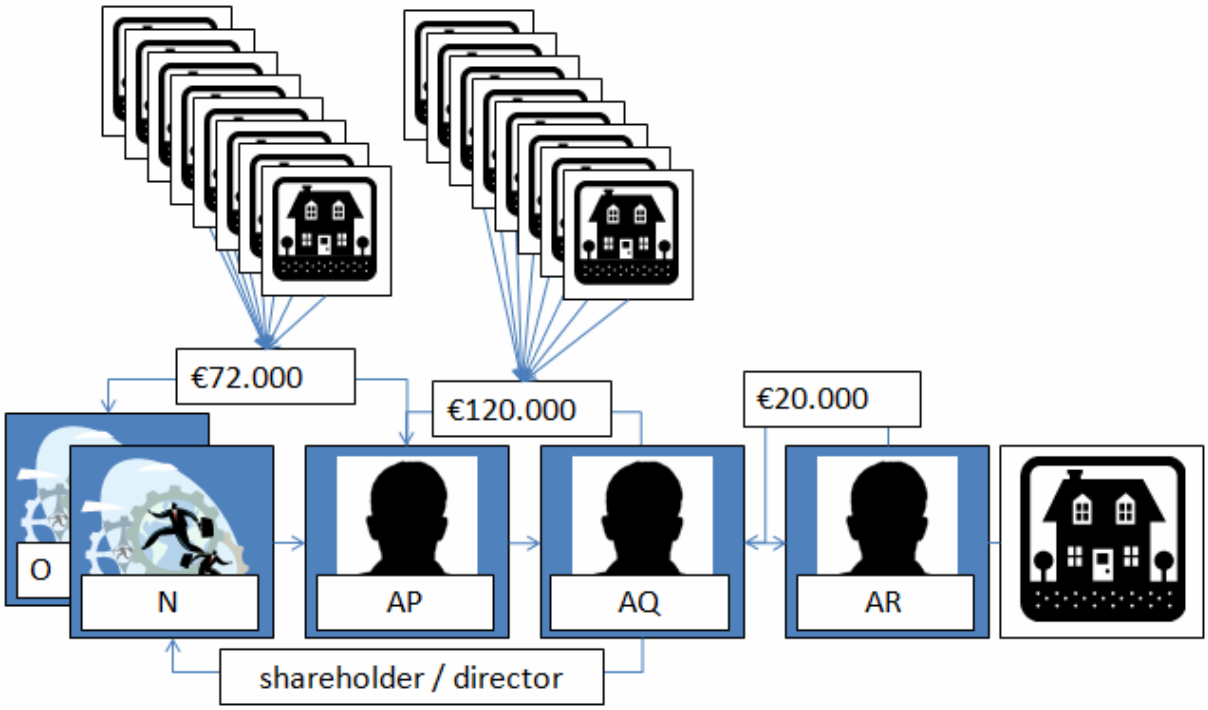
The component of criminal investments or money laundering in these cases took several forms. The case which received a weak conspicuous label concerns the input of personal assets and the absence of a mortgage or loan (example 2a). It is possible that money earned through illegal drug dealing was invested in this case. The other four cases, which received a strong conspicuous label, varied in the way criminal money allegedly was invested to acquire the involved objects. In three cases the criminal money is collected in the form of rent. In one of these cases the money is invested directly and no mortgage is established (example 2b). In the second case a mortgage is established and the criminal money is possibly used to pay off the mortgage debts. In the third case a combination is found. In this scenario part of the money is invested directly and another part is used to pay off mortgage debts. One remarkable fact in this case is the presence of a relationship between the buyer and the financier. In addition, this case involves a natural person as a non-business financier. The remaining case involves a scenario in which criminal money is invested directly. No mortgage is established to acquire the objects. This case was very remarkable because it involved rectification deeds made up by the notary. These deeds appear to have a shrouding function creating a defecting paper reality (example 2c).

Example 2a

In 2002 a group of eight garage boxes were sold by Companies N and O for €72.000,-- to Person AP. In 2006 the boxes were sold by Person AP to Person AQ, the owner of Company N, for €120.000,--. After one day, one of the boxes was sold to Person AR for €20.000,--.

Person AP is the owner of a Coffee shop. With regard to the supply side of the coffee shop, contacts with criminals are inevitable.

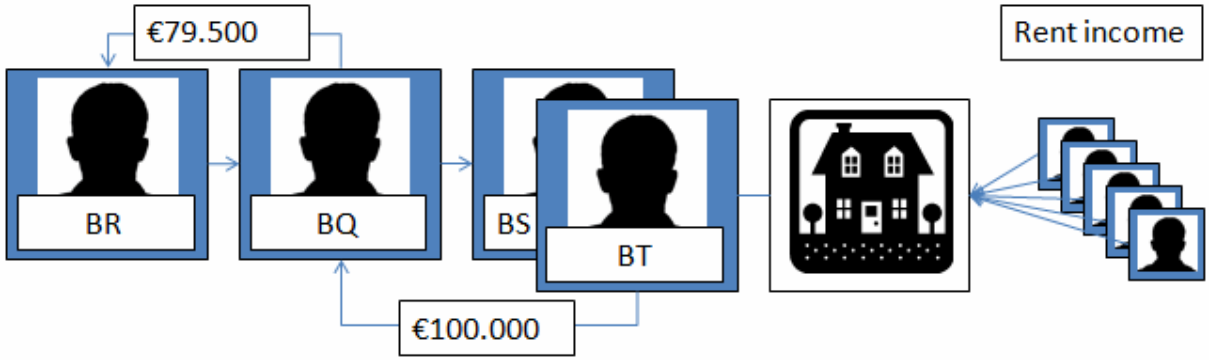
Conspicuous: garage boxes can be useful for the storage of (soft)drugs and one of the owners is owner of a coffee shop. This in combination with an ABC transaction (2006) in which B was the original seller (in a different form [legal person]) from the transaction in 2002. This transaction gives the impression that Persons AP and AQ are related in some way.



Scenario: garage boxes were bought by the owner of a coffee shop in order to store (soft)drugs to supply the shop. Objects were bought by means of (partially) illegal earned (drug) savings and in addition transacted through an ABC to conceal the original source of the money and to create speculative profits.

Example 2b

In 2002 this object was bought by Person BQ for €79.500,-- from Person BR. In 2006 Person BQ sold the property to Persons BS and BT for €100.000,--. No mortgage was established. This implies the use of personal assets to finance object ownership.



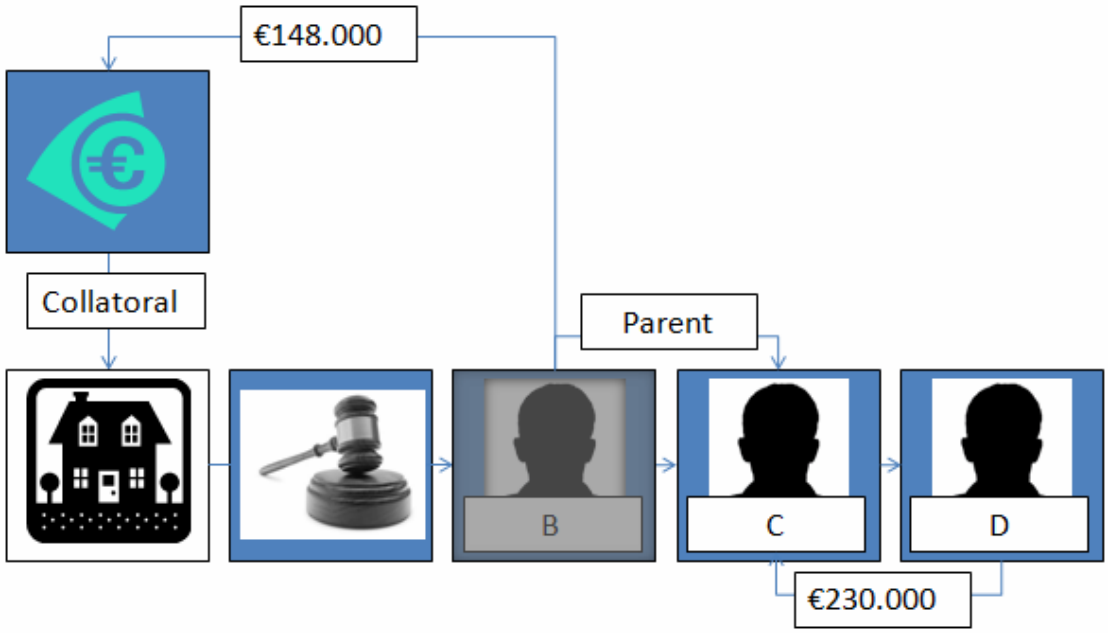
Person BS and this object are known to the police and registered in Blue View. The object is mentioned multiple times in relation to hemp plantations and other soft and hard drug related activities. The house was entered by the police on several occasions on the basis of information from the Criminal Intelligence Unit (CIE). Person BS was mentioned as owner, landlord and suspect in the police reports.

Conspicuous: the object could only be labeled conspicuous because of the information, involving the object and the owner, deducted from Blue View. The only other remarkable characteristic in this case is the absence of a mortgage in order to finance the object.

Scenario: Person BS is a maleficent landlord knowingly involved in the production and trafficking of hard and soft drugs. Person BS acquires real estate in order to invest dirty money and to create production facilities for the drug activities performed. Person BS collects the earnings from drug activities through collected renting fees (accounting for his personal assets). The actual production and trafficking process is in the hands of the renters.

Example 2c

In 2006 person A was no longer able to pay off his mortgage debts. Therefore the financier – a well known international bank – decided to sell the house by public auction. Person B bought the house for €148.000,-- at the auction. On exactly the same day the house was resold to Person C – a child of Person B – for exactly the same price. Because of the limitations in the data it was impossible to establish the way in which these sales were financed. Remarkable in this case was the fact that the involved notary had to rectify the original deed of conveyance in such a way that the first buyer – Person B – remained off the owners list of the Offices of Land Registry. One month later the property was sold again to Person D for €230.000,--. In order to finance the object Person D established two mortgages at a well known Dutch bank and a smaller foreign bank for a total amount of €870.000,--. These mortgages were established 6 months after the deed of conveyance had passed.



Person B and C are well known to the authorities. Person B is the main subject in a large (money laundering) investigation. One of the involved parties is also known to the Dutch Financial Intelligence Unit.

Conspicuous: this case was considered conspicuous because there were quite some remarkable characteristics in this specific case. These characteristics involve the combination of an ABCD transaction, family relationships, a huge price difference and especially the strange rectifications which appear to function as a shroud. Furthermore, Person B is related to criminal activities involving the development of drugs and money laundering and owns a fast growing real estate portfolio which cannot be accounted for by any legal income or personal wealth. We assume that Person B is the party who is mentioned by the Dutch FIU.

Scenario: person B is known to acquire and trade in real estate objects to invest drug money. This case is no different. The ABCD transaction was set up to hide the involvement of person B and to earn some speculative money which could be accounted for (trade profits).

2.4.3. Irregularities in rent cases

In four cases the main component of the conspicuous scenario was made up by irregularities concerning the renting out of real estate property. In two of these cases the information was retrieved from Blue View. This information gave strong indications that the owner of the object was to be considered a maleficent landlord. These cases received a strong conspicuous label.

In the two cases which received a moderate conspicuous label the objects were financed by means of a major unspecified umbrella mortgage established by a well-known Dutch bank. The UBO in these cases remains unclear due to a network of related legal persons and natural persons (some of them known to the Dutch FIU). In two deeds of conveyance the same persons are mentioned, yet under different tags.

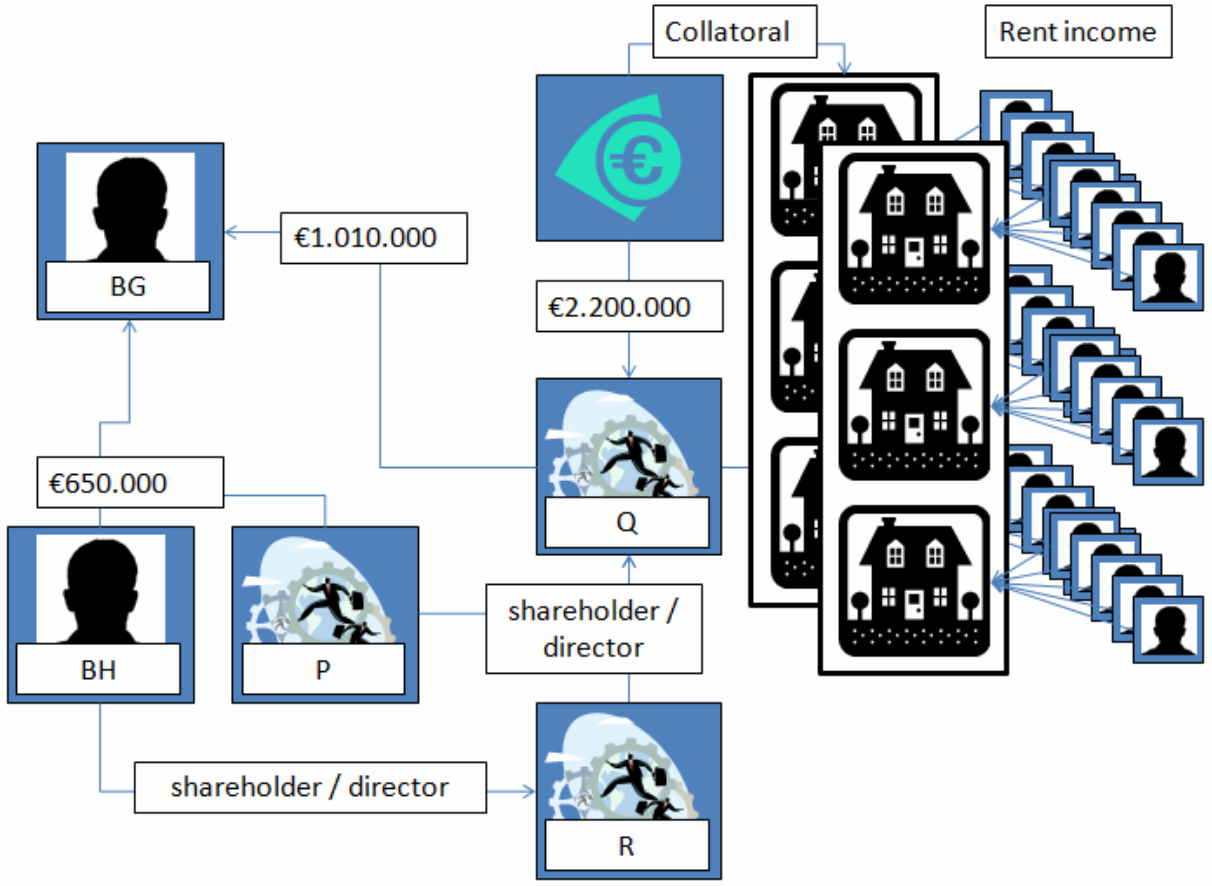
The criminal money in this scenario is invested either directly or in the form of payments to the bank in order to pay off the mortgage debts (example 3a). A similar modus operandi can be found in one of the other cases. This case involves a major umbrella mortgage established by a well-known bank. In the scenario the criminal money is invested through mortgage payments. The last case involves a specified and tailored mortgage. However, the mortgage does not cover the price of the object and thus, it is very likely that personal (criminal?) assets were also used to finance the object (example 3b).

Example 3a

In 2006, four objects were sold by Person BG to Person BH and Company P (owned by Person BI) for €650.000,--. One month later, six objects (including the aforementioned four objects) were sold by Person BG to Company Q (owned by Company P which is owned by Person BI and, Company R which is owned by Person BH) for €1.010.000,--. In the deed of conveyance it is mentioned that these objects will all be used for renting. In order to finance the objects the right of mortgage was granted to a well known Dutch bank for €2.200.000,--. Including previous loans, this brings the mortgage debt for Company P, Company Q and their owners at a total of €3.650.000,--.

Two of the parties involved in the first transaction are known to the Dutch FIU.

Conspicuous: the way object ownership was established and the way these objects were financed in this case are unclear. This in combination with the notifications at the Dutch FIU has led to the conspicuous label. The FIU notifications were the strongest argument to label this case conspicuous.



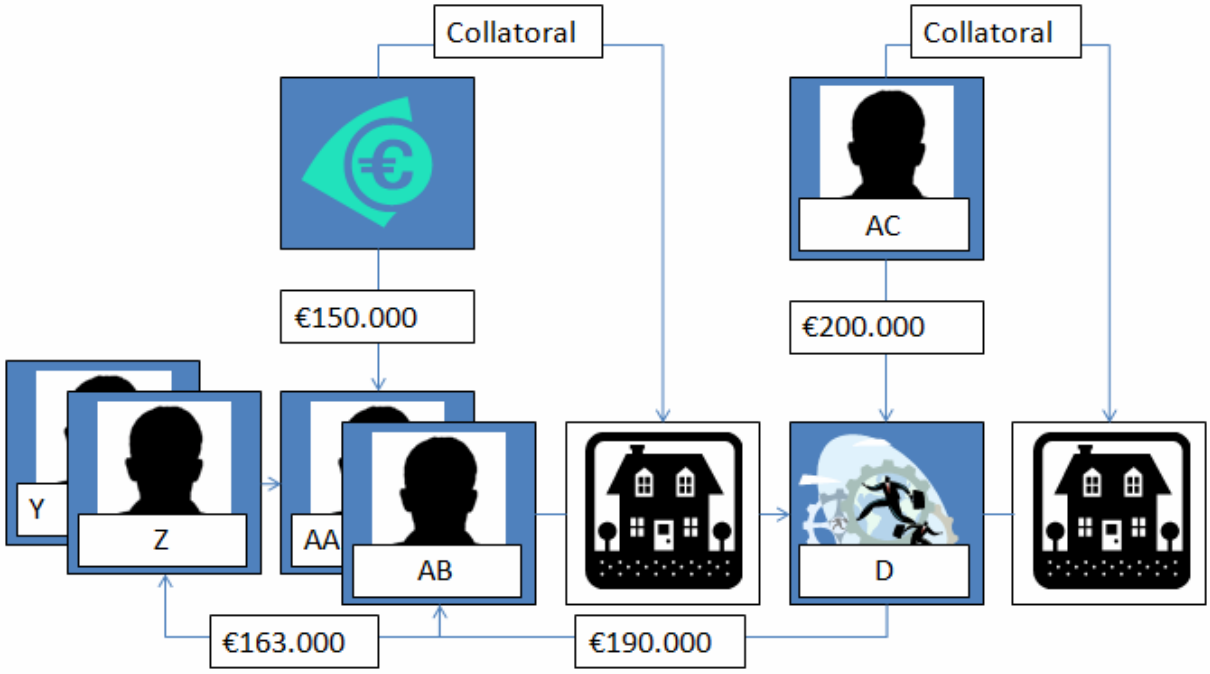
Scenario: the involved parties are maleficent landlords renting out their property. They also trade in real estate property. They acquire money through (legal) renting activities and through maleficent or even fraudulent transactions with real estate objects. Money acquired through these activities is invested in new property and used to pay off the mortgage debts.

Example 3b

In 2003 this apartment was sold by Person Y and Z to Persons AA and AB for €163.000,--. A mortgage was established by a well known Dutch bank for €150.000,--, which implies the input of personal assets by Persons AA and AB. In 2006 the object was sold to Company D for €190.000,--. In order to finance the object they granted the right of mortgage to Person AC for €200.000,--.

This object is known by the police and mentioned in Blue View. In 2005 this apartment was used for the housing of illegal immigrants.

Conspicuous: in this case personal wealth was used by Persons AA and AB to finance the object. These persons own a restaurant. The object is known to the Police in relation to the housing of illegal immigrants. The combination of these factors led to the following scenario.



Scenario: the object, owned by Persons AA and AB at the time, was acquired with the intention to house illegal immigrants. These were employed in the restaurant owned by Persons AA and AB. The money invested in the object (directly or by payments to the financier) came from rent payments by the illegal immigrants and the profits made through the employment of 'black laborers'.

2.4.4. Final Remarks

Before we present the findings of the bottom-up approach, two final remarks have to be made in relation to the results of the top-down analysis. For one, considering the topic of this research, it is remarkable that in none of these cases a scenario involving a form of the loan-back construction or back-to-back loan construction was found. In light of what is known about money laundering in the (scientific) literature (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007), the research team had expected to come across sophisticated modus operandi in order to shield the financer or owner. What's more, with the exception of one case there are no suspicions that (non-business) foreign legal persons were involved as financing parties. This finding also deviates from the criminological notion that substantial parts of criminal investments in the real estate sector have a foreign origin (Nelen et al, 2007; Van de Bunt et al, 2007; Nelen, 2008).

The second remark concerns the categories of criminal behavior presented in this research. The categories were established on the basis of the main and overruling maleficent or criminal component in the case. If one looks at all case descriptions

more closely (appendixes one, two and three), it becomes clear that most of the cases involving irregularities concerning the renting out of objects and the production and trafficking of drugs through objects also involve a component of fraud. In some drug cases, clues of irregularities in the renting out of objects can also be found. This entwinement of activities is in line with the findings of Ferwerda et al (2007) and Van Gestel et al (2008). They also found that no clear distinction can be made between the different types of maleficent and criminal behaviors related to the real estate sector. Most cases involve a combination of multiple behaviors (Ritzen, 2008).

2.5. Results bottom-up

In table 2.6 the results of the bottom-up analysis are summarized. In the following subsections the results are described in more detail.

Table 2.6: results bottom-up

	Amount	HITS
RIEC (subjects in Maastricht)	71 (312)	2
RIEC (objects in Maastricht)	8	0
BIBOB (objects in Maastricht)	6	0
Police (subjects in Utrecht and Maastricht)	26	0
Police (objects in Utrecht and Maastricht)	18	0

Since the creation of the RIEC Limburg-South in 2007, 78 cases (addresses/objects) have been discussed in the Information Assembly. These 78 cases involved 312 subjects (257 natural persons and 55 legal persons). Not all of these cases were accepted for further investigation by the Information Assembly. They were, however, brought to the table of the RIEC by one of the involved partners and thus, were considered cases in need of further attention. Therefore, the research team decided to check all of these names with the subjects identified in the economic analysis. Of these 78 cases, eight cases involved objects in the municipality of Maastricht which have transacted in the period 2002-2006. Furthermore, 71 (45 natural persons and 26 legal persons) of the 312 subjects are known to be actively involved in real estate property in Maastricht (financier/owner/user). As shown in table 2.6, two of the 'known' subjects matched with subjects identified in the cases deducted by means of the economic analysis. These subjects are related and involved in the same case, thus the hit concerns one case or selected object. It involves one of the cases which received a strong conspicuous label in the criminological analysis. Of the eight

relevant cases none matched with the 200 objects selected by means of the red-flag analysis.

In the period of 2002-2006 the municipality of Maastricht performed 32 BIBOB-investigations. In twelve of these cases the municipality went to the National BIBOB Desk for additional advice. In ten of these cases the advice, provided by the National BIBOB Desk, involved some level of threat and in six of these cases the object was transacted during the established research period. None of these six objects received a significant amount of red-flags in the economic analysis to be labeled for further criminological analysis.

The final group of information for the bottom-up analysis concerned human intelligence retrieved from local neighborhood police officers. For Maastricht the research team received six subject names (two were also noted by the RIEC) and five addresses of objects which had been subject to a transaction during the period of 2001-2006 (four were also noted on the BIBOB list). For Utrecht the research team received 20 subject names and 13 addresses of objects which had been subject to a transaction during the research period (in total the research team received 18 addresses). None of these addresses or subject names matched with the information retrieved from the objects flagged by the economic analysis performed by the University of Utrecht.

Overall, a list of 356 subjects and 32 objects was deducted from varies sources as input for the bottom-up analysis. The list of 356 subjects was compared to a list of 1130 subjects identified in the cases selected for the additional criminological analysis. For two subjects there was a match. These subjects involved the same case. This case was red-flagged by the team of Utrecht and had received a strong conspicuous label by means of the top-down analysis. The 32 addresses were compared to the addresses belonging to the 200 selected objects. None of the objects matched.

