State-aided Price Coordination in the Dutch mortgage market

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Abstract

Historically, the Dutch mortgage market has been highly concentrated, yet competitive. During the financial crisis, in October 2008, all of the main Dutch mortgage providers but one, Rabobank, received State aid. In an attempt to offset distortions of competition feared to be brought about by the aid, the European Commission allowed the aid only under strict conditions, which included price leadership bans (PLBs). We show that margins on Dutch mortgages over the costs of attracting funds sharply increased upon the announcement of this ban, in May 2009. The PLBs effectively graduated the largest Dutch mortgage provider from a competitive to a collusive price leader. The thesis characterizes competitive and collusive price leadership equilibria in which the leader invests in superior market information, which followers subsequently deduce from prices. If price adjustment is sufficiently fast, all players prefer to follow. If products are sufficiently homogenous, leader and followers are better off in the collusive equilibrium. The core argument is that the (future) PLBs allow the price leader to punish deviation (by followers) from the collusive equilibrium harsher – as the PLBs in competition reduce the profits of the followers (essentially, the best-response in unconstrained competition is to undercut the leader slightly, but they are no longer allowed to do this). The anticipation of the PLBs so increases the space of delta's for which collusion is stable. As a result, anticipation of the PLBs sufficed to establish the observed regime shift. The model is shown to explain transaction price developments in the Dutch mortgage market prior to and during the financial crisis.

Key words: banking, competition, price leadership, State aid

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1. Introduction

In economics, it is widely recognized that banks are special. In their role as mediator between supply and demand for money, banks provide the world with liquidity. It is this special role that makes them vulnerable to instability. Especially after the outbreak of the worldwide credit crisis in 2007, the need for a stable banking sector became once again clear. This stability, together with the need to protect consumers, provides the motivation for safety arrangements by governments and the European Commission which we have seen so widely in the recent past. Policymakers, however, struggle to find the right mix of stability regulations and competition rules. Some say that financial stability should always take priority, while others argue that interventions already distort competition so heavily that competition rules should be applied even more vigorously.[1]

The recent financial crisis led to numerous bank failures and bailouts all around the World. In Europe, a large number of banks received to a greater or lesser extent support from their national governments and in the Netherlands, two of the three main banks received large amounts of aid. However, since the Treaty of Rome from 1957, State aid is in principle prohibited and only regarded compatible with the common market under strict conditions. Control of State aid has therefore from the start of the European Union been a core EU task.[2] The objective is to ensure that such interventions do not distort competition and a level playing field between Member States is protected. The EU government interventions were therefore closely monitored by the European Commission and, where necessary, adjusted or subjected to certain behavioural conditions. This to make sure that competition between financial institutions was restored or retained.

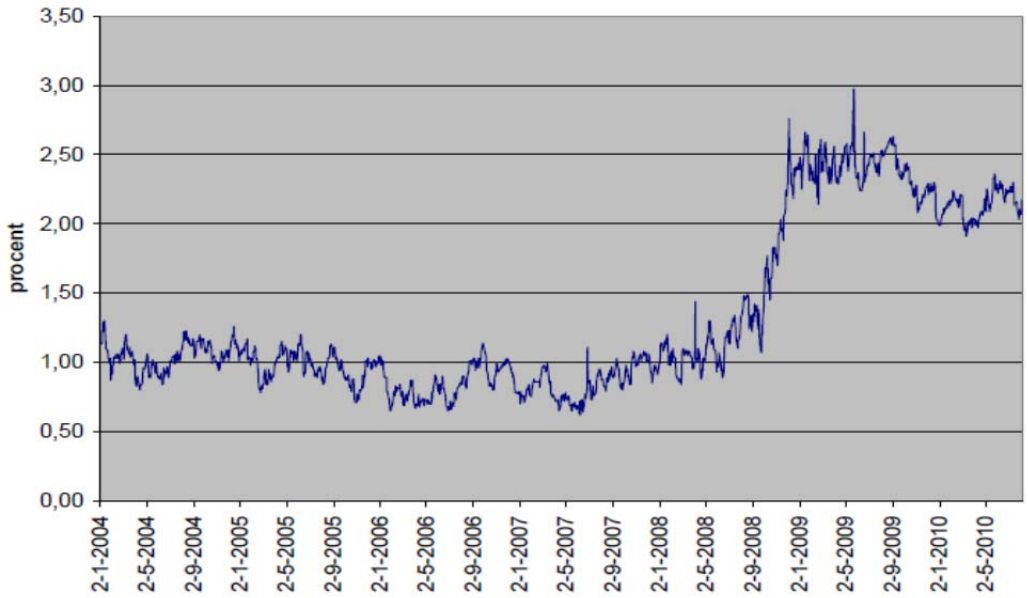
Recently, however, the adequacy of some of these behavioural conditions on the preservation of competition has been questioned. This thesis focuses on one of these behavioural remedies by the European Commission, namely the prohibition of price leadership by the State aided banks in the Dutch mortgage market. We examine whether the conditions could have had the reverse effect on competition and actually led to increased prices to consumers. As the regulations set up by the European Commission in this crisis will

[1] See for example Beck (2010) and Marinc (2011).
[2] Sutton, 2010.

be guidance for future intervention rules, it is important to carefully look into its efficiency and applicability.

The motivation behind this research is a recent report by the Dutch Competition Authority on the level of margins of the interest rates on Dutch mortgages.[3] In August 2010, several Dutch interest groups, including 'de Vereniging Eigen Huis' and 'de Consumentenbond' complained that margins had been unusually high since mid-2009 in historical perspective as well as compared to other European countries. According to figure 1.1, margins would have more than doubled compared to the cost of attracting funds, which raised the suspicion of illegal pricing practices. The NMa decided to investigate the matter and eventually published an official sector study in May 2011.

Figure 1.1. – Suggestive evidence of margin increase between 10-year mortgage rate and swap rate



Source: Verzoek tot nader onderzoek naar hypotheekrente van Nederlandse geldverstrekkers, Letter to the NMa, VEH, August 2010, p. 4.

The rise of the mortgage margins followed the outbreak of the financial crisis and the sub sequential exit of several (smaller) players in the Dutch mortgage market and the merger of ABN Amro and Fortis. Furthermore, in the same period, two of the three largest Dutch banks, ABN-Fortis and ING, were bailed out by the Dutch government. The NMa evaluated these developments in an in-depth investigation to assess what influenced the sudden rise in

[3] From now on NMa (Nederlandse Mededingingsautoriteit; NMa (2011); Sectorstudie hypotheekmarkt; een onderzoek naar de concurrentieomstandigheden op de Nederlandse hypotheekmarkt, Nederlandse Mededingingsautoriteit Den Haag, May.

margins. Even though the VEH and Consumentenbond considered the margin increase as evidence of malfunctioning of the market, the NMa concluded that the high levels of mortgage margins were not caused by unfair practices in the banking industry. According to the NMa, the rise was rather an effect of increased risk and cost in the provision of mortgage loans and increased concentration in the mortgage market. The authority had found no evidence that would indicate cartel agreements.

In the analysis, the NMa took into account the received State aid by several Dutch banks during the credit crisis and the subsequent conditions the European Commission installed to prevent unfair competition in the market. One of these conditions was a price leadership ban, which prohibited ABN-Fortis, ING and AEGON from setting prices that were more favourable than its (three) best priced competitor(s).[4] Beck et al. (2010, p. 56), an evaluative report on the effectiveness of State aid measures, points out the potential detrimental effect on competition that these price leadership conditions may have:

"Banks that are prevented from trying to be a market leader just become passive followers exerting no real competitive discipline on their rivals, as though in some publicly-sponsored cartel."