3. Conclusions and discussion

This chapter covers the most important results, presents the final conclusions of the criminological analysis process and discusses possible improvements and recommendations for future research. In section 3.1 the two hypotheses stated in the introduction will be discussed in detail. Sections 3.2 up till 3.4 deal with notable findings in the data. Finally, section 3.5 summarizes the most important conclusions, recommendations and improvements deducted from this analysis.

3.1. Verifying or falsifying the stated hypotheses

As stated in the introduction the analysis presented in this part of the report is primarily based on two hypotheses:

> H1: a significant majority of the 150 flagged selected objects (testing group) will be labeled conspicuous, by means of the top-down analysis, as compared to the 50 at random selected objects (control group);
>
> H2: subjects and objects identified in the bottom-up analysis will be present on the list of the 150 flagged selected objects.

In chapter 2 we described that, based on the premises of narrative theory, 36 cases could be labeled as conspicuous. After the criminological analysis had been conducted, the research team received the encoding table to check which objects were randomly selected (control group) and which objects were flagged by the economic analysis (testing group). This resulted in 31 conspicuous cases in the list of 150 flagged objects (20,6%) and 5 conspicuous cases in the list of 50 randomly selected objects (10,0%). Thus, the percentage of conspicuous cases in the testing group is twice as high as the percentage of conspicuous cases in the control group. Although these results can be interpreted as a positive indicator for the operational value of the economic analysis, it would be premature to conclude that the method is able to separate the wheat from the chaff (e.g. distinguish between conspicuous and non-conspicuous cases).

The results of the bottom-up analysis presented a more bleak picture of the operational usefulness of the red-flag analysis. In one of the 200 cases two related subjects were found that matched the subjects list retrieved through the bottom-up approach. However, these findings should be handled with great care. There are two possibilities. The first interpretation is that the red-flag analysis has only limited value considering the high number of false-negatives. The second interpretation is that the red-flag analysis leads to additional insights and spots cases that have not been marked through traditional operational scans. Addition research in this field is needed to draw final conclusions in this respect.

3.2. Remarkable findings in the data

The criminological analysis led to some findings in need of elaboration. For one, the finding is striking that the vast majority of the 200 selected objects is part of-, or related to the housing market, and that only a small minority can be categorized as commercial or public real estate (8,5%). This should be considered extraordinary because literature suggests that the real estate sector not only attracts organized criminals who invest their money in the property market, but that the commercial real estate market is also an attractive playing field for white collar criminals (Nelen et al, 2008; Nelen, 2008; Vulperhorst, 2008). Thus, the commercial submarket was expected to be present more prominently in the analysis. However, if we look at the original dataset the original rate turns out to be almost similar to the rate in the set of 200 objects, as will be analyzed in more detail in part 3.

Another interesting finding is the presence of a significant number of apartment related objects apart from the objects they belonged to (24,5%). In almost all cases, both objects went through the same transaction history (79,6%). The most likely explanation is that these cases involve false-positives as the result of a deficiency in the red-flag methods used to perform the economic analysis (e.g. a possibility is that the WOZ is not linked to the related object).

A similar exceptional finding was discovered when working out the 13 non-conspicuous cases which had received a significant amount of red-flags (appendix four). In three of these cases the selected object-number involved multiple pieces of land belonging to different houses (these pieces involved backyards). The transactions

belonging to these different pieces of land in the Offices of Land Registry dataset appear to concern one and the same object-number (or object). Therefore on a economic level, using the transaction data, values were compared which could not be compared because they did not concern the same piece of land.

3.3. Remarkable findings in the top-down analysis

After phase 1 of the top-down analysis, it became clear that on the basis of open-source intelligence alone it was not possible to develop a line of reasoning concerning the conspicuousness of the cases involving the selected objects. The research team did not find any distinguishable patterns that could indicate a difference between the conspicuous and the non-conspicuous cases. The open sources did help with the deletion process of clear-cut non-conspicuous cases. What the research team was left with were cases in which both the conspicuous and the non-conspicuous scenarios were possible, yet neither one was more plausible than the other. We have to conclude that the verification of a conspicuous scenario is impossible without access to closed sources. Without this kind of information, most case scenarios only give some insight in the opportunity (the real estate transaction) and the means (the transacted amount of money). Information on criminal motives is lacking though. A scenario supporting the assumption of criminal activities should involve all three components (Bennett & Feldman, 1981; Crombag et al, 2005).

Another finding that went up against our expectations was the absence of cases involving a combination of hits in the separate closed source datasets. We expected that subjects or objects known to one of the authorities would most likely also be known to the other authorities. This is in line with the findings of Ferwerda et al (2007) and Van Gestel et al (2008) who state that most criminal cases related to the real estate sector involve a combination of irregularities concerning the exploitation of the object and financial fraud performed by the related subjects. In our analysis, only two cases involved a relevant combination of hits. In both cases a hit in the FIU

database (subject related) was found in combination with a hit in GEFIS[36]. This finding underlines the surplus value of a multi-agency approach and data-exchange between different institutions.

3.4. Elaborating on the conspicuous cases

After comparing the prevalence of the relative number of remarkable characteristics for the conspicuous cases and the non-conspicuous cases (chapter two, table 2.4) four characteristics showed a deviating pattern from what we had expected. We had expected that all of the remarkable characteristics would be overrepresented in the conspicuous cases. However, this was not true for these four characteristics belonging to a similar cluster:

- absence of a mortgage or loan to finance the acquirement of the object;
- absence of a regular bank as a financier;
- presence of related financiers and debt-takers;
- the presence of *windhappers* .

These characteristics were mainly used (with the exception of the *windhapper* which has a broader reach) to identify forms of loan-back and back-to-back loan schemes. Considering what we know about money laundering and criminal investments, we had expected to find signals or indications of loan-back and back-to-back loan schemes (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007). Considering the equal distribution of these characteristics over the conspicuous and the non-conspicuous cases it is likely that these characteristics did not function the way we had expected them to function. We have to conclude that these characteristics are no valid indicators for the loan-back and back-to-back loan schemes and are in need of further refinement. This conclusion gains support by the absence of other characteristics in all 200 cases that are related to

[36] Two other combinations were found. However, these involved a combination of an FIU hit and a subject that could be placed under the '*windhapper'* definition. After additional analysis it became clear that these hits were not intertwined.

the loan-back and back-to-back loan schemes. In light of this, the absence of foreign legal persons (both as buyers and financiers) is the most notable (FATF/GAFI, 2006; FATF/GAFI, 2007; Nelen et al, 2007; Van de Bunt et al, 2007).

Although most conspicuous scenarios involve multiple maleficent and/or criminal behaviors it is possible and, for analytic purposes, useful to differentiate between certain categories to find out whether they contain specific patterns or combinations of remarkable characteristics and hits (Ferwerda et al, 2007; Van Gestel et al, 2008). In our analysis we found three categories of scenarios in which the main behaviors differentiated. It appears that these categories contain their own specific set of characteristics and hits. However, due to the small number of cases the analysis does not allow us to draw any reliable conclusion in this respect.

3.5. Closing remarks

The most important finding of the criminological analysis is the fact that 20% of the cases in the testing group was labeled conspicuous, compared to 10% in the control group. This result can be considered as a promising start of the effort to develop innovative methods to detect irregularities in the real estate sector. However, the analysis also shows that improvements and alterations of the methodology are necessary. Refinements can be found in the development of more specific red-flag analysis aimed at specific behaviors and specific submarkets. The results of this research indicate that specific behaviors can be linked to their own set of specific characteristics and hits making these refinements possible. In addition, certain adaptations should be made. It appears that for this type of analysis, open source information is insufficient. The additional use of closed sources is a *conditio sine qua non*. With regard to money laundering activities (which was the original starting point of this study) we consider it to be important to refine the used indicators in the economic analysis and search for different indicators to establish signals for dubious foreign investments, loan-back and back-to-back loan schemes. However, we have to keep in mind that the real estate market is a closed circuit that offers many possibilities to conceal irregularities. Studying a paper trail only reveals a ‘paper reality’, but does not fully cover what actually has happened. That’s why additional forms of criminological research will always be indispensable.

Appendix 1: conspicuous fraud cases

Case 101 (strong)

In 2005 this object was sold by Persons BJ and BK to Person BL for €217.500,--. On exactly the same day the object was sold by Person BL to Person BM for €249.500,-- (the deeds of conveyance were made up by the same notary). The mentioned price was partially paid through the notary account (€233.500,--). The deed of conveyance states that the final part should be paid within a month. Whether this has happened and in what fashion remains unclear. On exactly the same day, the same notary makes up a mortgage deed. The right of mortgage was granted, by Person BM, to a well known Dutch bank for €325.000,--. After four months the object was sold by this bank through public auction because Person BM did not pay the mortgage debts. The object is sold to Company S, or a future master, for €103.000,--.

Conspicuous: this case was labeled conspicuous because of the major decrease in value of the object, the involvement of a public auction shortly after a normal transaction and the unclear fashion in which ownership by Person BM was established.

Scenario: Persons BJ, BK and BL know each other and are involved in mortgage fraud. They recruited Person BM as a straw man who would buy the house (probably he was recruited by means of earning some quick cash through real estate trade). The deal was, that Person BM would buy the house by means of a mortgage which Person BM could not afford. This was realized through fraud. They also agreed on an ABC transaction in order to create an increase in value to acquire the highest possible mortgage. The money was transferred to Persons BJ, BK and BL and a small part was given to Person BM. Person BM never started paying off his mortgage debts and thus the object was sold through public auction for a heavily decreased price.

Case 102 (strong)

In 2005 Person AE sold this object, together with 30 other objects, to Company F for €2.500.000,--. In 2006 the object was sold again, this time to Persons AF and AG representing Company G, located in the USA, for €120.000,--. In order to finance the object Company G granted the right of mortgage to Company H for €95.000,--. This implies the input of personal wealth by Company G.

All parties involved in this case are known to the Dutch FIU (STR) and the Tax Authorities Office. One of the parents of Person AE was, according to GEFIS, involved in money laundering activities.

Conspicuous: strange non-business companies involved. The financier is not a regular bank and the amount of the loan does not cover the price of the object. In addition, all parties are known to the authorities in relation to fraudulent behavior and money laundering activities.

Scenario: parties are in business together to invest criminal money in real estate objects. This happens through real estate deals, loan constructions and personal investments.

Case 103 (strong)

In 2002 Company A sold this object to Company C for €726.048,35. It involved an ABC transaction through which the ownership is directly transferred from Company A to Company C, however, Company B is mentioned in the deed of conveyance. All companies are involved in real estate trade and development. Four months later, the object was spliced in thirteen apartments. One of the apartments is the actual object selected for this case. At the same moment a union of owners is established of which Person K becomes the first board member. It also became clear that there were no mortgages established to finance the ownership. In 2003, eleven of the thirteen apartments were sold to Person K for €631.132,07. Person K stated in the deed of conveyance that Person K planned to inhabit

all of the objects. Four months later, the actual object selected for this case was sold to Person L for €177.500,--. In order to finance the object Person L established a mortgage for €219.000,-- at a well known Dutch bank. In 2006 the object was sold again, this time by auction because Person L could no longer pay the mortgage debts. It was sold to Person M for €195.301,--. No right of mortgage was granted in order to finance the object ownership. A year later the object was sold to Persons N and O for €210.000,--. They granted the right of mortgage to a well known Dutch bank for €1.200.000,--. This mortgage however did not only apply to this apartment, but also to eleven of the other apartments which were now in the hand of Persons N and O. In the mortgage deed it is mentioned that Persons N and O bought the apartments in order to rent them out.

One of the involved parties in the transaction of 2003 is known to the Dutch FIU.

Conspicuous: the substantial amount of transactions in such a short period involving this object is remarkable. Furthermore, it looks like relationships are present between a lot of the actors. One of the ABC transactions is not transparent. Furthermore, it is remarkable that Persons N and O acquire all of the original apartments. This case gives the impression of 'uitponden'. In a sense, the transaction-history almost seems orchestrated. In addition, one of the key players is known to the Dutch FIU. Person K also stated that K planned to inhabit all of the eleven apartments bought by Person K which was clearly not the case.

Scenario: object(s) was/were used to create fast growing profits in a fraudulent manner. It appears that this case involves mortgage fraud and 'uitponden'. Companies A, B and C and Person K are involved in fraudulent activities. Person L is the victim of mortgage fraud initiated by a network involving Person K. Persons N and O are involved in 'uitponden' and possibly related to the network involving Person K.

Case 104 (moderate)

In 2003 this object (First floor which served as a shop) was sold by Persons P,Q and R to Person S for €135.000,--. In order to finance the object the right of mortgage was granted to a well known Dutch bank for €168.000,--. In 2006 the object was sold again. This time it was bought by Person T for €240.000,--. A mortgage was established at a well known bank for €200.000,--, this implies the input of personal wealth by Person T.

Person T is known by the Tax Authorities Office and FIOD/ECD in relation to VAT carousel fraud.

Conspicuous: the second buyer is known by the authorities in relation to fraud. Furthermore, he also invested €40.000,-- of his personal assets in this object.

Scenario: the money earned by Person T through his fraudulent activities is invested in real estate objects such as this.

Case 105 (moderate)

In 2002 this object was sold by Companies T,U and V for €16.856.500,-- to Company W. Companies T, U and V were represented by a network of 11 related natural and legal persons which make the matter of original ownership (UBO) complicated. The price concerned a large real estate deal including over 300 objects located in two major cities in the Netherlands. This specific object was sold again in 2006 for €203.000,-- to Persons BN and BO. No mortgage was established to finance the object. This implies the input of personal value.

Company V is known to the Tax Authorities Office and the FIOD/ECD, yet under a different name then the name which was mentioned in the deed of conveyance. It seems like Company V tried to hide this fact by using a different trade name. Company V can be related to VAT carousel fraud.

Conspicuous: this case was labeled conspicuous because it appears that multiple efforts were taken to hide the original UBO in the first transaction. Furthermore, it is unclear how much money was paid

for the individual objects making individual object analysis very hard. In addition, Company V was known to the Tax Authorities Office and the FIOD/ECD for fraudulent behavior.

Scenario: Companies T,U and V are involved in financial fraud and invest their illegal earnings in real estate objects like this. By means of legal trades in large real estate deals they mask their fraudulent activities and illegal investments.

Case 106 (moderate)

In 2006 this objects was sold by Company X to Person BP for €145.335,29. At the same day Person BP granted the right of mortgage to a well known Dutch bank for €325.000,--.

Conspicuous: remarkable is the fact that the mortgage deed was made up by a different notary, especially since the amount of the mortgage is almost twice the value of the acquired object.

Scenario: Person BP is involved in mortgage fraud. The loan of €325.000,-- was acquired by means of fraud, therefore a different notary was used to make up the mortgage deed.

Case 107 (moderate)

In 2005 this object (together with an object that was not selected in the macro analysis) was sold by Company Z to Person BV for €305.000,--. And Person BV sold the object in 2006 to Company ZZ for the same price. This is not surprising since Person BV is the only shareholder of Company ZZ. Furthermore, Person BV is also the only shareholder of Company Z.

Two of the involved subjects (in reality all subjects concern the same natural person) are known to the Dutch FIU in relation to suspicious transactions.

Conspicuous: this case has some remarkable qualities. In this case not only are the involved subjects related, they concern one and the same natural person. In addition this person is also known to the Dutch FIU in two of the mentioned forms.

Scenario: Person BV has acquired the object by means of criminally earned money. In order to conceal the actual source of the money Person BV started a chain of transactions between Person BV and Companies Z and ZZ (both owned by Person BV) involving the object.

Case 108 & 109 (moderate)

In 2003 these two objects (garages) were sold by Company ZX to Company ZW (acting directors at the time are Persons BY and BZ) for €29.300,--. In 2008 the Offices of Land Registry was notified that concerning these two objects and a number of additional objects executorial seizure was in effect because of undue payments. Remarkable in this case is that the debtor (and owner of the objects) is Person CA who was not mentioned previously (it is possible that this person bought Company ZW and is its only shareholder and possibly current acting director).

One of the involved parties is known to the Dutch FIU in relation to ten (10) suspicious transactions.

Conspicuous: this case was labeled conspicuous primarily because of the immense number of suspicious transactions one of the involved parties has performed. In addition it is remarkable that the ownership of the objects changes without a deed of conveyance and thus, without a clear passage of legal ownership (not economic ownership).

Scenario: Company ZW was used by Persons BY and BZ for illegal practices and the investment of criminally earned money. They used a front man, being Person CA, as owner of the company. After a period of misuse they ended the financial injections in Company ZW leading to its bankruptcy. This is possibly a case of VAT Carousal fraud.

Case 110, 111, 112, 113 & 114 (weak)

In 2002 these objects were sold, together with 55 other objects (not flagged by Utrecht), as a package of apartments part of the same building. The objects were sold by Company ZT to Company ZS for €6.904.000,--. However, although conveyance takes place directly from Company ZT to ZS, the actual transaction involves a third party (ABC-transaction). Company XX is mentioned in the deed of conveyance as B, what the price was which had to be paid by Company XX remains unclear.

One of the involved parties is known to the Dutch FIU in relation to suspicious transactions.

Conspicuous: at first glance the way business is done in this case is not remarkable. However, though Company XX is mentioned in the deed, there is no information regarding the price paid by Company XX to acquire the object. Thus, this transaction partially lack transparency. In addition one of the involved parties is known to the Dutch FIU.

Hypothesis: Companies ZT and XX know each other and have conspired against Company ZS. In addition, through multiple transactions Companies ZT and XX invest money earned by maleficent trading activities and criminal activities and attempt to cover their tracks.

Case 115 (weak)

In 2004 this object changed owners. The new owners were Persons H and I. They acquired this object through a trade for another object. The original object owned by Persons H and I was valued at €850.000,-- and the new object was valued at €500.000,--, thus they received the object and €350.000,-- cash. Because of limitations in the data it was not possible to find out in what way the first object was financed. In 2006 the object was sold by Persons H and I to Person J for €619.000,--. Persons H and I then moved to a foreign country. In order to finance the object two mortgages were established. The first right of mortgage was granted to a well known Dutch Bank for the amount of €490.000,--, the second right was granted to one of the parents of Person J for €100.000,--. This implies that Person J also invested €29.000,-- of his own personal assets (possibly personal savings).

Conspicuous: this is a very unusual way of doing business. In addition it also involves, either a case of overvaluation or a case of undervaluation. Since an object that was worth €850.000,-- in 2004 was sold for €619.000,-- in 2006. This is a very remarkable difference for that period in time.

Scenario: Persons H and I used criminal money to buy the original object and then initiated the trade in order to get some "clean" cash.

Case 116 (weak)

In 2005, five garage boxes were sold of which two were identified and flagged by the University of Utrecht. In this case Person U sold one of the boxes for €11.000,-- to Person V. In 2006 Person V sold the object to Person W and X for €19.000,--.

One of the involved parties in the transaction of 2005 is known to the Dutch FIU.

Conspicuous: Of the two boxes identified and flagged by the University of Utrecht only this case could be labeled conspicuous because it involved a party known to the Dutch FIU. The case in itself would never raise any questions concerning the investments of criminal money.

Scenario: one of the parties involved is known to the Dutch FIU. Therefore it might be possible that (small amounts of) criminal money were invested in this case.

Case 117 (weak)

In 2002 this object, and others, were brought in, by Company I, in Company K which was just established by Companies I and J. The mortgage, which was already established, related to the object was taken over by Company K as well. The object was sold in 2006 to Persons AH and AI for €312.000,--. They granted the right of mortgage to a well known Dutch bank for €340.000,--.

The stockholders of Companies I and J are both known to the Tax Authorities Office and noted in GEFIS for deliberately falsifying the tax return form.

Conspicuous: involved parties were involved in fraudulent behavior (GEFIS).

Scenario: involved parties use savings acquired through fraudulent behavior for the acquirement of real estate objects.

Case 118 & 119 (weak)

In 2002 object 22 was bought by Person BT for €11.635,83 from Company Y. In 2005 the object is sold back by Person BT to Company Y for €139.068,12. Company Y appears to be the project developer for this housing project. Company Y immediately sold the house to Person BU for €148.800,--. Both transactions happened at the same day by the same notary (same deed). Person BU established a mortgage to finance the object. Both objects 22 and 23 were brought in as collateral. Object 23 was bought by Person BU from Person BW for €9075,60 (it's a garage). The right of mortgage was granted to a well known Dutch bank for €176.800,--.

One of the involved subjects in both cases is known to the Dutch FIU in relations to a suspicious transaction. Since there is a hit for both cases the research team suspects that Person BU (the only person involved in both cases) is the person known to the FIU.

Conspicuous: the only remarkable quality of this case at first glance was the second transaction in which the old seller bought back object 22. However, since the case concerns a building project and Company Y is the projects' developer, this quality became less remarkable. It was the FIU hit that made the research team decide to label the case conspicuous.

Scenario: Person BU is known to be involved in suspicious transactions (Dutch FIU). It is possible that Person BU is investing money earned through maleficent or criminal activities in this specific object.

Case 120 (weak)

In 2006 this object is sold by Company ZY to Person BX for €380.000,--. In order to finance the object a mortgage was established by a well known Dutch bank for €290.000,--.

One of the involved parties is known to the Dutch FIU in relations to a suspicious transaction.

Conspicuous: this case contains very little information. One remarkable quality from an economic perspective is the discrepancy between the price of the object and the amount of mortgage received. This shows that Person BX had to invest personal assets. In addition one of the involved parties is known to the Dutch FIU.

Scenario: one of the involved party members acquires real estate objects with criminally earned money and tries to cover the tracks and to increase the amount of personal wealth by means of transactions concerning these objects. In this case it is possible that Person BX is investing criminally earned money in the form of personal wealth.

Case 121 & 122 (weak)

In 2006 these two objects and one additional object were sold by Company ZV to Company ZU for €1.200.000,--. Company ZU is planning to renovate the object and in order to do this establishes a mortgage with a renovations related loan company for €500.000,--.

One of the involved parties is known to the Dutch FIU in relation to a suspicious transaction.

Conspicuous: this case contains very little information. The only remarkable quality is that one of the involved parties is known to the Dutch FIU.

Scenario: one of the involved party members acquires real estate objects with criminally earned money and tries to cover the tracks and to increase the amount of personal wealth by means of transactions concerning these objects.

Case 123 (weak)

In 2006 this object was sold by Person ZV to Person ZT for €131.500,--. In order to finance this object and two other objects Person ZT established a mortgage at a well known Dutch Bank for €510.000,--. The mortgage deed states that Person ZT planned to rent out the objects.

One of the involved persons is known to the FIU in relation to twelve (12) suspicious transaction. After a quick scan in the datasets of the Offices of Land Registry the conclusion was that this Person is most likely to be Person ZT.

Conspicuous: this case in itself contains no remarkable characteristics. However, the unusual amount of FIU hits for one of the involved parties gave us no other choice but to label this case conspicuous.

Scenario: Person ZT is a maleficent landlord. The money earned through illegal activities undertaken in the objects owned by Person ZT are used to invest in real estate objects, either directly or as cash payments to pay off the mortgage debts.

Case 124 (weak)

In 2006 this object was sold to Companies XA, XB and XC from Person XX for €400.000,--. In order to finance the object a mortgage was established by a Dutch bank for €500.000,--.

Three involved parties are known to Dutch FIU in relation to suspicious transactions. The research team suspects these three subjects are Companies XA, XB and XC since these are all in the hands of related family members and can take the form of a social opportunity structure for organized crime.

Conspicuous: the case in itself does not contain any conspicuous characteristics. However, the fact that three parties involved are known to the FIU made the research team decide to add the conspicuous label.

Scenario: Companies XA, XB and XC form a criminal organization. They are involved in fraud through real estate transactions and invest their illegally obtained money through these same transactions.

Case 125 (weak)

In 2003 this object was sold by Company L to Person AJ for €125.000,--. Within 6 months the object was sold again to Person AK for €145.000,--. Person AK failed to pay off the mortgage debts to a small Dutch firm specialized in mortgages. Therefore the object was sold. In the original deed it was stated that the house would be sold by public auction. However, it was sold by private auction in 2005 to Person AL for €123.005,--. One month later Person AL sold the house to Persons AM and AN for

€145.000,--. After one month Person AM sold the house to Company M, of which AM is the owner, for €145.000,--. The mortgage, established by Persons AM and AN for €160.000,--, was taken over by Company M as well. In 2006 the object was sold again for €304.000,-- to Persons AM and AO. At this point no mortgage were established anymore.

Conspicuous: this case is remarkable because the object was sold very often in a very short period of time and the same person remained (partial) owner of the object in three of these transactions. Furthermore, in five months the objects' value increased with almost 50%.

Scenario: money earned through criminal activities was subsequently invested in real estate objects. In order to legitimize the increase in object value multiple transactions were performed.

Case 126 (weak)

In 2004 this object was sold by Persons AS and AT for €214.000,-- to Persons AU and AV. The sales agreement was signed a year earlier. It is unclear in what way the object was financed. In 2006 the object was sold to Persons AW and AX for €220.000,--. In order to finance the object a mortgage was established by a well known Dutch bank for €220.000,--.

Person AU is known to the Tax Authorities Office and described in GEFIS for fraudulent behavior.

Conspicuous: the way the object is financed by Persons AU and AV is unclear. In combination with the hit in GEFIS this led to a conspicuous label.

Scenario: Person AU is known for fraudulent behavior. Money acquired through fraud was subsequently invested in real estate objects such as this

Case 127 (weak)

In 2005 this object, including three other objects, was sold by Persons BC and BD to Person BE for €200.000,--. Person BE is one of the parents of Persons BC and BD. In 2006 the objects were sold by Person BE to Person BD and Partner BF for €190.000,-- (in this case it concerned three of the four objects). In order to finance the objects a mortgage was granted to a well known Dutch bank for €95.000,--, this implies the input of personal wealth.

Person BD is known to the Tax Authorities Office and mentioned in GEFIS for fraudulent behavior. In addition one of the involved party members is known to the Dutch FIU (suspicious transaction).

Conspicuous: in this case the note in GEFIS, concerning one of the main players (person BD), in combination with the FIU hit was the strongest argument for labeling the case conspicuous. The involvement of relationships between all parties and the input of €100.000,-- personal wealth can be seen as additional indications.

Scenario: parties are involved in fraudulent behavior and use transactions involving these pieces of family property to invest money acquired through fraud.

Appendix 2: conspicuous drug cases

Case 201 (strong)

In 2005 Person E sold a house to Persons F and G for the price of €445.000,--. Person G is the child of Person F. Person F is a major real estate trader who owns a company employing his child as a landlord. They rent out most of the real estate objects owned by Person F. This particular object however was bought for private use by Person G and partner. Both persons F and G own 50% of the object. However, person G has established a mortgage in order to finance his part of the house and Person F is the financer.

Person G is known to the police and registered in Blue View. From the specific police reports it becomes clear that Person G acts as landlord in the objects owned by Person F. A number of times Person G is mentioned in police reports as related to activities involving (hard) drugs. However, in all of these reports he is mentioned as the landlord giving up his renters to the police. In the police reports it appears that every time a drug related incident is reported Person G fully cooperates and even hands over the keys to the police. Yet, it remains worth noting that the objects of Person G keep coming up with relation to (hard) drugs in Blue View. Apart from the notion that person G is mentioned as having threatened a couple of community members he cannot be linked to serious forms of crime directly.

Conspicuous: this case was considered remarkable because of the way the object was financed. The source of the money was not specified and remains unclear (it could be legal renting profits and trading profits). The way of financing in itself, however is not sufficient to label this case conspicuous. Therefore, the notions in Blue View performed the decisive information. It is very unusual that such a large amount of objects owned by Person F can be linked to (hard) drug activities.

Scenario: Persons F and G knowingly rent out the objects owned by Person F to drug developers and traffickers to perform their activities. They collect their part of the drug money as rent and invest this in real estate property such as this object.

Case 202 (strong)

In 2002 this object was bought by Person BQ for €79.500,-- from Person BR. In 2006 Person BQ sold the property to Persons BS and BT for €100.000,--. No mortgage was established. This implies the use of personal assets to finance object ownership.

Person BS and this object are known to the police and registered in Blue View. The object is mentioned multiple times in relation to hemp plantations and other soft and hard drug related activities. The house was entered by the police on several occasion on the basis of information from the Criminal Intelligence Unit (CIE). Person BS was mentioned as owner, landlord and suspect in the police reports.

Conspicuous: the object could only be labeled conspicuous because of the information, involving the object and the owner, deducted from Blue View. The only other remarkable characteristic in this case is the absence of a mortgage in order to finance the object.

Scenario: Person BS is a maleficent landlord knowingly involved in the production and trafficking of hard and soft drugs. Person BS acquires real estate in order to invest dirty money and to create production facilities for the drug activities performed. Person BS collects the earnings from drug activities through collected renting fees (accounting for his personal assets). The actual production and trafficking process is in the hands of the renters.

Case 203 (strong)

In 2006 person A was no longer able to pay off his mortgage debts. Therefore the financier – a well known international bank – decided to sell the house by public auction. Person B bought the house for €148.000,-- at the auction. On exactly the same day the house was resold to Person C – a child of Person B – for exactly the same price. Because of the limitations in the data it was impossible to establish the way in which these sales were financed. Remarkable in this case was the fact that the involved notary had to rectify the original deed of conveyance in such a way that the first buyer – Person B – remained off the owners list of the Offices of Land Registry. One month later the property was sold again to Person D for €230.000,--. In order to finance the object Person D established two mortgages at a well known Dutch bank and a smaller foreign bank for a total amount of €870.000,--. These mortgages were established 6 months after the deed of conveyance had passed.

Person B and C are well known to the authorities. Person B is the main subject in a large (money laundering) investigation. One of the involved parties is also known to the Dutch Financial Intelligence Unit.

Conspicuous: this case was considered conspicuous because there were quite some remarkable characteristics in this specific case. These characteristics involve the combination of an ABCD transaction, family relationships, an immense price difference and especially the strange rectifications which appear to function as a shroud. Furthermore, Person B is related to criminal activities involving the development of drugs and money laundering and owns a fast growing real estate portfolio which cannot be accounted for by any legal income or personal wealth. We assume that Person B is the party who is mentioned by the Dutch FIU.

Scenario: person B is known to acquire and trade in real estate objects to investment drug money. This case is no different. The ABCD transaction was set up to hide the involvement of person B and to earn some speculative money which could be accounted for (trade profits).

Case 204 (strong)

In 2006 this object was sold by Persons AY and AZ to Persons BA and BB for €125.000,--. In order to finance the object a mortgage was established by a well known large Dutch bank for €140.000,--.

The object and Person BA are known to the police and mentioned in Blue View with regards to (soft)drug related activities. In the object the police discovered a hemp plantation. At that point Person BA had rented out this apartment. The police did not find any grounds to hold Person BA accountable for the hemp plantation in this apartment. However, it happened on several occasions.

Conspicuous: the object was used multiple times for hemp plantations by renters.

Scenario: either Persons BA and BB were unaware of the misuse of their apartment or they were actively involved in the production of drugs. In both cases it is very likely though that the rent paid to Persons BA and BB was money acquired through drug trafficking by the renters.

Case 205 (weak)

In 2002 a group of eight garage boxes were sold by Companies N and O for €72.000,-- to Person AP. In 2006 the boxes were sold by Person AP to Person AQ, the owner of Company N, for €120.000,--. Exactly one day later one of the boxes was sold to Person AR for €20.000,--.

Person AP is the owner of a Coffee shop. With the ownership of a coffee shop it becomes almost unavoidable not to come in contact with organized crime.

Conspicuous: garage boxes can be useful for the storage of (soft)drugs and one of the owners is owner of a coffee shop. This in combination with an ABC transaction (2006) in which B was the original

seller (in a different form [legal person]) from the transaction in 2002. This transaction gives the impression that Persons AP and AQ are related in some way.

Scenario: garage boxes were bought by the owner of a coffee shop in order to store (soft)drugs to supply the shop. Objects were bought by means of (partially) illegal earned (drug) savings and in addition transacted through an ABC to conceal the original source of the money and to create speculative profits.

Appendix 3: conspicuous cases involving irregular renting

Case 301 (strong)

In 2003 this object was sold from Company E to Person AC for €110.000,--. In 2006 Person AC sold the object to Person AD for €177.500,--. In order to finance object ownership a mortgage was established by a well known bank for €5.000.000,--. It concerned an umbrella mortgage which was not specified.

This object and Person AD are mentioned in Blue View. The notes in Blue View gave the impression that Person AD is a maleficent landlord.

Conspicuous: the owner, Person AD, made use of an enormous unspecified umbrella mortgage in order to finance the objects. This creates problems when one wants to investigate the specific loan-parts per object. Person AD used these objects to make renting profits and personally acts as the landlord. Furthermore, Person AD is mentioned in Blue View. This note gives the impression that Person AD is a maleficent landlord exploiting renters.

Scenario: Person AD is a maleficent landlord who exploits renters and invests the money made in the process in real estate objects in order to exploit more renters. Maleficent earnings are being invested through mortgage payments and renting fees.

Case 302 (strong)

In 2003 this apartment was sold by Person Y and Z to Persons AA and AB for €163.000,--. A mortgage was established by a well known Dutch bank for €150.000,--, which implies the input of personal assets by Persons AA and AB. In 2006 the object was sold to Company D for €190.000,--. In order to finance the object they granted the right of mortgage to Person AC for €200.000,--.

This object is known by the police and mentioned in Blue View. In 2005 this apartment was used for the housing of illegal immigrants.

Conspicuous: in this case personal wealth was used by Persons AA and AB to finance the object. These persons own a Restaurant. The object is known to the Police in relation to the housing of illegal immigrants. The combination of these factors led to the following scenario.

Scenario: the object, owned by Persons AA and AB at the time, was acquired with the intention to house illegal immigrants. These were employed in the restaurant owned by Persons AA and AB. The money invested in the object (directly or by payments to the financier) came from rent payments by the illegal immigrants and the profits made through the employment of 'black laborers'.

Case 303 & 304 (moderate)

In 2006, four of these objects were sold by Person BG to Person BH and Company P (owned by Person BI) for €650.000,--. Furthermore, one month later, six of these objects were sold by Person BG to Company Q (owned by Company P which is owned by Person BI and, Company R which is owned by Person BH) for €1.010.000,--. In the deed of conveyance it is mentioned that these objects will all be used for renting. In order to finance the objects the right of mortgage was granted to a well known Dutch bank for €2.200.000,--. Including previous loans, this brings the mortgage debt for Company P, Company Q and their owners at a total of €3.650.000,--.

Two of the parties involved in the first transaction are known to the Dutch FIU.

Conspicuous: the way object ownership was established and the way these objects were financed in this case are unclear. This in combination with the notifications at the Dutch FIU has led to the conspicuous label. The FIU notifications were the strongest argument to label this case conspicuous.

Scenario: the involved parties are maleficent landlords renting out their property. They also trade in real estate property. They acquire money through (legal) renting activities and through maleficent or even fraudulent transactions with real estate objects. Money acquired through these activities is invested in new property and used to pay off the mortgage debts.

Appendix 4: non-conspicuous cases: high frequency of red flags

Case 401

In 2002 this object, including 70 other objects, was sold by Company AA to Company BB for €5.764.142,80. Whether Company BB used a mortgage to finance this transaction remains unclear because of limitations in the available data. In 2006 the individual object was sold by Company BB to Persons ZA and ZB for €189.321,--. A mortgage was established for which only half of the object (Person ZA's part) performed the role of collateral. The right of mortgage was granted to Person ZB for €101.155,48. Thus, Person ZB invested private assets in this object, and Person ZB was not labeled as a windhapper.

None of the involved parties were known to the authorities.

Non-conspicuous: this case contains some remarkable characteristics. There is a relationship between the financier and the buyer of the object in the last transaction. In addition, no mortgage involving a regular bank was established. However, in itself these characteristics are not enough to formulate a plausible scenario involving conspicuous behavior. This is enhanced by the fact that the involved parties are not known to the authorities.

Case 402

In 2004 this object was sold from Persons ZC and ZD to Person ZE for €168.750,--. In order to finance the object a mortgage was established for €194.000,PPp--. The financier is a well known foreign bank with international establishments in the Netherlands.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. All parties seem to be in order. And no plausible conspicuous scenario could be constructed in this case.

Case 403

This case involves a garage. The object was sold in 2002. Person ZF sold the object to Person ZG for €0,--. This was done as commissioned by the regional court of law in the region. Reasons were not mentioned in the deed of conveyance, but most likely Person ZF had to redeem debts to Person ZG. The value of the object was estimated at €8.168,04. Three months later the object was sold again to Person ZH for €8.500,--. And, in 2006 the object is subsequently sold to Person ZI for €15.000,--. No mortgage was established to finance the final transaction.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does contain some remarkable characteristics. No mortgage was established to finance the property. In this case however this was not very remarkable considering the relatively low value of the object. Furthermore, the involved parties are not known to the authorities. From the economic perspective it is possible that this case was flagged because of the major price differences. However, in light of the case description this can be explained in a perfectly non-conspicuous way. Thus, no plausible conspicuous scenario could be formulated.

Case 404

The object was sold in 2002 by Persons ZJ, ZK, ZL, ZM and ZN to Person ZO for €127.058,46. The object was acquired by Persons ZJ, ZK, ZL, ZM and ZN as part of an inheritance. In 2006 the object was sold again by Person ZP. Person ZP is a child of Person ZO, whom acquired the object as part of an inheritance (this implies that Person ZO past away). The object was sold to Persons ZQ and ZR for €285.000,--. In order to finance the object they granted the right of mortgage to a well known Dutch Bank for €600.000,--.

None of the involved parties were known to the authorities.

Non-conspicuous: one remarkable characteristic in this case, which could have led to a red flag in the economic analysis, is the difference between the amount of mortgage granted by the bank and the value of the object serving as collateral. However, on its own this is not enough to formulate a conspicuous scenario. It is possible that the object was used for mortgage fraud, yet there are no other characteristics in this case which support this scenario. Furthermore, it is possible the bank granted this amount of money in order to rebuild or renovate the object. And it could be that part of the money was held in depot by the bank.

Case 405

In 2003, 50% of the object was sold by Person ZS to Person ZT, who already owned the other 50%, for €91.250,--. At that moment the object was not encumbered by a right of mortgage. In order to finance the object Person ZT and partner granted a right of mortgage to a well known Dutch bank for €90.000,--. The object was used to acquire renting profits and as a safe trade investment. In 2004 object ownership is sold to Person ZU, a child of Person ZT and partner. The usufruct (renting profits and investment profits) remained in the hands of Person ZT and partner. The mortgage was taken over by Person ZU and as a result no money had to be paid to Person ZT and partner for acquiring object ownership. Person ZU had to pay €177.000,--, this implies that Person ZT and partner donated €87.000,-- to Person ZT in a remarkable way.

None of the involved parties were known to the authorities.

Non-conspicuous: this case is remarkable in that all parties involved are related. However, Persons ZS and ZT in the first transaction appear to be business partners. They used an actuary to assess the value of the object in order to come to a realistic sum for 50% of the object. The final transaction between Person ZT and partner and their child Person ZU raises more questions. In this case it appears that no actual money flows took place. The question is why anyone would sell the ownership of the house to a child in this particular way. A possible answer might be to gain tax profits in case of inheritance by Person ZT. Whatever the answer might be, this case does not present enough conspicuous characteristics to formulate a conspicuous scenario. This was enforced by the absence of hits on the authorities lists.

Case 406

In 2006 this object was sold twice on the same day (ABC). The first transaction involved Company CC, as seller and Company DD as buyer. The object was sold for €300.000,--. The sales agreement mentioned in the deed of conveyance was signed in 2005. On the same day, by the same notary, the object was sold by Company DD to Persons ZW and ZV for €482.500,--. The related sales agreement was signed in 2006. The deed of conveyance explicitly mentions all involved parties involved in this ABC transaction. In order to finance the object Persons ZW and ZV grant the right of mortgage to a well known international bank for €530.000,--.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. One might consider the price increase remarkable. Yet, since the sales agreement was signed in 2005 it is likely that the first

price was set in that period, accounting for the increase. Possibly the object was renovated or perhaps reconstruction work took place. All in all, to many non-conspicuous scenarios remain plausible, All parties seem to be in order. And no plausible conspicuous scenario could be constructed in this case. Furthermore, the case appears to be transparent since all parties involved in this ABC transaction are explicitly mentioned in the deed of conveyance.

Case 407

In 2005 the object was sold by Company EE to Company FF for €591.000,--. Involves a monumental building. Company FF is specialized in developing and renovating these types of objects. In 2006 the object is sold again to Persons ZX and ZY for €1.225.000,--. The deed of conveyance states that a parking lot belonging to the object is still under construction and will be paid by Persons ZX and ZY after it is finished by Company FF. In order to finance this object, Persons ZX and ZY grant the right of mortgage to a Dutch bank for €1.955.000,--. Another object was also brought in as collateral for this mortgage. This explains the €700.000,-- difference with the value of this specific object.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics and none of the parties involved can be linked to maleficent behavior. From the economic perspective it is possible that this case was flagged because of the major increase of value over a short period of time and the difference between the price of the object and the amount of mortgage provided. However, the mortgage concerns two objects and the price difference can be explained because of a rebuilding and renovation process. This scenario is supported by the fact that a parking lot is still under construction and the fact that rebuilding and renovating are the core business of Company FF. Furthermore, the case does not provide enough characteristics to formulate a plausible conspicuous scenario supported by the information in this case.

Case 408

This case involves a stock room belonging to an apartment which was not selected by the macro analysis performed by the University of Utrecht. The information stated here concerns both objects since these were never traded separately during the research period.

In 2004 the objects were sold by Person ZX to Person ZZ for €118.000,--. In 2006 they were sold again to Person XA for €123.500,--. Person XA established a mortgage in order to finance the objects. The financier was a well known Belgium Bank and provided €136.000,--.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. All parties seem to be in order. And no plausible conspicuous scenario could be constructed in this case.

Case 409

This case involves a stock room belonging to an apartment which was not selected by the macro analysis performed by the University of Utrecht. The information stated here concerns both objects since these were never traded separately during the research period.

In 2002 the objects were sold by Person XB to Person XC for €155.500,--. In 2006 they were sold again to Person XD for €130.000,--. Person XD established a mortgage in order to finance the objects. The financier was a well known Dutch Bank and provided €145.000,--.

None of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. However, from an economic perspective there is one remarkable aspect present in this case. The objects value had decreased over the years. This is very uncommon for real estate objects during the research period. However, several non-conspicuous reasons can be given for this (degradation of the object as a result of bad maintenance). This in combination with the lack of conspicuous characteristics does not provide enough support for a conspicuous scenario.

Case 410

The object code concerns a major parcel which is divided in 18 pieces of land owned by different parties. Nine of these pieces were traded ones or twice during the research period. The problem however is that these transactions are noted in the Offices of Land Registry as if they concern one and the same object, which is clearly not the case. Therefore on a economic level, using the transaction data, values were compared which could not be compared because they did not concern the same piece of ground (they did concern the same object). None of the individual transactions contained any remarkable characteristics.

One of the involved parties is known to the Dutch FIU.

Non-conspicuous: this case does not contain any remarkable characteristics. One of the involved parties is known to the FIU. However, on the basis of the information provided in this case it should be concluded that this hit in the FIU database is not the result of a valid economic analysis but one of chance. In addition, considering the amount and the nature of the information in this case, the research team does not have enough specific information to create a plausible conspicuous scenario in this case.

Case 411

The object code concerns a major parcel which is divided in 5 pieces of land owned by different parties. Transactions related to these pieces all concern this piece of land and another object (a house). These pieces serve as the backyards for these houses. Three of the pieces were traded once during the research period. The problem however is that these transactions are noted in the Offices of Land Registry as if they concern one and the same object, which is clearly not the case. Therefore on a economic level, using the transaction data, values were compared which could not be compared because they did not concern the same piece of ground (they did concern the same object). None of the individual transactions contained any remarkable characteristics and none of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. All parties seem to be in order. And no plausible conspicuous scenario could be constructed in this case.

Case 412

The object code concerns a major parcel which is divided in 7 pieces of land owned by different parties. Transactions related to these pieces all concern this piece of land and another object (a house). These pieces serve as the backyards for these houses. Two of the pieces were traded once during the research period. The problem however is that these transactions are noted in the Offices of Land Registry as if they concern one and the same object, which is clearly not the case. Therefore in the economic analysis, using the transaction data, values were compared which could not be compared because they did not concern the same piece of ground (they did concern the same object). None of the individual transactions contained any remarkable characteristics and none of the involved parties were known to the authorities.

Non-conspicuous: this case does not contain any remarkable characteristics. All parties seem to be in order. And no plausible conspicuous scenario could be constructed in this case.

Case 413

In 2006 this object (an apartment) was sold by Person XE to Person XF for €35.000,--. At that time the apartment was rented out. Both the risks and the profits from the renting activities transferred to Person XF after the sale. No mortgage was established. Six months after this transaction the apartment was sold again for €75.000,-- to Person XG. At that time the apartment was rented out. Both the risks and the profits from the renting activities transferred to Person XF after the sale. No mortgage was established.

Non-conspicuous: this case does not contain any remarkable characteristics. No mortgages were established. However, looking at the appraised value of the object this could not be considered remarkable. Yet, the increase from €35.000,-- to €75.000,-- should be considered remarkable in such a short period. Though this is not enough to label the case conspicuous since it does not strongly support a conspicuous scenario. There can be all sorts of legitimate reasons why the value increased substantially in such a short period of time (e.g. renovation).

Part Three

Statistical and Econometric Analysis

1. Introduction

Part 1 of our study has identified 150 unusual objects from objective indicators (such as unusual housing prices, mortgage, etc.). These have been mixed with 50 normal seeming objects, and this list of 200 objects has been passed on to the criminologists, who identified 36 conspicuous objects (in three categories: weak conspicuous, moderate conspicuous and strong conspicuous) from this list, using their methods. Part 3 links these criminological and economic parts by aiming at identifying which of the objective indicators can 'detect' the conspicuous objects best. We used three methods to analyse the results. First, after some descriptive statistics, we analyzed the frequency of indicators, second we used correlation analysis and third we used econometric probit, logit and cloglog models. Table 1 summarizes the findings on the indicators that identify conspicuous objects best (and worst), which will be discussed in the following chapters. Not all indicators are equally powerful in all methods chosen. Therefore, we were looking for the statistically and econometrically powerful indicators, which have been robust independent of the method we used.