In the Netherlands this effect would only be stronger, as all, but one, major mortgage providers were subjected to the measure.[5] Even though the European Commission seemed to have been aware of the potential distortions that could be caused by the conditions, the Commission nevertheless decided to implement the measure.

In the sector study of the NMa, the price leadership conditions are briefly discussed, but do not receive substantial consideration. The NMa quickly discards them as a potential explanation, due to the fact that the PLBs were implemented several months after the initial rise in interest rate margins. However, given their potential detrimental effect, some closer scrutiny might be needed. Taking into account the commotion after the publication of the NMa report, the conclusions of the sector study do neither seem sufficient nor satisfactory to explain the sudden increase in mortgage margins.

[4] ING was not allowed to price better than its three best priced competitors, while ABN-Fortis and AEGON were merely not allowed to undercut its first best priced competitor.
[5] E.g. Rabobank

In this thesis we therefore further investigate the behavioural conditions the European Commission imposed on the Dutch banks. This thesis examines in detail what happened in the period before the actual implementation of the price leadership conditions and suggests that expectations about the conditions could have changed the price setting behaviour in the industry. Even though the first price leadership conditions were not set until November 2009, the European Commission already spoke about behavioural remedies of this kind in its first Communication in October 2008.[6] Evidence indicates that the only non-aided bank, Rabobank, even lobbied for conditions of this kind in Brussels. It is therefore not unlikely that the Dutch banks anticipated these conditions well before the measures were eventually enacted. In this way the EC conditions could have worked as a commitment device to change the competitive setting and reach an early adjustment towards a (tacit) collusive price equilibrium.

To argue that such an adjustment could have taken place we develop a theoretical model that can explain a shift towards collusive pricing. The literature of Industrial Organization provides numerous models on competitive behaviour in all sorts of industries. To study the effect of competition distortions, exogenously or endogenously arisen in the market, it is essential to take into account the specific nature of the industry. This thesis therefore first examines the existing literature on competition and banking. Our model subsequently aims to show the effect on competition of an exogenous measure on the endogenous behaviour in an oligopolistic industry. The model explains in which way the announcement of the EC conditions could have influenced pricing decisions in the Dutch mortgage market. My central research question is:

What is the most plausible explanation of the increase in Dutch mortgage interest rate margins around mid-2009?

This question is answered following the subsequent structure. In the first chapter the structure of the Dutch mortgage market is sketched and the relevant literature on competition in banking is surveyed. The chapter furthermore develops the theory of price leadership and the conditions for the emergence of a price leader. The theoretical and

[6] EC2008/C 270/02 - Communication from the Commission - The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis, 13 October, 2008

empirical evidence is used to specify a model for price setting behaviour in the Dutch mortgage market. The second chapter gives an overview of the developments in the Dutch mortgage market and shows what happened during the financial crisis. This section is followed by an overview of the study of the NMa and a critique on their report. This provides the motivation for the further examination into the given State aid to the large Dutch banks. We will extensively study the period end-2008 to end-2009 in chapter three to show how the behavioural conditions of the EC evolved. In the subsequent chapter we will use these findings to adjust the theoretical IO model from chapter one to allow for collusive price setting and show how the expectations of the EC conditions could have caused a shift from one equilibrium to the other. The final chapter concludes and provides recommendations for future study and policy intervention.

2. Competition and the Dutch mortgage market

The banking sector plays an essential role in the functioning of economic transactions in our economy. Something that was once again proven in recent years by the impact of the financial crisis. The mortgage market forms an important part of this sector both in scale as well as in complexity of its products.[7] This chapter analyses the Dutch mortgage market, which displays some particular features compared to other European countries. The structure of and the players in the market are evaluated and competition issues are analysed. Specifically, we study two aspects of competition in this market: the influence of concentration on competition and price leadership. The final section provides a theoretical framework to capture the market in a model.