Table 1. Overview of Major Findings on the Importance of Indicators

No.	Indicator description	Frequency Analysis	Pair-wise Correlation with	Econometric Analysis
Good indicators				
5.2	Unusual price fluctuation	+	all conspicuous	+ +
3.1	Foreign owner	+		+ +
3.9	Owner is a just established company	+		+ +
Promising indicators				
1.2	Financier is a natural person	+	strong conspicuous	+
3.4	Owner has an unusual amount of transactions	+	all conspicuous	+
2.3	Absence of mortgage	+		+
2.4	Mortgage to self (same surname)	+		+
3.8	Risky exploitation	+		+
Weak indicators				
4.1	Object has multiple transactions		strong conspicuous	
2.2	Unusual mortgage compared to purchase sum		strong conspicuous	
3.12	Owner is a 'global citizen'		moderate conspicuous	
Flops				
5.1	Unusual purchase sum compared to appraised value	-	strong conspicuous -	-
3.3	Owner has an unusual number of objects			-
1.1	Foreign financier	-		
3.11	Owner is a company without employees			
4.2	Object in bad neighborhood			
4.3	Object is good neighborhood			

Source: Made by the authors. A plus in the column of the frequency analysis means that relatively many conspicuous objects had a red flag for this indicator. (see section 2.1 below) The column of correlation indicates whether the indicator is significantly correlated with the conspicuous objects (all, only the strong or only the moderate). All these correlations are positive, except indicator 5.1, which is indicated by the minus. (see section 2.3 below) The last column shows the result of the econometric analysis based on probit (with logit, OLS, C-log-log as a robustness check). ++ means a significant ($p<0.1$) positive relation, while a + / - means the positive or negative relation does not meet the statistical standards yet, but has the potential to do so ($p<0.3$). (see section 3.3 below)

2. Descriptive statistics of the dataset

The data used consisted of two parts; a) the results of the criminological research conducted on 200 objects in part two (list of 36 conspicuous objects), and b) these very same 200 objects which are a subset of the indicator data that was produced in

part one.[37] 150 of these objects had been filtered out because of their high number of red flags[38] and 50 objects had been mixed among them as a control group.

Of the 36 conspicuous objects identified by criminologists, 31 had been marked as unusual in the first part of this report, so here the criminological results coincided with the findings of the economic analysis, while 5 of the 36 objects were selected from the control group, so found conspicuous in criminological analysis, while not found unusual in the economic approach with the objective indicators. All the strong conspicuous objects identified by the criminologists received a high number of red flags from the economists (none of these strong conspicuous cases were from the control group). Of the 5 objects marked as conspicuous by the criminologists, which came from the control group, 4 were considered weakly conspicuous and 1 was considered moderately conspicuous. This means that all strongly conspicuous cases could also be found in the list of unusual cases as identified by the economists. The 5 conspicuous cases that could not be found on this list were only classified as weakly or moderately conspicuous, hence the criminologists had expressed a certain doubt when selecting these 5 objects.

Figure 1 shows that most objects in the dataset of 65,536 objects are houses (or complementarities like garages and storage rooms)[39]. Houses clearly dominate over business objects in all the (sub)samples. The distribution of objects in both samples is similar except for the fact that the 36 conspicuous objects contain a bit more housing objects instead of objects of the category ‘unknown/other’. For some objects we had no type number and therefore classified them as unknown; the category ‘other’ refers to recreation, religious or ‘special’ buildings. In general we can conclude that the samples are not significantly different from each other except for the fact that the

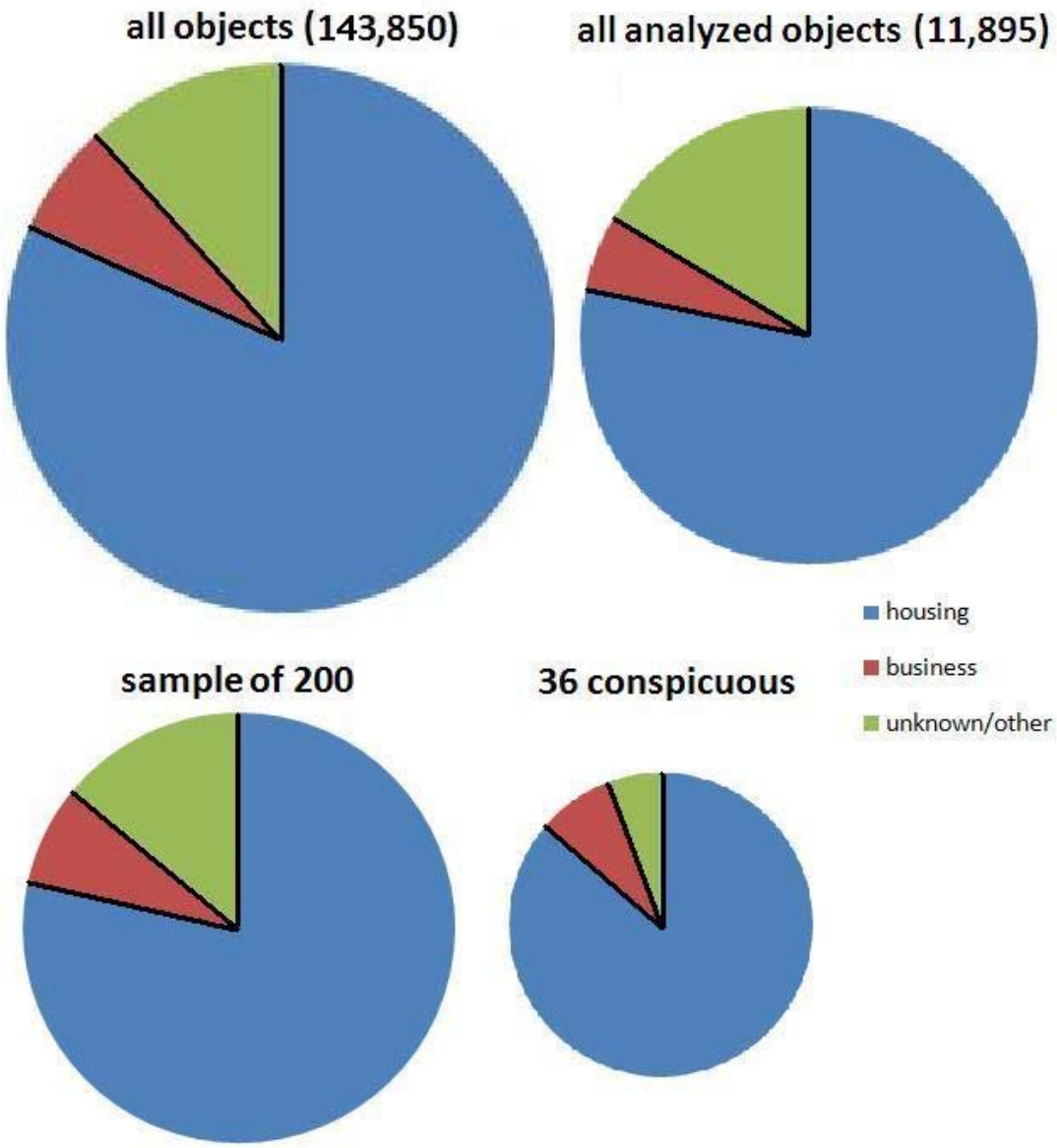
[37] Please note that 200 of the 11895 objects is a relatively small sample, which complicates extrapolation of the results.

[38] We chose a relative and an absolute threshold level; a) 40% of the assigned flags are red and b) the object has at least 5 red flags. Although this number might seem low for 17 indicators, please note that the mean, median and modus of the number of red flags of all objects lie around 2.

[39] There are also types called for example ‘housing with business’, such objects have been classified in figure 1 as half housing and half business.

selection of conspicuous objects seems to be slightly biased towards housing (at the expense of of the category unknown/other).

Figure 1. Type of object in all (nested) samples



Source: made by the authors, based on data of the Tax Administration

2.1 Frequency Analysis

For the frequency analysis, first the frequency of red flags given to the sample of 200 and the 36 conspicuous objects are shown in Table 2 and then frequency of red flags

in the sample of 200 and in the sample of 36 conspicuous cases is compared (Figure 2).

Table 2. Frequency of red flags for the sample of 200 and the conspicuous objects

	Sample of 200		36 conspicuous	
	yes	no	Yes	No
1.1 Foreign financier	13	74	1	13
1.2 Financier is a natural person	11	76	3	11
2.2 Unusual mortgage compared to purchase sum	23	38	8	2
2.3 Absence of mortgage	87	71	19	11
2.4 Mortgage to self (same surname)	9	78	2	12
3.1 Foreign owner	31	169	8	28
3.3 Owner has unusual number of objects	143	30	25	5
3.4 Owner has unusual number of transactions	146	36	30	3
3.8 Risky exploitation	30	125	7	16
3.9 Owner is a just established company	25	45	8	16
3.11 Owner is a company without employees	136	40	26	8
3.12 Owner is a 'global citizen'	47	153	6	30
4.1 Object has multiple transactions	150	50	30	6
4.2 Object in bad neighbourhood	1	140	0	30
4.3 Object in good neighbourhood	31	110	5	25
5.1 Unusual purchase sum compared to appraised value	36	45	5	13
5.2 Unusual price fluctuation	39	19	12	4
Expected value / average number of red flags	4.8		5.4	

Source: Calculated by the authors.

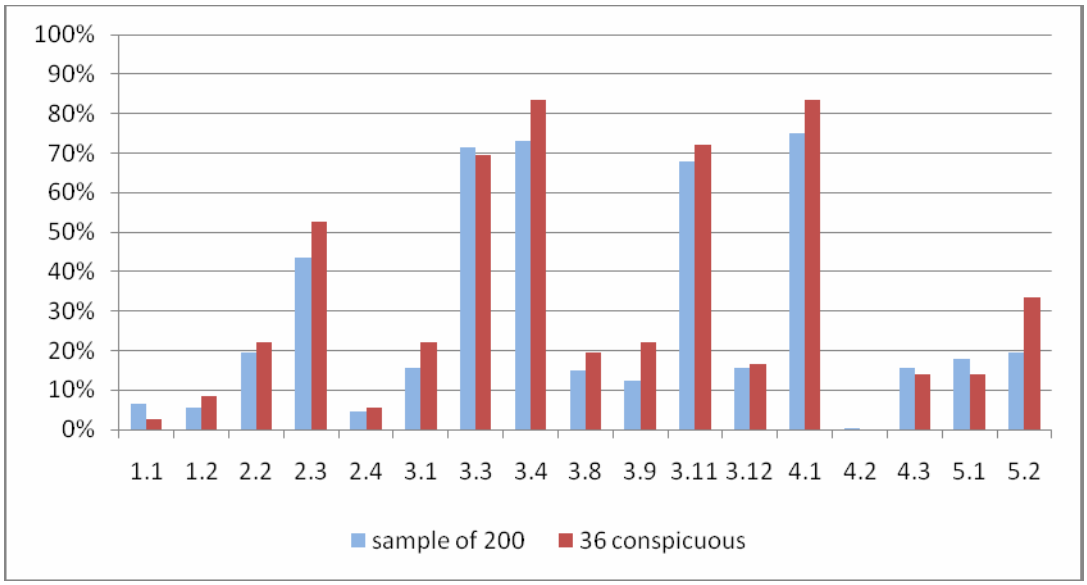
Object in bad neighborhood (indicator 4.2)

Table 2 shows that indicator 4.2 (object in bad neighbourhood) has only 1 object with a red flag in the sample of 200 and none in the sample of the 36 conspicuous objects, which means that there is insufficient variation in the variable for econometric purposes. Therefore indicator 4.2 had to be dropped and will not appear in the estimated equations.

Foreign financier (indicator 1.1)

Also indicator 1.1 (foreign financier) had to be dropped from the econometric analysis. While 13 red flags were assigned for indicator 1.1 for the sample of 200 objects, only one of the conspicuous objects identified in the list of 36 contains a red flag for indicator 1.1.

Figure 2. Percentage of red flags for the 200 unusual and the 36 conspicuous objects



Source: calculated by the authors. Above every indicator the left bar (blue/light-grey) shows the percentage of objects in the sample of 200 that got a red flag for this indicator, the right bar (red/dark-grey) shows the percentage of conspicuous objects that received a red flag for this indicator.

Figure 2 visualizes the percentage of red flags for the sample of 200 objects and of the conspicuous objects. We see the sample of 200 as a benchmark of how the red flags are divided over the different indicators. If the conspicuous cases have the same percentage of red flags per indicator as the benchmark model, none of the indicators helps to further identify conspicuous objects. If the conspicuous cases have a higher percentage of red flags for some of the indicators than the benchmark model, these indicators add to identifying conspicuous objects. By comparing the benchmark model with how the red flags of the 36 conspicuous cases are divided, one can see which indicators are particularly strong in predicting conspicuous cases. The promising indicators for identifying conspicuous objects are hence the overrepresented indicators, which are the following and which are listed in table 1, column 3 with a +:

- 1.2 Financier is a natural person (from 5.5% to 8.3%),
- 2.3 Absence of mortgage (from 43.5% to 52.8%),
- 2.4 Mortgage to self/same surname (from 4.5% to 5.6%),
- 3.1 Foreign owner (from 15.5% to 22.2%),

- 3.4 Owner has unusual number of transactions (from 73% to 83.3%),
- 3.8 Risky exploitation (from 15% to 19.4%),
- 3.9 Owner is a just established company (from 12.5% to 22.2%), and
- 5.2 Unusual price fluctuation (from 19.5% to 33.3%).[40]

Objective indicators that are underrepresented, hence do not contribute to identify conspicuous objects are indicator 1.1 (foreign financier) and indicator 5.1 (unusual purchase sum compared to appraised value). In table 1 column 3 they received a minus sign.

2.2 Do more red flags indicate conspicuous cases?

If red flags are a good indication for conspicuous cases, we would expect that the conspicuous cases have on average more red flags. In total, the conspicuous objects have, on average, 5.4 red flags, while the sample of 200 objects has, on average, 4.8 red flags. So red flags seem more frequent for the conspicuous objects than for the sample of 200. At a first glance more disappointing seems the fact that when we take out the 50 objects of the control group, the 150 unusual objects identified in the economic analysis have on average 5.7, i.e. more red flags than the 36 conspicuous objects identified by the criminological analysis. This disappointing findings change however, when we take into account the degree of conspicuousness which shows that more red flags indeed do point at stronger conspicuous objects: the weak conspicuous objects have on average 5.1 flags, the moderate conspicuous objects have on average 5.5 red flags and the strong conspicuous objects on average 6.1 red flags. This is a remarkable finding especially since the average, median and modus amount of red flags of all analyzed objects in part 1 (11.895 objects) lie around 2 . This result seems to confirm our hypothesis that more red flags for an object given in the economic approach predict a more conspicuous object identified by the criminologists.

[40] Indicators where the difference in relative frequency between the sample of 200 and the 36 conspicuous cases is lower than 20% (not to confuse with 20%point) are considered neither overrepresented nor underrepresented.

2.3. Correlation Analysis

When analyzed indicator by indicator, some additional insight can be gained about the importance of individual indicators. One can test the significance of individual indicators, by looking at the (pair-wise) correlation between conspicuous objects (or not) and the individual indicators. This analysis shows that two indicators out of the 17 from part 1 form the most promising candidates for detecting conspicuous cases.

The most promising indicators for detecting conspicuous objects

Indicator 3.4 (owner has unusual number of transactions) and
indicator 5.2 (unusual price fluctuation)

are significantly correlated with whether a object is conspicuous or not.[41] Both indicators have a positive correlation, which means that an unusual amount of transactions of an owner and a bigger relative price gap between two transactions increase the chance that the object is conspicuous.

When we look at whether certain degrees of conspicuousness (weak, moderate and strong) are correlated with the indicators, we see that the weak conspicuous objects are not significantly correlated with any indicator, except 5.2 (unusual price fluctuation)[42]. The moderate conspicuous objects are only significantly correlated with

[41] Indicator 3.4 has a correlation of 0.1263 with a p-value of 0.0894 and is therefore significant on a 10% level (90% confidence). Indicator 5.2 has a correlation of 0.3104 with a p-value of 0.0158 and is therefore significant on a 5% level (95% confidence). Please note that the actual change in purchase sums is used here, and not the red flag transformation (with a threshold level of a 50% change) as specified in part 1 of this research. The red flag transformation of this indicator has no significant correlation with the conspicuous objects.

[42] Indicator 5.2 has a correlation of 0.4373 with a p-value of 0.0005 and is therefore significant on a 1% level (99% confidence). Please note that the actual change in purchase sums is used here, and not the red flag transformation (with a threshold level of a 50% change) as specified in part 1 of this research. The red flag transformation of this indicator has no significant correlation with the weak conspicuous objects.

indicator 3.12 (owner is a global citizen)[43],

while the strong conspicuous cases have a significant correlation with 4 indicators:

1.2 (financier is a natural person),
2.2 (unusual mortgage compared to purchase sum),
4.1 (object has multiple transactions) and
5.1 (unusual purchase sum compared to appraised value).[44]

All the correlations are positive as expected, except for indicator 5.1 which is negatively related to the strongly conspicuous objects. This is in line with earlier remarks made in this chapter that this indicator is underrepresented in the conspicuous objects.

We will now estimate how and to what extent we can explain (or forecast) why some objects are conspicuous (or not), based on the indicators, with the use of econometric methods.

3. Econometric analysis

In the following, we will use multiple regression analysis to find out which indicators can detect conspicuous objects, and to what extent they do.

[43] Indicator 3.12 has a correlation of 0.1946 with a p-value of 0.0058 and is therefore significant on a 1% level (99% confidence).

[44] Indicator 1.2 has a correlation of 0.2033 with a p-value of 0.0590 and is therefore significant on a 10% level (90% confidence). Indicator 2.2 has a correlation of 0.3103 with a p-value of 0.0211 and is therefore significant on a 5% level (95% confidence). Please note that the actual (relative) difference is used here, and not the red flag transformation (a red flag was given when the mortgage was less than the appraised value or more than 200 % of the appraised value) as specified in part 1 of this research. The red flag transformation of this indicator has no significant correlation with the strong conspicuous objects. Indicator 4.1 has a correlation of 0.1253 with a p-value of 0.0770 and is therefore significant on a 10% level (90% confidence). Indicator 5.1 has a correlation of -0.1867 with a p-value of 0.0952 and is therefore significant on a 10% level (90% confidence).

3.1. Missing values

Due to quite a number of missing values the number of (red and green) flags does not always add up to 200 or 36 in table 1. If data is missing for an observation (an object), than it cannot be used in a standard multiple regression analysis. The easiest way to cope with this problem is ignoring all observations (objects) that have at least one missing value (called list wise deletion). Although this method is standard in econometrics, it has its downside that the number of observations decreases, which reduces the efficiency of the estimation and inflates the standard errors. (Cameron and Trivedi, 2005, p.925, Wooldridge, 2003, p.309, Verbeek, 2008, p.401) Moreover, it is important that the sample after list wise deletion represents the population under study. Briefly, list wise deletion is acceptable if only a small percentage is deleted, say 5 %. (Schafer 1996 in Cameron and Trivedi, p. 928)

In the dataset that is used here, there are only 9 objects without any missing values, estimating with only these 9 objects will make any traditional estimation meaningless. We therefore opt for a method which enables us to use observations which have at least one missing value. In fact, every object can have 3 values for every indicator: a red flag (1), a green flag (0) or no flag (missing value). The basic principle we apply here is that as long as we cannot find a reason to assign a red flag, a green flag will be given. This is in line with the presumption of innocence that is used nowadays in many jurisprudences (also in the Netherlands): one is innocent until proven guilty. A missing value for an object means that we do not have the information to identify whether a red flag is appropriate, we will therefore opt for a green flag. In statistical terms this means that we create a dummy variable which indicates whether a red flag has been assigned (1) or not (0). This means we can now use this dummy variable instead of the categorical variable we had before. This makes it possible to estimate the model more efficiently with more degrees of freedom and also makes the results easier to interpret.

3.2. Limited dependent variable

The dependent variable (whether the object is conspicuous or not) is a binary variable. We will therefore use a specific estimation model, which takes this into account: the

so-called Probit model. To show the robustness of the results of this specification we will also show the results of other estimation models: OLS and Logit[45]. Since the number of conspicuous objects is quite low (less than 20%), we also show the results of the complementary log-log model[46], which is less-used and particularly useful for cases where one of the outcomes (conspicuous in this case) is rare. And since the Probit model does not assume linearity and therefore cannot be interpreted directly, we will also calculate the marginal effect[47] of each indicator and show this with the other estimation results.

3.3. Results

The results of the econometric analysis are shown in table 3. Practically, the primary focus is on the results (significant or not) in column 1 of table 3, column 2, 3 and 4 are a check on the robustness of the results and column 5 is used to interpret the results.

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[45] The standard OLS estimation with Y as the dependent variable and X as the independent variable is: $Y = \beta_0 + \beta_1 X$. The Logit model (with Pr as the probability) estimates:

$p_i = \Pr[y_i = 1 | x_i] = \frac{\exp(\beta_0 + \beta_i x_i)}{1 + \exp(\beta_0 + \beta_i x_i)}$, which clearly ensures that $0 < p_i < 1$. While the Probit model estimates: $p_i = \Pr[y_i = 1 | x_i] = \Phi(\beta_0 + \beta_i x_i)$, where $\Phi(.)$ is the cumulative distribution function for the standard normal distribution, which means that $p_i = \int_{-\infty}^{\beta_0 + \beta_1 x_i} (2\pi)^{-1/2} e^{-z^2/2} dz$ and thus that $0 < p_i < 1$. (Cameron and Trivedi, 2005, p.464-5)

[46] The coefficients in the complementary log-log model are also probabilities, estimated by $p_i = 1 - \exp(-\exp(\beta_0 + \beta_i x_i))$ (Cameron and Trivedi, 2005, p.466-7)

[47] The marginal effect of the probit model is: $\partial p / \partial x_i = \phi(X\beta)\beta_i$ with $\phi(.)$ as the probability density function for the standard normal distribution. (Cameron and Trivedi, 2005, p.467)

Table 3. Results

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Conspicuous (or not)	probit	logit	cloglog	OLS	dprobit
1.2 Financier is a natural person and	0.73+	1.12+	0.80	0.16+	0.23+
2.4 Mortgage to self (same surname)	(0.56)	(1.02)	(0.87)	(0.14)	(0.21)
2.2 Unusual mortgage compared to purchase sum	0.03	0.20	0.29	0.03	0.01
	(0.37)	(0.67)	(0.60)	(0.09)	(0.09)
2.3 Absence of mortgage	0.32+	0.60+	0.56+	0.08+	0.08+
	(0.30)	(0.54)	(0.47)	(0.07)	(0.07)
3.1 Foreign owner	0.53*	0.95*	0.81*	0.14*	0.15+
	(0.30)	(0.52)	(0.44)	(0.08)	(0.09)
3.3 Owner has unusual number of objects and	0.31+	0.64+	0.61+	0.07	0.07+
3.4 Owner has unusual number of transactions	(0.29)	(0.53)	(0.45)	(0.07)	(0.06)
3.8 Risky exploitation	0.36+	0.57+	0.45	0.08	0.10+
	(0.30)	(0.52)	(0.45)	(0.08)	(0.09)
3.9 Owner is a just established company	0.78**	1.36**	1.17**	0.21**	0.24*
	(0.36)	(0.62)	(0.52)	(0.09)	(0.13)
3.11 Owner is a company without employees	-0.17	-0.27	-0.19	-0.05	-0.04
	(0.26)	(0.46)	(0.40)	(0.07)	(0.07)
3.12 Owner is a 'global citizen'	0.22	0.42	0.43	0.05	0.06
	(0.35)	(0.62)	(0.53)	(0.09)	(0.10)
4.1 Object has multiple transactions	0.02	0.03	-0.04	0.00	0.01
	(0.33)	(0.58)	(0.53)	(0.08)	(0.08)
4.3 Object in good neighbourhood	0.08	-0.06	-0.29	0.01	0.02
	(0.34)	(0.64)	(0.56)	(0.08)	(0.09)
5.1 Unusual purchase sum compared to appraised value	-0.37+	-0.67+	-0.55	-0.12+	-0.08+
	(0.33)	(0.61)	(0.54)	(0.08)	(0.06)
5.2 Unusual price fluctuation	0.84***	1.44***	1.20***	0.23***	0.25**
	(0.30)	(0.52)	(0.44)	(0.08)	(0.10)
Constant	-1.67***	-2.93***	-2.89***	0.03	
	(0.37)	(0.72)	(0.65)	(0.08)	
Observations	200	200	200	200	200
Pseudo R^2	0.103	0.103			0.103
Adjusted R^2				0.0364	

*Standard errors in parentheses. P-values (chance on a coincidental relationship) are shown with superscripts: *** = p<0.01, ** = p<0.05, * = p<0.1, + = p<0.3. Note that + can only be used as an indication of a relationship and does not meet the official standards of significance. The (adjusted- or pseudo-) R^2 (coefficient of determination) of cloglog cannot be calculated, but regarding the comparable values of the log likelihood it is most likely comparable to the probit model (in column 1) and the logit model (in column 2).*[48]

[48] Since indicator 1.2 and 2.4 and indicator 3.3 and 3.4 are highly correlated (see the correlations presented in the first part of the research, chapter 7.2), the indicators measure more or less the same. We took the indicators together to prevent potential multicollinearity and to need less independent variables and therefore have more degrees of freedom. The results when these indicators are taken

Table 3 shows that the best indicators to identify conspicuous objects are:

- Foreign owner (3.1)
- Owner is a just established companies (3.9)
- Unusual price fluctuation (5.2)

The most significant effect found in the econometric analysis is that objects with an unusual price fluctuation (indicator 5.2) are associated with an increased chance of 25 % to be conspicuous. Objects owned by a just established company (3.9) are associated with an increased chance of 24 % to be conspicuous and the last significant result is that objects with a foreign owner (3.1) are associated with an increased chance of 24% to be conspicuous. The rest of the indicators do not have a significant effect on the probability to be conspicuous. Since it could be that the number of significant effects has decreased due to the limited amount of conspicuous/analyzed objects, we will also discuss some indicators that have a smaller confidence interval, but that come at least closer towards a significant result.[49] These statistically less reliable indicators that can identify conspicuous objects are:

- Mortgage to self (same surname) (1.2/2.4),
- Absence of mortgage (2.3),
- Owner has unusual amount of objects and transactions (3.3/3.4),
- Risky exploitation (3.8) and an
- Unusual purchase sum compared to appraised value (5.1).

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apart are more or less similar, except that 3.3 and 3.4 become both significant, one positive (3.3) and one negative (3.4). These effects seem to counter each other out when taken together (as an interaction term). The multiplication of indicator 1.2 and 2.4 is the same as indicator 2.4, and therefore we will use the description of this indicator 2.4 in the rest of the chapter.

[49] We use a significance level of 30%, which means that it is statistically not significant according to the normal standards, that these results are not conclusive and that they should be treated with great caution. It can indicate a relationship that might be there when the amount of data/information increases, but this is highly uncertain.

Objects with a mortgage provided by someone with the same surname (1.2/2.4) might have an increased chance of 23 % to be conspicuous, while objects not financed with a mortgage (2.3) might have an increased chance of 8 %. Objects with owners that have multiple objects and transactions (3.3/3.4) might have an increased chance of 7 % to be conspicuous. Objects that are used to exploit certain 'higher risk' businesses (3.8) might have an increased chance of 10 % to be conspicuous and objects with an unusual purchase sum compared with the appraised value (5.1) might have a *decreased* chance of 14 % to be conspicuous.

Since all three significant indicators are positively related, and also most of our statistically less reliable indicators point in the right direction, we can conclude that these objective indicators can be used to 'detect' conspicuous cases.

One can also use the 3 different categories of conspicuousness (weak, moderate and strong) as the dependent variable instead of 'conspicuous or not' that is currently used in table 2, but this makes the estimation more cumbersome. Since there is a categorical dependent variable, we have to assume that underlying the 3 categories there exists a latent variable which has a continuous scale of conspicuousness. As soon as a case reaches a certain amount of conspicuousness on this imaginary scale, the criminologists would identify that case as weakly conspicuous, when it goes up this scale (because additional information makes the conspicuousness level increase) and goes beyond another certain threshold level the case would become moderate conspicuous and can get even higher on this scale to be identified as strongly conspicuous. This means that we assume that the underlying continuous scale of conspicuousness has 3 threshold levels for weakly, moderately and strongly conspicuous (the minimum and maximum of this scale can be assumed to be respectively minus infinity and plus infinity). One can estimate such a model and the underlying continuous scale with its thresholds by use of a so-called ordered probit estimation model.

Since this model is much harder to interpret and needs possibly unwanted normalization constraints, we will restrict ourselves here to informing about the fact that the results do not differ significantly. Also this model supports our findings about the importance of indicators. The same three variables have a significant positive

effect (foreign owner (3.1), owner is a just established company (3.9), and unusual price fluctuation (5.2)) with as only difference that the effect of foreign owners becomes even more significant than in table 2.[50] Also the statistically less reliable indicators have the same significance levels with the same signs.

4. Conclusion

We found that objects owned by foreigners, just established companies and objects with unusual price fluctuations have an increased chance to be conspicuous of respectively 15 %, 24 % and 25 %. We also identified some indicators that have no significant relationship yet, but that might have one when the analysis is performed with more data/information. These indicators are: financier is the owner (or has at least the same surname), no mortgage used for the purchase, owner has unusual amount of objects and transactions, and objects that are used to exploit certain 'higher risk' businesses.

The hope of our study was to end up with a magic formula which allows to identify suspicious (or conspicuous) objects from objective data. At this stage of research we can only provide a first draft formula for such a magic detection tool, which could be refined and improved in the future.

The (draft) magic formula which can 'detect' conspicuous objects:

Chance to be conspicuous = 15 % * foreign owner + 24 % * just established company
+ 25 % * unusual price fluctuation

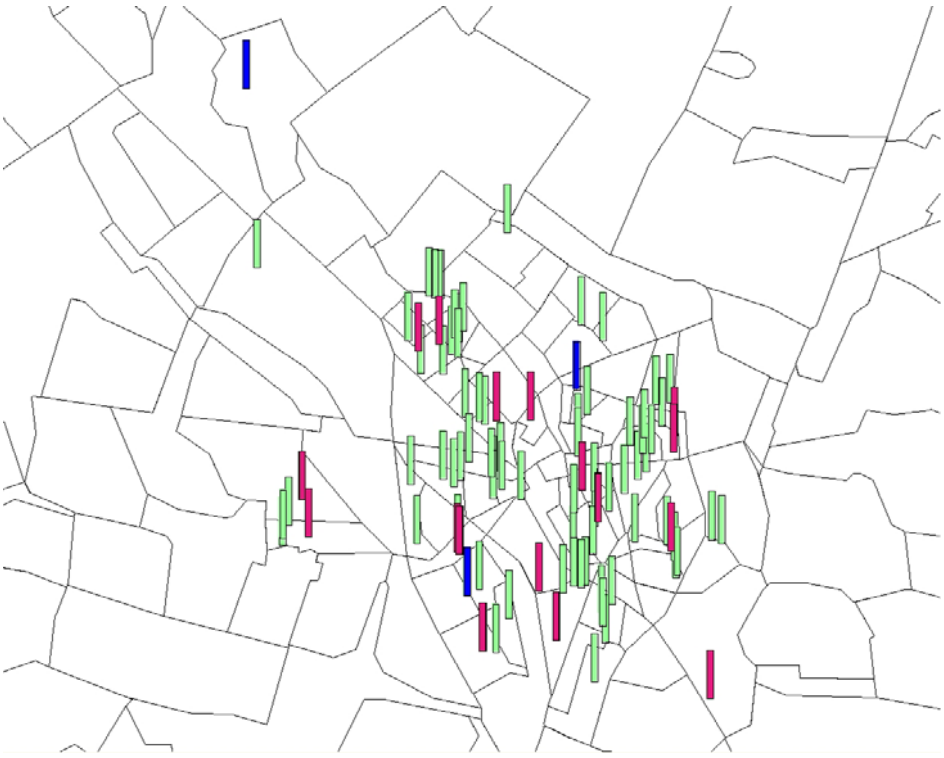
How could one use this formula? If we have a case where a foreigner sells a real estate object to a just established company, which then sells the object a couple of months later for a significantly higher or lower price, there is a 64% chance that this case is conspicuous. Because it has all three characteristics the calculation is: 15 % *

[50] While indicator 3.1 was only significant on a 10% significance level (90% confidence) in table 2, the ordered probit estimation shows that it is significant on a 1% significance level (99% confidence) with a p-value of 0.009.

1 + 24 % * 1 + 25 % * 1 = 64 %. Let's now consider a case where a just established company buys real estate from a foreigner for a normal price: then the chance that this real estate is conspicuous is 39 %. Because it has two of the above characteristics the calculation is: 15 % * 1 + 24 % * 1 + 25 % * 0 = 39 %.

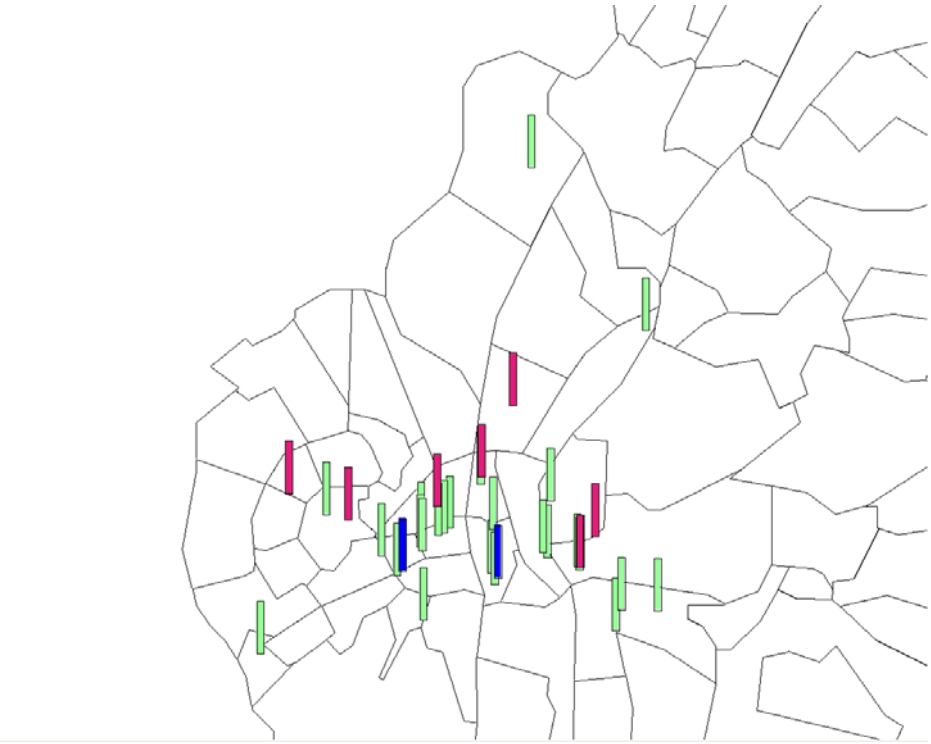
The following figure shows the objects identified as unusual (by the economists) and the ones considered conspicuous (by the criminologists) for both cities. As can be seen, there is no clear concentration in one neighborhood, but objects are rather evenly spread on the map.

Figure 3. Objects Identified as Conspicuous and Unusual in Utrecht



Source: the authors, graph made by Arjen Siegman. The green (or light grey) bars are the objects that were identified as unusual and the magenta (or dark grey) bars as both unusual and conspicuous. The blue (or black) bars are the objects that were identified as conspicuous but not unusual. The bars were moved slightly top protect the privacy of the analyzed objects and subjects.

Figure 4. Objects Identified as Conspicuous and Unusual in Maastricht



Source: the authors, graph made by Arjen Siegman. The green (or light grey) bars are the objects that were identified as unusual and the magenta (or dark grey) bars as both unusual and conspicuous. The blue (or black) bars are the objects that were identified as conspicuous but not unusual. The bars were moved slightly top protect the privacy of the analyzed objects and subjects.

Note that the results discussed in this chapter are not causal relationships. An object characteristic could lead to criminal activity, but criminal activity could also lead to a certain characteristic. For example, objects with a foreign owner might be more prone to criminal activity (for example because the foreigner is an illegal worker), but it could also be that objects that were used as a criminal investment had a foreign owner (because cross border real estate purchases increase the disguise that is so important for money laundering). In the statistical analysis described in this chapter we are unable to separate these two causal relationships, we therefore state, in this case, that objects with a foreign owner are *associated with* more chance to be conspicuous. Although the wording is slightly adjusted for readability reasons in some sentences one should bear in mind that it holds for all the results in this chapter. Note also that it is not clear to what extent the results in this chapter can be generalized, since the sample is fairly small (200) compared to the whole market (11895), not random and

therefore normally not representative. We hope, however, to have shown that using a multidisciplinary approach including data mining, econometric and criminological analysis, is a promising way for detecting criminal investment in the real estate sector.

Executive Summary and Conclusions (Long Version)

Purpose of the Study

The main purpose of this study was to identify objects and/or real estate transactions, related to criminal activities from unusual characteristics of an object or transaction for the cities of Maastricht and Utrecht. The project was multidisciplinary and involved economists from the Utrecht University School of Economics (Prof. dr. Brigitte Unger and Joras Ferwerda, MSc. and Jaap Trouw, MSc.) and criminologists from the University of Maastricht (Prof. dr. Hans Nelen and Luuk Ritzen, LLM). It was financed and supported by three ministries, the ministry of Finance, of Justice and of Interior Affairs. We proceeded in three steps. Part One uses economic methods to identify objects that seem unusual, and hence could point at criminal investment and money laundering from objective characteristics of a house or company building. Such characteristics are unusual prices or the way of financing this object. The economists then passed the list of objects identified as unusual over to the criminologists so that they could study whether the identified objects were just normal or purely speculative objects or could also be classified as conspicuous. The criminologists identified conspicuous objects and passed their list back to the economists, who then tried to find out, which objective indicators predicted criminal investments best and which were less promising. We aimed at ending up with a magic formula to predict criminal investment from objective, mostly publicly available data.

Part One: The Economic Analysis

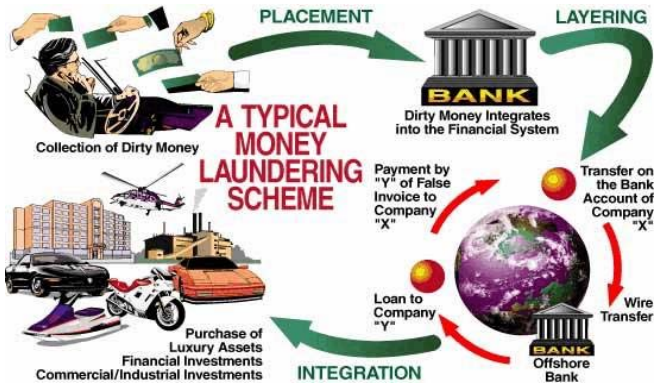
Characteristics of the Real Estate Sector

1. The real estate sector is used for money laundering and/or for criminal investment

Real estate objects can be used in a number of ways for criminal purpose. In the literature, a distinction is made between criminal exploitation and criminal speculation. Money laundering belongs to the latter category and is defined as a series of activities meant to disguise the origin of illicit funds. It can refer to the first phase of laundering, where one tries to place the illegal money into a real estate construction

(e.g. giving partly cash money to a real estate agent in order to buy a house), to the second phase of laundering, where one tries to pump the money around the world (e.g. a foreign bank giving a loan to a person buying a house, where the loan is in reality the hidden money of the person buying the house) and to the third phase of laundering. Here the criminal parks the money in the real estate sector and is not interested in trading in real estate but in investing.

The three phases of money laundering



Source: UNODC (2006)

However, real estate can also be used for criminal investment with no intention to launder money. For example an ecstasy producer who buys a house in order to use it for ecstasy pill production, might not do this with the intention to hide the illicit origin of his money, but just to do criminal business. In this study, we did not (and could not) distinguish between money laundering, an offense which is criminalized only since 2001 in the Dutch penal law, and criminal investment without the intention to hide illicit origin of money.

2. The real estate sector is particularly attractive for launderers and other criminals

The real estate sector in general, and the Dutch real estate sector in particular, are very attractive for money launderers and other criminals. In 2008, the market value of the Dutch real estate sector amounted to about 2 trillion Euro (2022 billion Euro, CBS 2008), which is about three times the size of the Dutch bond market. The volume of annual transactions amounted to about 35 billion Euro. Apart from the large volume

which makes it easier to hide larger amount of money in this sector, real estate is a safe investment, where the objective value is difficult to assess due to the heterogeneity of objects, has a high number of transactions, is international, is a non transparent market where speculation is a tradition, allows to distinguish legal and economic ownership, allows to realize “white” returns (e.g. apartment rents), can be used to do criminal activities and has little supervision. Abuse of legal persons can happen because they can buy sleeping enterprise licenses, there is no central registration of foreign corporations, it is unknown what Dutchmen do with foreign legal persons abroad, and the European Court necessitates that foreign legal persons cannot be refused.

3. Players in the real estate market

We focus on buying and selling of housing, and exclude the rental market. The real estate sector consists of three sub-markets: the business sector (offices, shops, factory halls etc), the private housing sector (first and second hand houses and apartments etc), and the public sector (government buildings, prisons etc). Players in the housing market are private consumers (e.g. families buying a house), developers (e.g. ING Real Estate rebuilding apartment block), social institutions (being responsible for houses of the poorest like Humanitas), institutional investors (like pension funds and insurance companies) and private investors. Further players on the real estate sector are the government (e.g. Rijksgebouwendienst for government buildings) and service providers. The latter include banks who give loans and mortgages, notary publics for the purchasing contract, and real estate agents.

4. The role of taxation in the Dutch real estate market

Two taxes are important in the real estate sector. The ‘eigenwoningforfait’ is applicable to homeowners. This is about 0,55 percent of the appraised value (WOZ waarde, a value attributed to an object by the municipality for taxation purpose), with a maximum of 9.300 Euros. The ‘overdrachtsbelasting’ (conveyance duty) is applicable to real estate transfers and amounts to 6 percent of the purchase sum. (The conveyance duty is not due for new houses or for offices and other large real estate, on these objects one has to pay value added tax (BTW)). The Dutch tax system opens

possibilities to save the 6 percent of the purchase sum by selling the object within 6 months.

5. The appraisal value

The WOZ stands for 'Waardering Onroerende Zaken', which is the appraisal value adopted by law in 1994. The WOZ value is set by the municipalities. It is used by the municipalities for immovable property taxing ('onroerend zaakbelasting'), by the Dutch Tax Administration for income taxing ('inkomstenbelasting') and corporate taxing (vennootschapsbelasting') and by the local Water Board for water taxation ('waterschapsbelasting'). Inhabitants have the right to appeal against the appraised value. A lower WOZ value will mean they have to pay lower taxes. Because inhabitants will only appeal against a too high value, and not a too low value, and because the reference day is used for the whole next year, the WOZ value is on average 30 percent lower than the market price. Some objects do not have an appraisal value, such as public roads, churches and farmland.

6. Large number of objects facilitates to launder money

In 2008, there were 8,2 million objects with an appraisal value in the Netherlands, of which the large majority (7 million and about 85% of all objects) were houses. In addition, there were about 410,000 recreational houses, old people homes, and garages, 97,000 non houses partially inhabited (for business like farming) and 727,000 non houses not inhabited (for business like offices, shops, hotels and pensions, but also for hospitals, prisons and schools). On average, every second Dutchman owns a house with a wide range of values and of which the true value is difficult to assess, allowing to hide diverse activities and amounts of illegal money in this market.

7. Earlier studies on the Dutch real estate sector did not quantify the frequency and importance of maleficent behavior

Given the importance of this sector, several studies on criminal behavior in the real estate sector have been made. Most prominently the study of the WODC by Ferwerda et al (2007), which gives a good overview over maleficent behavior in the real estate sector, and the Financial Expertise Center (FEC) report of 2008 on money laundering

techniques. However, so far, no systematic study on the importance and frequency of diverse maleficent behavior constructions for money laundering in this sector has been conducted.

Money Laundering Techniques in the Real Estate Sector

In the literature (for instance Ferwerda et al. (2007) and Belastingdienst/FIOD-ECD (2008)), generally four different money laundering methods are identified.

1. *The 'loan back' method* (lending money to oneself, usually through a network of legal persons in order to conceal the origin of the loan)
2. *The 'back to back loan' method* (The criminal buys a house asking a mortgage from a financier; the financiers is an independent third party who wants a bank guarantee for the mortgage; the dirty money has been moved out of the country to a foreign bank, which provides this bank guarantee for the criminal)
3. *Abuse of an 'ABC-construction'* (Person A is about to sell his property to person C. Before the purchase is made, A sells it to a straw man B for a higher price. The notary (who in this particular case is also part of the game) will show C the last purchase price, which is actually higher than the real value. Person C will buy the property for a too high price, unless he appraises on his own).
4. *'Carousel fraud'* (An object is sold disproportionate number of times to thrive up the price. Carousel fraud can be achieved through ABC-constructions, where multiple links are between person A and the person that the object will actually be transferred to. The reason for carousel fraud is often mortgage fraud, where an object price is artificially driven up by a large bubble created by the carousel).

The first two methods are generally used to hide the Ultimate Beneficial Owner and the other two are used to launder or make money through the transaction itself.

5. Other illegal or maleficent use of the real estate sector

Criminological literature indicates that the real estate sector is also abused by means of tax fraud, mortgage fraud and corruption. Three forms of criminal exploitation of real estate objects are mentioned: unlawful occupation, exploitation of tenants, mostly migrants, and wrongful use of the object.

Research Method and Indicators

1. The red flag approach

In this report we use 'data mining' or 'outlier mining' as technique to identify unusual real estate objects. "Outlier mining focuses on the rare data whose behavior is very exceptional when compared with the rest of the large amount of data". To identify the criminal investments among all the usual transactions of real estate we develop in this chapter a list of characteristics, which are associated with criminal investments in the literature of maleficent behavior in the real estate market. We first identify the variables important for being a suspicious object and then look how many of such characteristics an object has.

The more unusual characteristics an object has, the more risky this object is and the more suspicious of money laundering it is supposed to be. Since it is unclear which characteristics should arouse the most suspicion, we decided as a logical first step that all the characteristics are of equal importance. We gave every real estate object a so-called 'red flag' when it displayed a characteristic, which is associated in the literature with criminal investments in the real estate market[51].

[51] With respect to the use of red flags, we follow the phrasing and research method of FATF (2007) and FEC (2008).

2. Errors to make and trade offs

A false positive (or type I error) in this specific research occurs when an object is marked as criminal while it actually is not. A false negative (or type II error) occurs when a criminal investment is not detected by our research method. There is a trade-off between these two errors. When one chooses a very broad indicator, one marks almost all objects as unusual, and therefore has very few false negatives (type II errors) at the expense of a lot of false positives (type I errors). When one chooses a very strict indicator one will hardly mark any object as unusual and therefore will have almost no false positives (type I errors) at the expense of a large amount of false negatives (type II errors). The optimal point of this trade-off can be found at the minimum of the sum of these two errors, when one attaches equal importance to both errors. Since we do not know the amount and type of errors we are making, we decided to circumvent this dilemma by choosing a different research method. We will not mark any object unusual based on just one indicator, but only based on the combination of several indicators. Since we assume that real criminal activities have an increased chance of receiving more red flags than normal activities, we can conclude that the number of false positives (type I errors) will diminish soon, once we start looking at the combination of several indicators. Therefore we focus more on the false negatives (type II errors) of a single indicator, which means that we will use relatively broad indicators in the first step of the analysis.

3. Indicators for criminal investment

In the literature on criminal behavior in the real estate sector, notably in van de Bunt, Ferwerda et al (2007) and FIOD-ECD (2008), FEC (2008), the following indicators related to unusual behavior and were mentioned as a characteristic of criminal investments:

Indicators for Unusual Behavior in the Real Estate Sector	
Financier is from abroad	E.g. anonymous foreign company, usually Dutch bank provides the mortgage
Financier is a person not a company	Banks providing mortgages check identity and income of the buyer, while there are less control mechanisms when persons provide mortgage
Financing has an unusual amount compared to purchase sum	Might indicate a straw man. Banks would usually not give a mortgage above the actual value of the property
Financing is not used (no mortgage)	Unusual seen the Dutch tax advantages of mortgage financing. Might indicate misuse of foreign legal persons
Financing has a creditor and a debtor being the same subject	Providing a mortgage to oneself seems dubious
Owner is from abroad	Can be a natural person or a company
Owner is a person with a disproportionate number of objects	
Owner is a person with a disproportionate number of purchases	
Owner is a company with a particular exploitation	E.g. hotels, restaurants, coffeeshops, prostitution, gambling and transportation
Owner is a company just established	If it buys immediately real estate can indicate that it is part of a construction of companies to disguise the ultimate beneficial owner UBO
Owner is a company without employees	Could indicate empty (shell) companies
Owner is a 'world citizen'	Owner is unknown to the Tax Administration
Real estate object has multiple transactions	Can indicate swindle but also only pure speculation
Real estate object is in a very bad neighborhood	Might attract small criminals, Dutch Problem areas 'probleemwijken'
Real estate object is in a very good neighborhood	Might attract rich launderers to show off
Purchase sum is unusual compared to the appraised value (WOZ)	
Purchase sum is unusual compared to previous purchase sum	

Data Collection

In order to operationalize the indicators described in the previous chapter, we created our own dataset out of larger datasets provided by the Offices of the Land Registry and the Tax Administration.

Dataset on real estate objects

The first dataset comprises the stock of all the *objects* in Utrecht and Maastricht as of the 31st of December 2006. The term "objects" does not simply refer to buildings, but also includes green areas, like parks, and parking boxes, garages and electricity boxes. In this dataset, data of the "Kadaster" (Offices of the Land Registry) was combined with data from the "Belastingdienst" (Tax Administration) on income, appraised real estate (WOZ) values and on the type of company activity.

The Offices of the Land Registry data consisted of:

- Object number
- Right of ownership (for example full ownership or lease)
- Purchasing sum and indication whether this concerns multiple objects, multiple subjects or the splitting of an object
- Purchasing year
- Amount of mortgage used and whether this concerns multiple objects or multiple subjects
- Gender of natural person/business form of legal person (for instance 'Besloten Vennootschap' ('private company') or 'Naamloze Vennootschap' ('public limited liability company') for the Netherlands, or (although the dataset labels all foreign companies as 'BR' ('buitenlandse rechtspersoon') for instance limited company for the UK), name, address and subject number (from Offices of the Land Registry)
- A code for the use of the object (for instance whether the object is used as a house, an office or a police station)
- Name and address of financier
- Gender/business form of financier

The Tax Administration data consisted of:

- The WOZ value (appraised value) and the WOZ size in square meters for the years 2005 and 2007
- When the owner is a legal person: the establishment date, the closing date, the branch code (for instance code 3921 for fabrication of musical instruments) and whether the owner pays wage tax (i.e. has employees)
- When the owner is a natural person: the income and social security number (BSN, or 'Burger Service Nummer') of the owner and its spouse (if available) of 2006.

When combining the data we had to take into account that we had to deal with data referring to the object and with data referring to subjects, like subjects buying or selling or owning the house. The total number of rows in our dataset was 367.632, for Utrecht and Maastricht combined. This number is not the total number of separate objects, because multiple persons can own an object. The total number of separate objects in the stock dataset was 143.850, so on average every object concerns 2,5 rows (subjects). The total number of rows for Maastricht is 110.843, which consists of 52.367 separate objects. The total number of rows for Utrecht is 256.789 and the number of separate objects 91.483. So we can conclude that the real estate sector of Utrecht is about twice the size of Maastricht.

Dataset on transactions

The second dataset referred to *transactions* involving real estate in Utrecht and Maastricht from 2002 up until 2006. The total number of rows is 46.396, which is again not the same as the total number of separate objects, because for every transaction there is at least one purchaser and one seller. Furthermore, an object can be traded multiple times. The total number of separate objects in the transactions is 12.576. For Maastricht this means 12.097 rows (3.352 separate objects) and for Utrecht 34.299 rows (9.224 separate objects). This dataset held the following information on each object provided by the Offices of the Land Registry and the Tax Administration.

Data of the Offices of Land Registry

- Date of the deed of conveyance

- Object number
- Purchase sum and indication whether this concerns multiple objects
- Appraised value (WOZ) of 2005
- Role of the subject (purchaser or seller), name and date of birth
- Amount of mortgage
- A code for purpose of object (for instance whether the purpose of the object is a house, an office or a police station), address and size in square meters
- Subject number (provided by the Offices of the Land Registry), gender for natural persons and business form for legal persons and address
- Former address of subject

Data of the Tax Administration:

- Indication if subject did or did not pay wage tax (if applicable)
- Income of the subject for natural persons
- Establishment date and closing date of legal persons

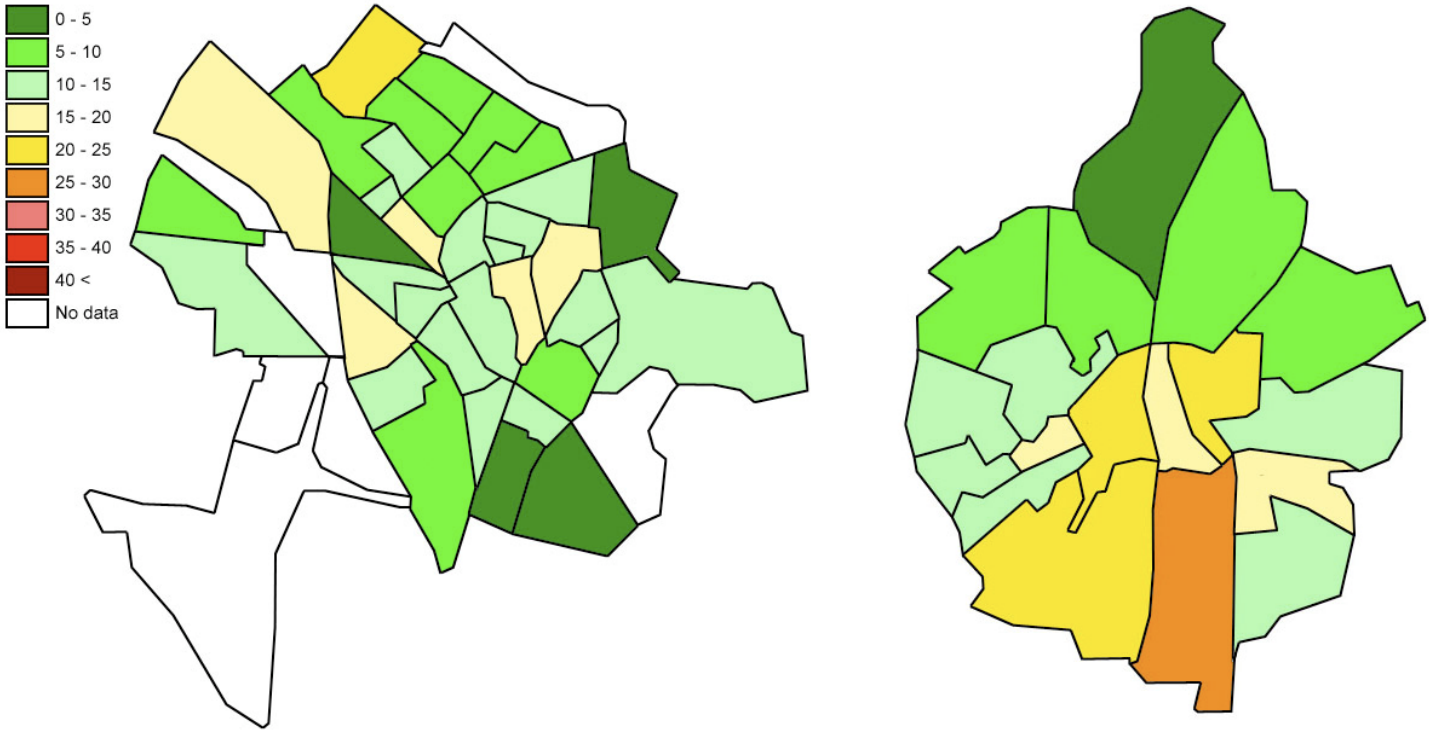
The dataset was grouped on object number, so that all the transactions of each object were grouped together. This provided also the possibility to check for irregularities when describing what actually happened with the object.

Merging the two datasets

To compare the different objects, both datasets had to be reduced to a list of separate object numbers. After that, both datasets were combined, to end up with a list of individual object numbers and all the according indicators. The datasets were merged on object basis because the focus of this research is to come to an identification of criminal objects and to show these geographically. Furthermore, only the individual objects that had both stock indicators and transactions indicators have been used which means that in our study we *only look at objects that have been sold at least once between 2002 en 2006 and that still existed in 2008.* In total we analyzed 11895 objects of which 8.817 are located in Utrecht and 3,078 in Maastricht. Chapter 5 and 6 list for every indicator how much information was available, how many green and red flags were given and how many data were missing.

There is no clear concentration of unusual objects in specific neighborhoods

As the following graph on the density of objects with more than 3 red flags in Utrecht and Maastricht shows, unusual objects are not concentrated strongly in specific very poor or rich neighborhoods. So, the neighborhood indicator performed poor from the very beginning of our analysis.



Research Results

In total there were 11.895 separate objects analyzed in Utrecht and Maastricht. The results are discussed jointly and per city. The indicators can have three different values, either a 0, a 1 or a missing value. This chapter shows for every indicator the number of objects which do not display the unusual characteristics (they received a 0), the number of objects that display the unusual characteristics (they received a 1) and the missing values.

Evaluation of the results

Correlation of indicators

Almost all significant correlations are positive, which tells us that the indicators, at least, point in the same direction. Most correlations are not very significant[52], which supports one of the fundamental assumptions in our research. A very strong correlation could only be found between indicator 1.2 (financier is a person not a company) and 2.4 (mortgage to self, same surname) and between 3.3 (owner is a person with an unusual amount of objects) and 3.4 (owner is a person with an unusual amount of purchases). We took this into account in the econometric analysis in part 3, by using them together in the estimation (interaction terms).

Distribution of red flags among the two cities

In total 17 indicators could be used for the analyses. The red flags were distributed as follows:

Number of red flags	Total	Utrecht	Maastricht
0	1.956	1.438	518
1	2.844	2.159	685
2	2.778	2.004	774
3	2.595	1.977	618
4	1.232	883	349
5	404	294	110
6	72	53	19
7	13	9	4
8	0	0	0
9	1	0	1
10-17	0	0	0

[52] There is not an official boundary point or threshold level, which indicates whether a correlation is significant or not. We decided, also based on the outcomes, that absolute values of 0,2 indicates a weak relation and that 0,3 and higher is strong.

The important conclusion that we can draw from this distribution is that it is not very unusual to receive one or two red flags, but that it is very unusual to receive 5 or more red flags. This again strengthens the robustness of our research method. The broad indicators cause a lot of false positives (which results in a lot of objects with one or two red flags), but it is the total number of red flags that makes the transaction unusual.

A list of 200 objects

We handed over a list of 200 objects to the criminologists, for part II. The only information they got was that 150 of these objects were considered unusual and 50 objects were considered usual. It was up to the criminologists to do the next step of the analysis.

Part Two: The Criminological Analysis

By systematically labeling an object by means of an indicator list – obtained through current literature studies on the subject – 200 objects where distillated from a total list of real estate property in the cities of Utrecht and Maastricht. If the 'conspicuousness' of the 150 objects with a high number of red flags can – by a certain level of certainty – be validated, this would tell a great deal about the reliability, validity and usefulness of this specific analysis for operational purposes[53].

Access was obtained through a close collaboration with the local Police offices of Utrecht and Maastricht, the (national) Real Estate Intelligence Center (VIC), the Regional Intelligence and Expertise Center (RIEC) of Limburg-South and the Tax Administration Office (Real Estate Knowledge Center [VKC]). The junior researcher undertaking most of the field work has worked on site for some months at both the

[53] The Real Estate Intelligence Center and the Regional Intelligence and Expertise Center Limburg-South already expressed the need for a certain approach for strategic analysis.

Real Estate Intelligence Center[54], the Regional Intelligence and Expertise Center Limburg-South and the Tax Authorities Office (VKC), to obtain the necessary data and perform the actual analysis.[55] The analysis had to be performed at both the object level and the subject level. Specific object and subject information however, will not be mentioned in this report because of the confidential nature of the information and the possible implications it could have for operational purposes.

The validation analysis concerned two ways of looking at the selected objects list acquired by the economists. The first analysis concerned a top-down approach. The selected objects were studied by mapping and analyzing the transaction history over the period of 2002-2006. The top-down analysis was further divided into two phases. The first phase consisted of a study of open source materials (Offices of Land Registry [deeds] and Chamber of Commerce) and in the second phase closed source information was added to the analysis (Tax Authorities Office, FIU [STR], Police [Blue View] and FIOD-ECD [GEFIS]). The bottom-up approach involved gathering information regarding objects and subjects known to the investigation authorities in order to identify possible false-negatives. The analysis presented in this part of the report is primarily based on the following hypotheses:

> H1: a significant higher amount of the 150 flagged objects compared to the 50 at random selected objects, will be labeled conspicuous, by means of the criminological top-down analysis;
>
> H2: subjects and objects identified in the bottom-up analysis will be present on the list of the 150 flagged objects.

Of course, the chosen analysis did not allow us to conclude beyond any reasonable doubt that certain objects have been (ab)used for criminal exploitation or speculation. Hardly any case has been subject of a criminal investigation, so the judicial term ´suspicious´ had to be avoided as it carries too much weight for these cases. Given the

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[54] The junior researcher acquired a temporarily position as employee at the Tax Authorities Office to gain access to the data he needed from the Real Estate Intelligence Center.

[55] He was accompanied and aided by one of the junior researchers – Joras Ferwerda – from the research group of Utrecht to speed up the data gathering process.

information available, it was not possible to establish a ‘probable cause’, a precondition to be regarded as a legal suspect according to article 27 of the Dutch Penal Code. This is why we prefer to use the term ´conspicuous´ for the objects we identify in the criminological analysis.

For criminal investments and money laundering in real estate property, two specific moments in time are important. The moment of transfer of object-ownership and the moment of a mortgage or loan establishment, because these are the moments in which money-flows occur (at least on paper), or prices can be manipulated. This can be concluded from the recent literature on this topic. Criminal investments or money laundering through ABC-transactions, carousel fraud and concealed forms of payment are all related to the moment of transfer (FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007). Criminal investments through (foreign) loan-back constructions and back-to-back loan constructions are both related to a mortgage or loan establishment (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007). In order to generate a general picture concerning the transaction history of the selected objects, first of all the related deeds of conveyance and the mortgage-deeds were gathered. All deeds were studied and then summarized in a case description for further analysis. The case descriptions were based on the following information:

- Sort of object(s) (type of real estate);
- The transactions (date of conveyance, amounts of money, involved notary, involved parties [natural persons and legal persons]);
- The mortgage establishments (date of establishment, amounts of money, involved notary, involved parties [natural persons and legal persons], sureties [object(s)]);
- Loan establishments (amounts of money, involved parties);
- Remarks, uncertainties and gaps.

In addition to the information derived from the deeds, we included all the legal persons in the case descpritions. By means of the Chamber of Commerce database, the share holders and board members of these legal persons were identified. Another check was done by means of the relationship fields in the Management Program of Relations (BVR) from the Tax Authorities Office. Furthermore, a check was done to

discover family relationships or relationships through object-ownership between buyers, sellers and financiers by means of the relationship fields in BVR and the Offices of Land Registry. Due to limitations in research capacity and time, it was not possible to fully analyze the structure of major corporations.

The information gathered was put in a data-matrix in order to get a first impression of the selected objects and to identify conspicuous aspects, from which a list of "remarkable characteristics" was created. Special attention has been paid to situations in which:

- The seller and buyer in a transaction are related; and/or
- No mortgage or loan is established to acquire the object; and/or
- The purchase of the object is not financed by a regular (well-known) bank; and/or
- The financier and the debt-taker are related; and/or
- The relationships in the case description are not transparent (UBO, involved parties); and/or
- The money transfers do not take place via the notary account.

During the creation of the case descriptions, the following three characteristics were added:

- The presence of inexplicable rectifications, made up by the notary;
- The purchase of objects at public auctions;
- The establishment of unspecified 'umbrella' mortgages.

All these characteristics were added to the data-matrix in which the 200 selected objects were listed. One extra 'remarks' column was added to the data-matrix for notes in case of uncertainties or unusual circumstances which needed further clarification.

In order to speed up the process of data-collection and analysis the Real Estate Knowledge Center (VKC) was closely involved in this part of the study and provided us with the majority of the necessary datasets. Representatives of the VKC were provided with the list of 200 selected objects. By means of data-mining they combined this list with data from the Offices of Land Registry. All of the buyers,

sellers and financiers involved were deducted from the dataset. In addition, the relations (legal persons, family, and share holders) of these parties were mapped by means of the Chamber of Commerce dataset and the Management Program of Relations (BVR) from the Tax Authorities Office. These efforts resulted in a major list of involved parties and their relations which could be linked to closed source information. The list was subsequently set out to the Dutch Financial Intelligence Unit (FIU), the FIOD/ECD and compared to datasets of the Real Estate Knowledge Center (VKC) itself.

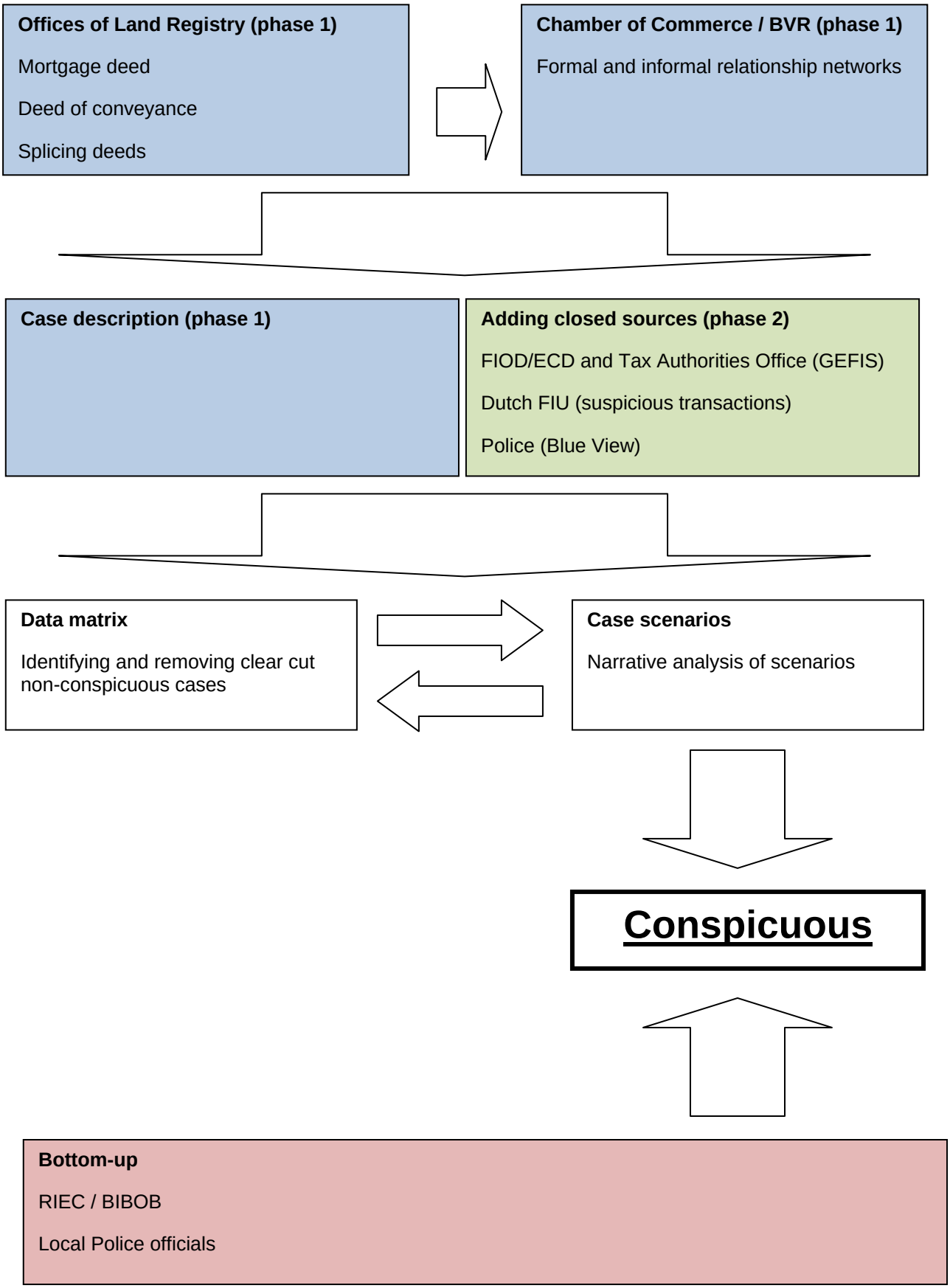
In addition, the 200 selected objects were also provided to the Police Limburg-South in order to check any records in the national shell application known as 'Blue View'. The list was handed over to analysts of the Police Limburg-South. They combined the addresses of the objects with information stored in this application. The deducted information was subsequently handed over to the research team for additional case analysis. The data which was provided to the research team only involved so called article 8 and article 13 (Police Information Act: WPG) information. This type of information is mainly compiled of information regarding daily Police activities. The data concerning major (ongoing) investigations and, Criminal Intelligence Unit (CIE) records could (and can) not be provided to non-Police officials and employees of the justice department by law.

The case descriptions have to be regarded as a series of 'more or less' related facts. This makes it possible to construct a scenario based on these facts. In our analysis two scenarios are relevant: the conspicuous scenario and the non-conspicuous scenario. In each case the research team judged the plausibility of both scenarios, given the gathered facts. This form of analysis is in line with the basic assumptions of the *narrative* theory. This theoretical model is used (amongst others) by forensic psychologists to study the righteousness of the verdict in closed penal law cases (Crombag et al, 2005). Narrative theory states that the presence of a specific number of facts, individually supporting one of the scenarios, is insufficient to judge the plausibility of the scenario. This theory also puts emphasis on the connections between the facts. Research findings (Crombag et al, 2005; Bennett & Feldman, 1981) show that:

- drawing conclusions about the plausibility of a scenario becomes easier once the amount of relevant (non-ambiguous) information grows;
- what a fact tells the judging party about the plausibility of a scenario is influenced by their own common sense presumptions about these facts;
- what a complex of facts tells the judging party about the plausibility of a scenario is influenced by their own common sense presumptions concerning the relationship between those facts and;
- common sense presumptions can be false.

The most valid ‘common sense’ presumptions are the ones that are confirmed by scientific literature and empirical research. By means of these sources one can determine the probability that a common sense presumption is in line with reality.

Overview of criminological data-collection and analysis



By means of the narrative theory, 36 conspicuous objects were identified from the original list of 200 objects. The 36 conspicuous cases were further divided into nine *strong* conspicuous cases, eight *moderate* conspicuous cases and 19 *weak* conspicuous cases. The extent of conspicuousness depends on the number of relevant facts, the direction of the facts, the intertwinement between the facts and the (empirical) strength of the common sense presumptions related to those facts. When analyzing the conspicuous cases another categorization was made. In 27 of the cases the main component of the conspicuous scenario was fraud, five cases involved drug related activities and four cases involved irregularities concerning the renting out of real estate property.

Categorizing the conspicuous cases

	Weak	Moderate	Strong	**Total**
Fraud	18	6	3	27
Drugs	1	0	4	5
Renting	0	2	2	4
Total	19	8	9	**36**

The fact that 27 of the conspicuous cases contain a major component of fraud, is not surprising. After all, most of the acquired information in the various datasets was of financial nature. The results show that the majority of these cases received only a weak conspicuous label (66,7%). In these cases, the conspicuous scenario has been made up of circumstantial clues. The way in which criminal money possibly was invested in fraud-related cases varied from case to case. It did show a significant number of ABCs, complex networks of legal persons, public auctions and appearing over/under valuation of the object.

The results reveal that in five conspicuous cases the main component involves drugs. In the majority of these cases the link to drugs was established through the information retrieved from Blue View. The component of criminal investments or money laundering in these cases took several forms. Case scenarios involved both direct criminal investments in real estate without the presence of a mortgage and indirect investments through bank payments to pay off the established mortgage.

In four cases the main component of the conspicuous scenario was made up by irregularities concerning the renting out of real estate property. In two of these cases

the information was retrieved from Blue View. This information gave strong indications that the owner of the object was to be considered a maleficent landlord. These cases received a strong conspicuous label. Though the amount of cases was small it was striking that three of these cases involved a large unspecified umbrella mortgage.

After the criminological analysis had been finished, the research team received the encoding table to check which objects were randomly selected (control group) and which objects were flagged by the economic analysis. This resulted in 31 conspicuous cases in the list of 150 flagged objects (20,6%) and 5 conspicuous cases in the list of 50 randomly selected objects (10,0%). Thus, the percentage of conspicuous cases in the flagged objects group was twice as high as the percentage of conspicuous cases in the control group. The results of the bottom-up analysis presented a less sparkling picture of the operational usefulness of the red-flag analysis. Only in one of the 200 cases two related subjects were found that matched the subjects list retrieved through the bottom-up approach. However, these findings should be handled with care. There are two possibilities. The first interpretation is that the red-flag analysis has only limited value considering the high number of false-negatives. The second interpretation is that the red-flag analysis leads to additional insights and spots cases that have not been marked through traditional operational scans.

After comparing the prevalence of the relative number of remarkable characteristics for the conspicuous cases and the non-conspicuous cases (part two, chapter two, table 2.4) four characteristics showed a deviating pattern from what we had expected. We had expected that all of the remarkable characteristics would be overrepresented in the conspicuous cases. However, this was not true for these four characteristics belonging to a similar cluster:

- absence of a mortgage or loan to finance the acquirement of the object;
- absence of a regular bank as a financier;
- presence of related financiers and debt-takers;
- the presence of *windhappers* .

These characteristics were mainly used (with the exception of the *windhapper* which has a broader reach) to identify forms of loan-back and back-to-back loan schemes. Considering what we know about money laundering and criminal investments, we had expected to find signals or indications of loan-back and back-to-back loan schemes (FATF/GAFI, 2006; FATF/GAFI, 2007; Ferwerda et al, 2007; Nelen et al, 2007; Van de Bunt et al, 2007). Considering the equal distribution of these characteristics over the conspicuous and the non-conspicuous cases it is likely that these characteristics did not function the way we had expected them to function.

The results of this part of the research indicate that specific behaviors (fraud, drugs and irregularities in renting out real estate property) can be linked to their own set of specific characteristics which need refinement of the indicators. In addition, certain adaptations should be made. It appears that for this type of analysis, for which additional use of closed sources is a *conditio sine qua non*, open source information is insufficient. We have to keep in mind that the real estate market is a closed circuit that offers many possibilities to conceal irregularities. Studying a paper trail only reveals a 'paper reality', but does not fully cover what actually has happened. That's why additional forms of economic and criminological research will always be indispensable.

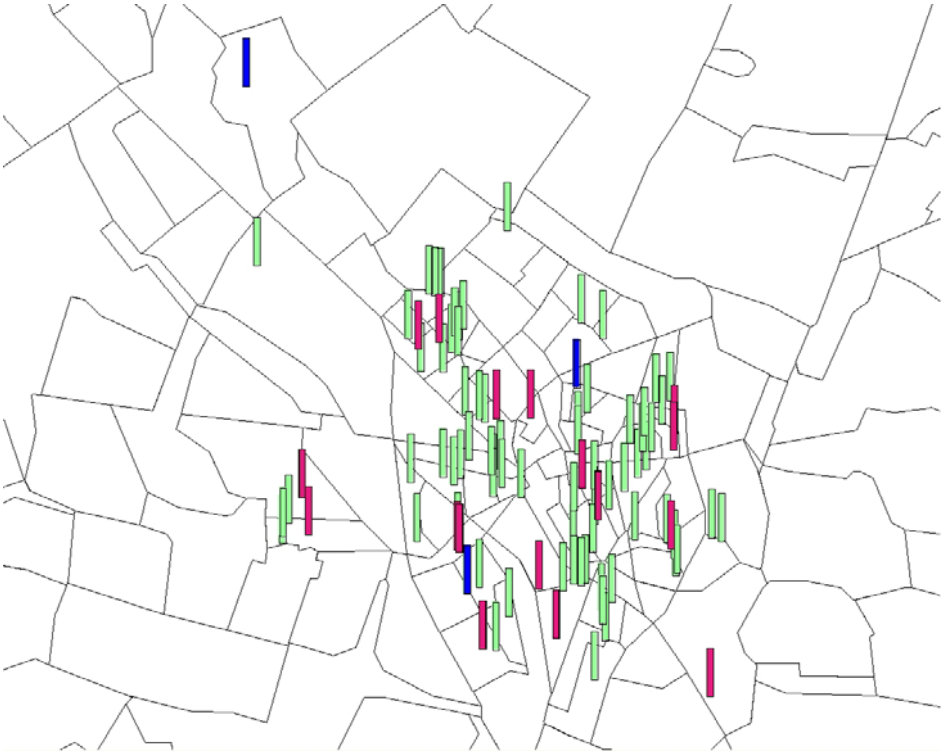
Part Three: The Statistical and Econometric Analysis

The criminologists identified 36 conspicuous objects (in three categories: weak conspicuous, moderate conspicuous and strong conspicuous) from the 200 object list, using their methods. Part 3 links these criminological and economic parts with the goal to identify those objective indicators which can 'detect' the conspicuous objects best.

Of the 36 conspicuous objects identified by criminologists, 31 had been marked as unusual in the first part of this report, so here the criminological results coincided with the findings of the economic analysis, while 5 of the 36 objects were selected from the control group. Fortunately, all the strong conspicuous objects identified by the criminologists received a high number of red flags from the economists (none of

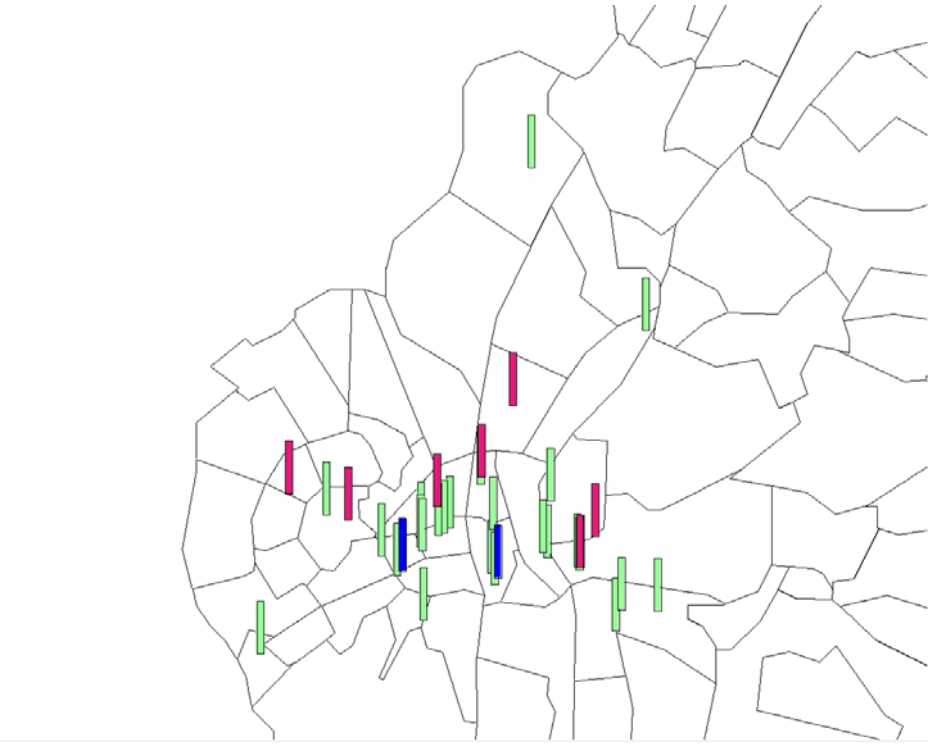
these strong conspicuous cases were from the control group). From the 5 non fitting objects, 4 were considered weakly conspicuous and 1 moderately conspicuous.

Objects Identified as Conspicuous and Unusual in Utrecht



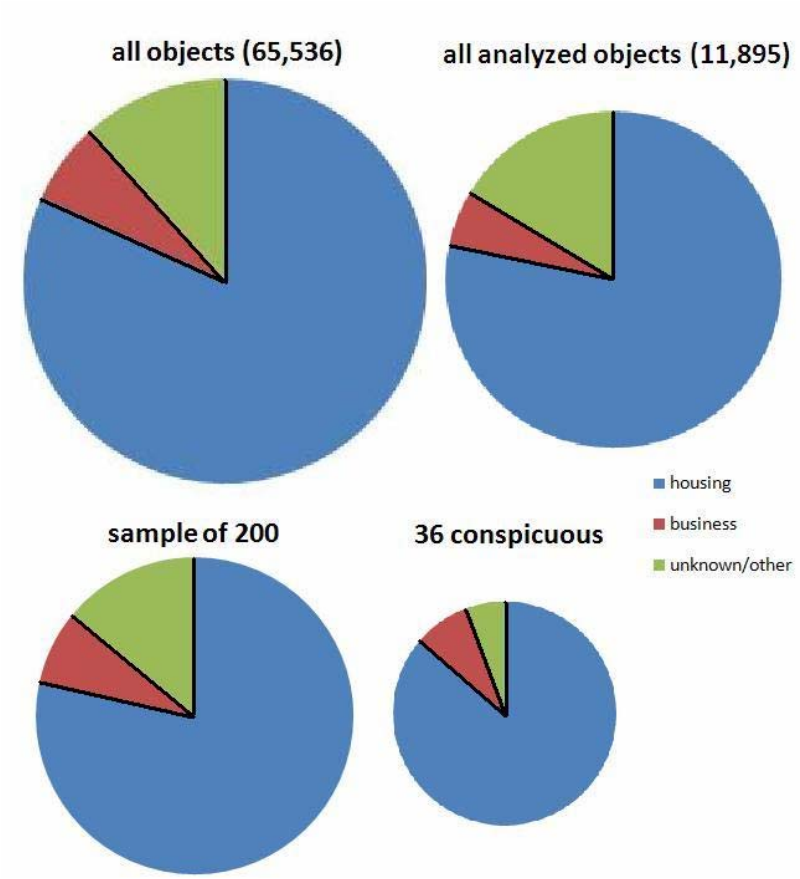
Source: the authors, graph made by Arjen Siegman. The green (or light grey) bars are the objects that were identified as unusual. The magenta (or dark grey) bars are the objects that were identified as unusual and conspicuous. The blue (or black) bars are the objects that were identified as conspicuous, while randomly selected (not unusual). The bars were moved slightly to conserve the privacy of the analyzed objects and subjects.

Objects Identified as Conspicuous and Unusual in Maastricht



Source: the authors, graph made by Arjen Siegman. The green (or light grey) bars are the objects that were identified as unusual. The magenta (or dark grey) bars are the objects that were identified as unusual and conspicuous. The blue (or black) bars are the objects that were identified as conspicuous, while randomly selected (not unusual). The bars were moved slightly to conserve the privacy of the analyzed objects and subjects.

Comparing the total population of objects and the total ones analyzed by the economists, with the 200 identified as unusual and the 36 identified as conspicuous one can see that there is quite some congruence: there is a clear dominance of houses over business among the objects in all the (sub)samples. The distribution of objects in both samples is similar except for the fact that the 36 conspicuous objects contain a bit more housing objects and bit less objects of the category ‘unknown/other’.



Not all of the indicators turned out to be good predictors of conspicuous cases. For example the indicators bad neighborhood and foreign financier had to be dropped. None of the conspicuous cases had a bad neighborhood. One explanation is that bad neighborhoods include too few objects, even in the total population.

We used different statistical and econometric tests in order to filter out the most robust and significant indicators, listed below.

Overview of Major Findings on the Importance of Indicators

No.	Indicator description	Frequency Analysis	Pair-wise Correlation with	Econometric Analysis
Good indicators				
5.2	Unusual price fluctuation	+	all conspicuous	+ +
3.1	Foreign owner	+		+ +
3.9	Owner is a just established company	+		+ +
Promising indicators				
1.2	Financier is a natural person	+	strong conspicuous	+
3.4	Owner has an unusual amount of transactions	+	all conspicuous	+
2.3	Absence of mortgage	+		+
2.4	Mortgage to self (same surname)	+		+
3.8	Risky exploitation	+		+
Weak indicators				
4.1	Object has multiple transactions		strong conspicuous	
2.2	Unusual mortgage compared to purchase sum		strong conspicuous	
3.12	Owner is a 'global citizen'		moderate conspicuous	
Flops				
5.1	Unusual purchase sum compared to appraised value	-	strong conspicuous -	-
3.3	Owner has an unusual number of objects			-
1.1	Foreign financier	-		
3.11	Owner is a company without employees			
4.2	Object in bad neighborhood			
4.3	Object is good neighborhood			

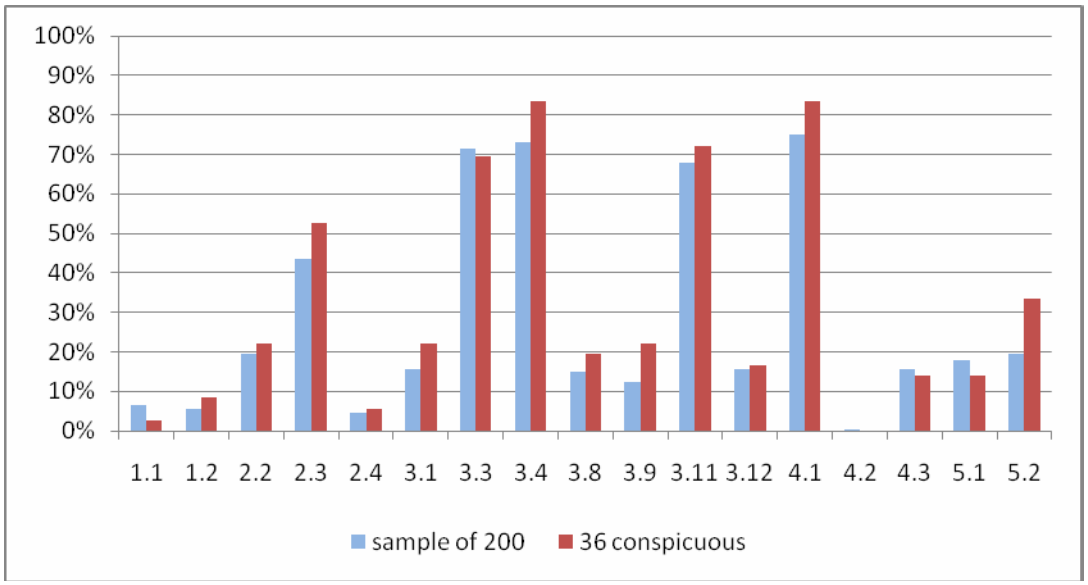
Source: Made by the authors. A plus in the column of the frequency analysis means that relatively many conspicuous objects had a red flag for this indicator. (see section 2.1 below) The column of correlation indicates whether the indicator is significantly correlated with the conspicuous objects (all, only the strong or only the moderate). All these correlations are positive, except indicator 5.1, which is indicated by the minus. (see section 2.3 below) The last column shows the result of the econometric analysis based on probit (with logit, OLS, C-log-log as a robustness check). ++ means a significant ($p<0.1$) positive relation, while a + / - means the positive or negative relation does not meet the statistical standards yet, but has the potential to do so ($p<0.3$). (see section 3.3 below)

Frequency Analysis

We first plotted the distribution of red flags for the 200 unusual and the 36 conspicuous objects. An indicator which receives more flags in the sample of 36 than in the sample of the 200 objects can be interpreted as improving the predictive quality of an indicator. The promising indicators for identifying conspicuous objects are the overrepresented indicators, which are the following (see the following graph):

- 1.2 Financier is a natural person (from 5.5% to 8.3%),
- 2.3 Absence of mortgage (from 43.5% to 52.8%),
- 2.4 Mortgage to self/same surname (from 4.5% to 5.6%),
- 3.1 Foreign owner (from 15.5% to 22.2%),
- 3.4 Owner has unusual number of transactions (from 73% to 83.3%),
- 3.8 Risky exploitation (from 15% to 19.4%),
- 3.9 Owner is a just established company (from 12.5% to 22.2%), and
- 5.2 Unusual price fluctuation (from 19.5% to 33.3%).[56]

Percentage of red flags for the 200 unusual and the 36 conspicuous objects



Source: calculated by the authors. Above every indicator the left bar (blue/light-grey) shows the percentage of objects in the sample of 200 that got a red flag for this indicator, the right bar (red/dark-grey) shows the percentage of conspicuous objects that received a red flag for this indicator.

More red flags predict more conspicuous cases

The weak conspicuous objects have on average 5.1 flags, the moderate conspicuous objects have on average 5.5 red flags and the strong conspicuous objects on average

[56] Indicators where the difference in relative frequency between the sample of 200 and the 36 conspicuous cases is lower than 20% (not to confuse with 20%point) are considered neither overrepresented nor underrepresented.

6.1 red flags. This is a remarkable finding especially since the average, median and modus amount of red flags of all analyzed objects in part 1 (11.895 objects) lie around 2 . This result seems to confirm our hypothesis that more red flags for an object given in the economic approach predict a more conspicuous object (as identified by the criminologists).

Correlation Analysis

Indicator 3.4 (owner has unusual number of transactions) and
indicator 5.2 (unusual price fluctuation)
are significantly correlated with whether a object is conspicuous or not. An unusual amount of transactions of an owner and a bigger relative price gap between two transactions increase the chance that the object is conspicuous.

When analyzing only the strongly conspicuous cases, the strong conspicuous cases have a significant correlation with 4 indicators:

- 1.2 (financier is a natural person),
- 2.2 (unusual mortgage compared to purchase sum),
- 4.1 (object has multiple transactions) and
- 5.1 (unusual purchase sum compared to appraised value).[57]

Econometric Analysis

After performing diverse econometric tests (probit, logit, OLS, clog-log, dprobit) we concluded that the best indicators to identify conspicuous objects are:

- 3.1 (Foreign owner)
- 3.9 (Owner is a just established companies)

[57] Indicator 1.2 has a correlation of 0.2033 with a p-value of 0.0590 and is therefore significant on a 10% level (90% confidence). Indicator 2.2 has a correlation of 0.3103 with a p-value of 0.0211 and is therefore significant on a 5% level (95% confidence). Please note that the actual (relative) difference is used here, and not the red flag transformation (a red flag was given when the mortgage was less than the appraised value or more than 200 % of the appraised value) as specified in part 1 of this research. The red flag transformation of this indicator has no significant correlation with the strong conspicuous objects. Indicator 4.1 has a correlation of 0.1253 with a p-value of 0.0770 and is therefore significant on a 10% level (90% confidence). Indicator 5.1 has a correlation of -0.1867 with a p-value of 0.0952 and is therefore significant on a 10% level (90% confidence).

- 5.2 (Unusual price fluctuation)

The most significant effect found in the econometric analysis were that objects with an unusual price fluctuation (indicator 5.2) are associated with an increased chance of 25 % for an object to be conspicuous. Objects owned by a just established company (3.9) are associated with an increased chance of 24 % to be conspicuous and the last significant result is that objects with a foreign owner (3.1) are associated with an increased chance of 15% to be conspicuous.

Statistically somewhat weaker but still interesting are the indicators

- 1.2/2.4 (Mortgage to self, same surname),
- 2.3 (Absence of mortgage),
- 3.3/3.4 (Owner has unusual amount of objects and transactions),
- 3.8 (Risky exploitation) and
- 5.1 (Unusual purchase sum compared to appraised value).

The 'magic formula' for detecting criminal investment which we intended to develop from this study is at this stage of research only a 'draft formula' which can 'detect' conspicuous objects:

*Chance to be conspicuous = 15 % * foreign owner + 24 % * just established company + 25 % * unusual price fluctuation*

To give an example of how to use this formula: If one has a case where a foreigner sells a real estate object to a just established company, which then sells the object a couple of months later for a significantly higher or lower price, there is a 64% chance that this case is conspicuous. Because it has all three characteristics the calculation is: 15 % * 1 + 24 % * 1 + 25 % * 1 = 64 %.

Let's now consider a case where a just established company buys real estate from a foreigner for a normal price: then the chance that this real estate is conspicuous is 39 %. Because it has two of the above characteristics the calculation is: 15 % * 1 + 24 % * 1 + 25 % * 0 = 39 %.

Conclusions

Multidisciplinary work allows to complement investigation techniques in the real estate sector. Financial characteristics of a real estate object combined with criminological data allow to identify a new group of objects which otherwise might have stayed in the dark. Our method allows to develop a magic formula of how to identify conspicuous objects from objective data such as unusual price movements or ownership. However, the research results presented here are only a first step in this direction and the cases identified here have to be carefully analyzed and checked by the investigation authorities.

If the criminologists could have come up with more strongly conspicuous objects, the econometric analysis might have been more conclusive. The results can also be improved by incorporating the false positives (objects that we missed) into the analysis. These missed objects were found by criminologists when interviewing for example the local neighborhood police officer. Nevertheless, first results from this pilot study can be presented here. There are many things to be learned from it. First (due to a lack of knowledge ahead), we set the threshold for some of the indicators too high or low, and through this got too little variation in some of the indicators. For example, with our definition of a very bad neighborhood (taken from the 'Leefbaarheidsbarometer') only 0.4% of the objects were located there. Ex post, we conclude that it would have been better to use a broader definition and thereby increase the variation for this indicator (due to the narrow definition, it was dropped from the current analysis). Second, more data will give more conclusive results, this can be achieved by applying, for instance, the FIU data on all the 11895 objects in this research, instead of only the sample of 200. To be learned from the criminological part is that the individual cases look very different, therefore do not follow an easily identifiable pattern. In the future, more distinction between criminal investments in real estate could be made. For example, some of the indicators might explain and identify carousel fraud cases, while others help to identify cases where money is laundered using the back-to-back loan method. This means, that this type of analysis – a combination of economic analysis with a criminological analysis whose results are then fed back into the economic analysis - should be carried out in a more

detailed form in the future. Extending this research to the Netherlands as a whole would prevent generality issues and can show insight in how criminal investments in the real estate sector are divided throughout the country. It could provide a cheap and easily to handle investigation tool for criminal investment in the real estate sector.

Data Improvements for further research

As is often the case when working with datasets; we found a lot of small and more drastic inconveniences and irregularities in the dataset. Since we were the first ones looking at this particular dataset with a structural research method, we discovered several inconveniences which could be improved in the future.

Collect data on individual objects for transactions with multiple transactions

We could not analyze a lot of transactions completely because the provided purchase sum and/or mortgage were applicable for multiple objects (this was important for indicator 2.1, 2.2, 4.1, 5.1 and 5.2). But the striking thing is that it is mentioned in the literature that criminals buy multiple real estate objects in one 'package' on purpose, (Nelen et al., 2008, p.44) to limit the investigation possibilities. Therefore it is important to start collecting data on which objects are included in a package, instead of only distinguishing between single purchases and package purchases.

Do not overwrite mortgage data

We had no information on the executed mortgage, only on the maximum possible mortgage. One of the inconveniences when working with this dataset was that the mortgage value (important for indicator 2.1 and 2.2) and the address of the subjects (important for indicator 3.1) were constantly updated (and overwritten). We therefore had no historical data on this and could not analyze the situation at the moment of the transaction but only the current situation, which might have led to a misinterpretation of the situation.

Combine existing data

Probably the most significant improvement can be made by combining the police data of local and national police forces, FIOD-ECD, FIU the Netherlands, WODC with the

datasets used in this research, since it is often suggested in the literature that persons with a criminal record have a significantly higher chance to be involved with criminal activities in the future (see indicator 3.2). Evidently privacy consideration must be included in such a project.

Although it is not a fundamental problem for the research, it was not very convenient that we only had the city where the financier was located, and not the country of residence. This means that we had to match every city in the dataset with its country. This should be archived automatically in the future, especially because the same city name could appear in different countries.

The time span used in this research was the period of 2001-2006, which is not such a long period if one wants to analyze time trends (like indicator 3.5). Another pity is that we had only the year of establishment and closing of companies instead of the exact date, which made the comparison with the purchase date rather rough (indicator 3.9 and 3.10). In addition it must be said that the data on the establishment and closing date of a company was not optimal because it had so many missing values. It could also be improved by not including the dates of the company itself but of the whole concern. Also the data on the number of employees seems to have too many missing values (this also holds for the income data) and could be improved by giving the number of employees of the whole concern instead of the local establishment.

Another data technical improvement that could be made is distinguishing between a purchase sum of 0 and an unknown purchase sum (for indicator 2.1, 2.2, 4.1, 5.1 and 5.2), although this seems to be unimportant in many cases, it is important for this research.

Additional Data that should be collected or added

The effectiveness of this research method greatly depends on the available data. The effectiveness of this research could be improved significantly by collecting new data or combining currently available data. We will mention here which data will improve the research probably the most.

Probably the most significant improvement can be made by combining the police data of local and national police forces, FIOD-ECD, FIU the Netherlands, and sources of the WODC like the Dutch 'monitor organized crime' (*monitor georganiseerde misdaad*) and so on with the datasets used in this research, since it is often suggested in the literature that persons with a criminal record have a significantly higher chance to be involved with criminal activities in the future (see indicator 3.2).

Another improvement would be to have information about the ultimate beneficial owner of a company (see indicator 3.7). It would be even more interesting to see the whole ownership and (in)formal control structure of a company, like might be possible with smart@data.[58]

Although we were able to use some information of the financier, it would be interesting to know even more about them. First of all, it would be interesting to know the so-called branch code of the financier, so its activities (for indicator 1.3 and 3.6) and whether it has unregistered shareholders (indicator 1.4). This information is also interesting for the owners of real estate.

We had no information on the executed mortgage, only the maximum possible mortgage. We therefore have to interpret all the results on mortgage with great care. It would have been much more interesting to analyze the actual executed mortgage (especially for indicator 2.1 and 2.2).

Another aspect that could be improved is the nationality of the owner. We now only have the former address as an indication of the nationality, which of course is a very rough and imprecise indicator, which could be improved a lot by just adding personal information like the nationality to the data.

Some care needed

Note that the results discussed in this chapter are not causal relationships. An object characteristic could lead to criminal activity, but criminal activity could also lead to a

[58] Smart@Data is an analysis tool developed to perform complex analysis over combined multiple databases and single files. The program is in use by the Real Estate Intelligence Center to perform data analysis over the data sets from the Offices of Land Registry, Chamber of Commerce, tax authorities, justice department, Police departments and FIU.

certain characteristic. The study can be seen as a pioneer and pilot study for detecting criminal investment in the real estate sector by using the skills of both economists and criminologists. Its limit had mostly to do with privacy concerns. We hope that it will be possible to analyze also the cases that the economists identified as unusual but the criminologists considered not conspicuous, by means of a bottom up approach. Also from learning what we missed, we could improve our magic formula.

The red-flag analysis can be a helpful tool to perform strategic analysis for operational purposes in the future. However, it is in need of further refinement and adaptations. The concept of criminal investments is too broad and the indicators are associated with too many different maleficent and/or criminal forms of behavior. Furthermore, the real estate sector is subdivided into too many submarkets and it is impossible to cover the whole market with one analysis. Refinement could be achieved by focusing on more narrow concepts of criminal behaviors (e.g. specific forms of fraud or drugs), specific real estate submarkets (e.g. housing or commercial market) and the mere use of behavior specific indicators.

Summary of Criminal Investments in the Dutch Real Estate Sector (Short Version)

The Dutch real estate sector is large in volume with 8.2 million objects worth 2 trillion Euro, and a yearly transaction volume of 35 billion Euro in 2008. It includes multiple players, ranging from private consumers to large developers and investors and the government. Features such as the heterogeneity of buildings, non transparency of the market, possibilities to hide the true owner, make it prone to speculation as well as to criminal investment and money laundering.

This multidisciplinary study aimed at identifying conspicuous objects in the Dutch real estate sector in the cities of Maastricht and Utrecht. We analyzed objects that have been traded at least once between 2002 and 2006. As earlier studies on maleficent behavior in the real estate sector (e.g. Ferwerda et al 2007, Belastingdienst/FIOD-ECD Report, 2008) have shown, maleficent behavior such as loan back, fake ABC and carousel fraud constructions are frequent.

In this report we use ‘data mining’ or ‘outlier mining’ as technique to identify unusual real estate objects. In total we have identified 17 unusual characteristics from the literature. Whenever an object displayed one of the characteristics below, it received a red flag. So, an object could maximal get 17 red flags.

Indicators for Unusual Behavior in the Real Estate Sector	
Financier is from abroad	E.g. anonymous foreign company, usually Dutch bank provides the mortgage
Financier is a person not a company	Banks providing mortgages check identity and income of the buyer, while there are less control mechanisms when persons provide mortgage
Financing has an unusual amount compared to purchase sum	Might indicate a straw man. Banks would usually not give a mortgage above the actual value of the property
Financing is not used (no mortgage)	Unusual seen the Dutch tax advantages of mortgage financing. Might indicate misuse of foreign legal persons
Financing has a creditor and a debtor being the same subject	Providing a mortgage to oneself seems dubious
Owner is from abroad	Can be a natural person or a company
Owner is a person with a disproportionate number of objects	
Owner is a person with a disproportionate number of purchases	
Owner is a company with a particular exploitation	E.g. hotels, restaurants, coffeeshops, prostitution, gambling and transportation
Owner is a company just established	If it buys immediately real estate can indicate that it is part of a construction of companies to disguise the ultimate beneficial owner UBO
Owner is a company without employees	Could indicate empty (shell) companies
Owner is a 'world citizen'	Owner is unknown to the Tax Administration
Real estate object has multiple transactions	Can indicate swindle but also only pure speculation
Real estate object is in a very bad neighborhood	Might attract small criminals, Dutch Problem areas 'probleemwijken'
Real estate object is in a very good neighborhood	Might attract rich launderers who want to show off
Purchase sum is unusual compared to the appraised value (WOZ)	
Purchase sum is unusual compared to previous purchase sum	

Utrecht is about double the size of Maastricht. There were in total 65,536 objects in Maastricht and in Utrecht. Using "Kadaster" (Offices of the Land Registry) data combined with data from the "Belastingdienst" the economists operationalized the 17 indicators above and eliminated missing cases. In total the economists ended up with 11,895 objects traded between 2002 and 2006, from which 150 seemed unusual, i.e. displayed a high amount of red flags. None of the objects received more than 9 flags. The economists handed a list of 200 objects, in which 150 unusual objects were mixed with 50 usual ones as a control group, over to the criminologists.

The second step in this study involved an in depth analysis of the 200 cases in order to establish a level of conspicuousness. If the 150 objects with a high number of red flags can also be identified as conspicuous, this would make this specific analysis a very reliable, valid and useful tool for operational purposes. The analysis involved a top-down and a bottom-up component. The top-down analysis was further divided into two phases. The first phase consisted of a study of open source materials (Offices of Land Registry [deeds] and Chamber of Commerce) and in the second phase closed source information was added to the analysis (Tax Authorities Office, FIU [VT], Police [Blue View] and FIOD-ECD [GEFIS]). The bottom-up approach involved gathering information regarding objects and subjects known to the authorities in order to identify possible false-negatives. The analysis does not allow us to conclude beyond any reasonable doubt that certain objects have been (ab)used for criminal exploitation or speculation. Given the information available, it is not possible to establish a 'probable cause' which is a precondition to be regarded as a legal suspect according to article 27 of the Dutch Penal Code. This is the main reason why we prefer to use the term ´conspicuous´ in relation to the findings of our analysis.

When it concerns criminal investments and money laundering by means of trading with real estate property, two specific moments in time are important. The moment of transfer of object-ownership and the moment of a mortgage or loan establishment, because these are the moments that money-flows occur (at least on paper), or prices are manipulated. In order to generate a general picture concerning the transaction history of the selected objects, the related deeds of conveyance and the mortgage-deeds were gathered. All deeds were studied and then summarized in a case description for further analysis. The case descriptions were made up with the following information:

- Sort of object(s) (type of real estate);
- The transactions (date of conveyance, amounts of money, involved notary, involved parties [natural persons and legal persons]);
- The mortgage establishments (date of establishment, amounts of money, involved notary, involved parties [natural persons and legal persons], surety [object(s)]);
- Loan establishments (amounts of money, involved parties);

- Remarks, uncertainties and gaps.

In addition to the information derived from the deeds, all the legal persons were described in the case descriptions and the information from closed sources was added (FIU, Police, FIOD-ECD and Tax Authorities Office). The case descriptions have to be regarded as a series of 'more or less' related facts. This makes it possible to construct a scenario based on these facts. In our analysis two scenarios are relevant: the conspicuous scenario and the non-conspicuous scenario. In each case the research team judged the plausibility of both scenarios, given the gathered facts. This form of analysis is in line with the basic assumptions of the *narrative* theory. Narrative theory states that the presence of a specific number of facts, individually supporting one of the scenarios, is insufficient to judge the plausibility of the scenario. This theory also puts emphasis on the connections between the facts. The strength of the plausibility of a scenario is determined by the 'common sense' presumptions known about the facts and the connections between those facts. The most valid 'common sense' presumptions are the ones that are confirmed by scientific literature and empirical research. By means of these sources one can determine the probability that a common sense presumption is in line with reality.

The criminologists found 36 conspicuous objects of which 31 had also been marked unusual by the economists.

The economists analyzed the characteristics of these objects by means of frequency, correlation and econometric analysis (using probit, logit, cloglog, OLS and dprobit models) in order to identify the most promising indicators for identifying conspicuous objects in the real estate sector.

The most significant effect found in the econometric analysis is that objects with an unusual price fluctuation are associated with an increased chance of 25 % for an object to be conspicuous. Objects owned by a just established company are associated with an increased chance of 24 % to be conspicuous and the last significant result is that objects with a foreign owner are associated with an increased chance of 15% to be conspicuous. Thus, if one has a case where a foreigner sells a real estate object to a just established company, which then sells the object a couple of months later for a

significantly higher or lower price, there is a 64% chance that this case is conspicuous.

Note that the aforementioned results are not causal relationships. An object characteristic could lead to criminal activity, but criminal activity could also lead to a certain characteristic. The study can be seen as a pioneer and pilot study for detecting criminal investment in the real estate sector by using the skills of both economists and criminologists. The approach is complementary to usual investigation techniques by using economics and data mining in order to identify unusual objects. Additional work, in particular a test of the quality of the indicators and cases identified has to be done. Also data collection could be improved, in particular by keeping track of individual objects for transactions with multiple objects and by not overwriting mortgage data. Future work should differentiate more between different types of transactions and types of crime.

Nederlandse samenvatting

De Nederlandse vastgoedmarkt is omvangrijk met 8,2 miljoen objecten die een gezamenlijke waarde hebben van 2 biljoen euro en een jaarlijks transactievolume van 35 miljard euro in 2008. Op de markt is een groot aantal uiteenlopende spelers actief, van private huizenbezitters tot grote vastgoedontwikkelaars, investeerders en overheidsinstanties. De uniciteit van vastgoedobjecten, in combinatie met de speculatie die de onroerend goedsector al sinds jaar en dag kenmerkt, de grote vermogens die in deze markt omgaan, de mogelijkheden om zowel de herkomst van die vermogens als de economische eigenaar te verhullen, de gesloten vastgoedcultuur en het gebrek aan structureel toezicht op vooral het particuliere marktsegment vormen een ideale voedingsbodem voor zowel criminele ondernemers als ondernemende criminelen.

Deze multidisciplinaire studie heeft als doel het identificeren van objecten die kunnen worden aangemerkt als aandachtsbehoevend in de steden Maastricht en Utrecht. Om dit te bereiken zijn objecten gelegen in de kadastrale gemeenten Maastricht en Utrecht die in de periode van 2002 tot en met 2006 minimaal één transactie hebben doorgemaakt geanalyseerd. Uit eerder onderzoek naar malafide en criminele gedragingen in de sector is reeds gebleken dat dergelijk gedrag frequent voorkomt in de vastgoedsector (bv. Ferwerda et al 2007, Belastingdienst/FIOD-ECD Report, 2008). Denk daarbij aan loan-back constructies, carrousel fraude en kunstmatige ABC transacties.

In het onderhavige report wordt gebruik gemaakt van een techniek genaamd ‘data mining’ of ‘outlier mining’ om vastgoed objecten met ongebruikelijke kenmerken te identificeren. In totaal zijn er 17 ongebruikelijke kenmerken uit de literatuur gedestilleerd. Op het moment dat een object in onze dataset één van deze 17 kenmerken bezat werd daarvoor een rode vlag toegekend aan het object.

Indicatoren voor ongebruikelijke kenmerken van vastgoed	
Financier is afkomstig uit het buitenland	Bv. een anonieme buitenlandse rechtspersoon
Financier is een rechtspersoon	Formele banken voeren antiwitwas en antifraude maatregelen uit en staan onder extern toezicht. Dergelijke controle is minder voor de hand liggend als een natuurlijke persoon optreedt als financier
Gefinancierde bedrag staat niet in verhouding tot de koopsom	Banken financieren normaal gesproken niet meer dan de waarde van het object
Geen sprake van een externe financier (geen hypotheeknemer)	Gezien de belastingvoordelen die te behalen zijn met de hypotheekrente-aftrek is dit uitzonderlijk in de Nederlandse context
Financier en schuldnemer zijn dezelfde eenheid	Het verstrekken van een lening of hypotheek aan jezelf is opmerkelijk
Eigenaar is afkomstig uit het buitenland (natuurlijk persoon en rechtspersoon)	
Eigenaar heeft een disproportionele hoeveelheid objecten in handen	
Eigenaar voert een disproportionele hoeveelheid transacties uit	
Eigenaar is een rechtspersoon die exploiteert in een bepaalde branche	Bv. hotels, casino's, restaurants, coffee-shops, prostitutie en gokhallen
Eigenaar is een sinds kort opgerichte rechtspersoon	Als de rechtspersoon onmiddellijk overgaat tot het kopen van vastgoed dan kan dit een indicator zijn dat de rechtspersoon wordt gebruikt voor het verhullen van de UBO
Eigenaar is een bedrijf zonder werknemers	Kan duiden op lege (plof) rechtspersonen
Eigenaar is een 'wereldburger'	De eigenaar is onbekend bij de belastingdienst en heeft geen BSN
Object ondergaat meerdere transacties	Kan duiden op oplichterij
Object bevindt zich in een slechte buurt	Probleemwijken, malafide exploitatie
Object bevindt zich in een goede buurt	Veel geld dat in één keer kan worden geïnvesteerd
Koopsom staat niet in verhouding tot de WOZ waarde	
Koopsom staat niet in verhouding tot de voorgaande koopsom	

Utrecht is ongeveer tweemaal zo groot als Maastricht. In totaal bevinden zich in de steden gezamenlijk 65.000 vastgoed objecten (het gaat dan om kadastrale objecten). Deze objecten, inclusief hun kadastrale data, zijn door de economen gekoppeld aan data van de Belastingdienst. De bovenstaande indicatoren zijn daarna geoperationaliseerd. Uiteindelijk bleven er 11.895 objecten over waarvan er 150 als ongebruikelijk werden aangemerkt (met andere woorden, deze kregen een grote hoeveelheid rode vlaggen toegekend). Geen van de objecten kreeg overigens meer dan 9 vlaggen toebedeeld. De economen droegen uiteindelijk een lijst met 200

objecten over aan de criminologen waarin de 150 ongebruikelijke objecten werden gemixt met 50 controle objecten. De criminologen waren niet op de hoogte van de aard van een object.

De volgende stap bestond uit een nadere analyse van deze 200 objecten door de criminologen om te achterhalen in welke mate deze als aandachtsbehoevend aangemerkt konden worden. Op het moment dat de mate van aandachtsbehoevendheid met een zekere mate van zekerheid kan worden bepaald dan kan dit benut worden voor het doen van uitspraken over de validiteit, betrouwbaarheid en operationele bruikbaarheid van de in deel 1 ontwikkelde methode. De analyse bestond uit een top-down component en een bottom-up component. De top-down analyse werd daarnaast nog onderverdeeld in twee fasen. In de eerste fase werden enkel open bronnen gebruikt (kadaster en KvK) en in de tweede fase werden hier gesloten bronnen aan toegevoegd (belastingdienst, FIOD-ECD, politie en FIU). De bottom-up component was er op gericht om mogelijke vals-negatieven te identificeren. Benadrukt moet worden dat op basis van deze analyse geen uitspraken gedaan kunnen worden die boven gerede twijfel zijn verheven aangaande criminele investeringen, exploitatie en witwas activiteiten gerelateerd aan het betreffende object. De term verdacht is daarom door ons vervangen voor aandachtsbehoevend (conspicuous).

Er zijn twee transactiemomenten die van belang zijn in een onderzoek naar criminele investeringen en witwas activiteiten met behulp van vastgoedtransacties. Het moment van (juridische) levering en het moment dat de hypotheek of een lening gevestigd wordt, aangezien dit de momenten zijn dat (op papier) geldstromen plaatsvinden en prijzen gemanipuleerd kunnen worden. Om een beeld te ontwikkelen van de transactiehistorie van de 200 objecten zijn allereerst alle hypotheek en leveringakten over de periode 2002-2006 achterhaald en geanalyseerd. De volgende informatie uit de akten werd samengevoegd in een case beschrijving:

- Soort object (segment van de markt);
- De transacties (bedrag, datum, betrokken partijen en betrokken notaris);

- Moment van hypotheek vestiging (bedrag, datum, betrokken partijen, betrokken notaris en onderpand);
- Eventueel de vestiging van een lening zonder hypotheekrecht (bedrag en betrokken partijen);
- Opmerkingen, onzekerheden en lacunes.

Aan deze informatie werden gegevens over de betrokken rechtspersonen en informatie uit de gesloten bronnen toegevoegd. Van alle 200 objecten zijn op deze wijze case beschrijvingen gemaakt.

Een case beschrijving kan worden beschouwd als een reeks min of meer aan elkaar gerelateerde feiten. Dit biedt de mogelijkheid om een scenario te construeren gebaseerd op deze feiten. In onze analyse zijn twee scenario's van belang: het aandachtbehoevende scenario en een scenario dat geen aandacht behoeft. Voor iedere case heeft het Maastrichtse team bepaald hoe waarschijnlijk een dergelijk scenario was op basis van de bekende feiten. Deze manier van denken is in lijn met de theorie van verhaal en verankering. Deze theorie stelt dat de aanwezigheid van enkel feiten die een bepaald scenario ondersteunen niet voldoende is om uitspraken te doen over de waarschijnlijkheid dat het scenario in overeenkomst is met de werkelijkheid. De theorie legt de nadruk op de relaties tussen de feiten en het feitencomplex als geheel. Op welke wijze een relatie kan worden geïnterpreteerd hangt af van algemene kennis over een dergelijke relatie en over het feit zelf. Naarmate deze algemene kennis sterker wordt ondersteund vanuit de empirie neemt het waarschijnlijkheidsgehalte van het scenario waarmee de feiten in lijn liggen sterker.

De criminologen identificeerden uiteindelijk 36 aandachtsbehoevende objecten. Van deze 36 objecten behoorden er 5 tot de controlegroep. De economen hebben deze 36 objecten aan een frequentie, correlatie en econometrische analyse onderworpen (daarbij gebruik makend van probit, logit, cloglog, OLS and dprobit modellen) om op deze wijze te achterhalen welk van de in de eerste stap toegepaste indicatoren het meest belovend zijn voor het identificeren van aandachtsbehoevende panden in de vastgoedsector.

Tabel: overzicht van de meest belangrijke bevindingen en indicatoren

No.	Indicator omschrijving	Frequentie analyse	Correlatie met	Econometri-sche analyse
Goede indicatoren				
5.2	Ongebruikelijke prijsfluctuaties	+	Aandachtsbehoevend	+ +
3.1	Buitenlandse eigenaar	+		+ +
3.9	Eigenaar zojuist opgericht bedrijf	+		+ +
Veelbelovende indicatoren				
1.2	Financier is een natuurlijk persoon	+	Sterk aandachtsbehoevend	+
3.4	Eigenaar met ongebruikelijk veel transacties	+	Aandachtsbehoevend	+
2.3	Hypotheek is afwezig	+		+
2.4	Hypotheek aan zichzelf	+		+
3.8	Risicovolle exploitatie	+		+
Zwakke indicatoren				
4.1	Object heeft meerdere transacties		Sterk aandachtsbehoevend	
2.2	Bedrag voor het hypotheekrecht staat niet in verhouding met de koopsom		Sterk aandachtsbehoevend	
3.12	Eigenaar is een wereldburger		Mild aandachtsbehoevend	
Flops				
5.1	Koopsom staat niet in verhouding tot de WOZ waarde	-	Sterk aandachtsbehoevend	-
3.3	Eigenaar heeft ongebruikelijk veel objecten			-
1.1	Buitenlandse financier	-		
3.11	Eigenaar is een bedrijf zonder werknemers			
4.2	Object bevind zich in een slechte buurt			
4.3	Object bevind zich in een geode buurt			

Bron: gemaakt door de auteur zelf. Een plusje in de kolom van de frequentie analyse geeft aan dat een relatief groot deel van de aandachtsbehoevende objecten hier een rode vlag scoorde. De kolom met correlaties geeft aan in hoeverre de indicator correleerde met een aandachtsbehoevend pand en met welke type aandachtsbehoevendheid. Al deze correlaties zijn positief op indicator 5.1 na. De laatste kolom geeft de resultaten van de econometrische analyse weer (waarbij gebruik is gemaakt van logit, OLS, C-log-log om de robuustheid te testen). ++ betekend significant (p<0,1) positief gecorreleerd, en +/- betekend dat er sprake is van een positieve of negatieve relatie die niet aan de statistische grenzen voldoet maar wel enige potentie daartoe heeft (p<0,3).

Het grootste effect gevonden met behulp van de econometrische analyse is dat objecten met ongebruikelijke prijsfluctuaties zijn geassocieerd met een toegenomen

kans van 25% voor een object om als aandachtsbehoevend te worden aangemerkt. Objecten die gekocht worden door een rechtspersoon die net is opgericht hebben een toegenomen kans van 24% om aangemerkt te worden als aandachtsbehoevend en dit geldt voor 15% in het geval van een buitenlandse rechtspersoon als eigenaar. Dit betekent dat als deze kenmerken gecombineerd worden gevonden, er sprake is van een kans van 64% dat het object als aandachtsbehoevend wordt aangemerkt. Benadrukt dient te worden dat het hier niet gaat om causale relaties.

Deze studie kan gezien worden als een aanvulling op de hedendaagse strategieën die worden toegepast in de opsporing en het toezicht. Verdergaande toetsing van de indicatoren en van de cases dient echter plaats te vinden om beter gefundeerde uitspraken over de kwaliteit van het instrument mogelijk te maken. Daarnaast moet de data verzameling worden verfijnd. Met name door het vastleggen van de kenmerken van meerdere transacties per object en in het bijzonder het vastleggen van de hypotheekhistorie. Daarnaast moet een dergelijke methodiek in de toekomst verder gedifferentieerd worden naar verschillende transactievormen en criminele gedragingen.

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