2.1. Structure of the market

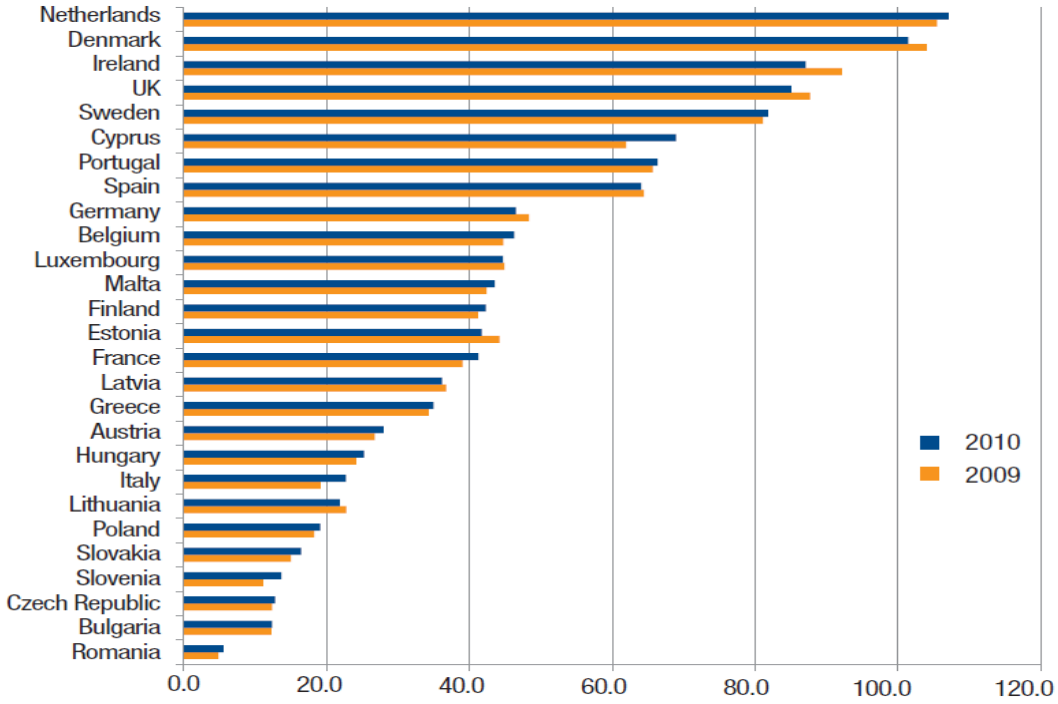
A vast majority of households relies on external financing when buying a house, generally in the form of a mortgage. A mortgage is a long-term[8] loan whereby the house functions as collateral for the loan. Mortgages are provided in many varieties and differ among other things in redemption period, interest rate period and closing fee. The majority of the people chooses an interest rate that is fixed for 5 to 10 years.[9] Mortgages can therefore not be regarded as completely homogeneous products. However, within the different mortgage types, mortgages with comparable interest rate periods and redemption periods can be considered considerably good substitutes among providers when controlling for these characteristics.[10]

In the Netherlands the market for mortgages is remarkably large. There are around 3.6 million households with a mortgage, with a total outstanding value of around 630 billion euros.[11] The residential mortgage debt as a percentage of GDP was around 107 per cent in 2010. As figure 2.1. shows, this amount is extremely high compared to most other European

[7] In 2000 the supply of new mortgage loans accounted for 45-50 per cent of total market volume, while the volume of outstanding loans was even higher. From: Haan & Sterken, 2006.
[8] Generally around 30 years
[9] E.g. about 40 per cent. Source: NMa, sector study Hypotheekmarkt, 2011
[10] For example: a 5 year fixed NHG mortgage of two different providers can be considered reasonably homogeneous. See also: Hassink, W. & Leuvensteijn, M., 2007, p. 28.
[11] European Mortgage Federation, key figures 2010.

countries. The Dutch figures are however somewhat distorted, because most Dutch mortgages are saving mortgages in which part of the repayment is kept on a special savings account. The real mortgage debt is therefore smaller than depicted in Figure 2.1., but due to a lack of reliable data we are not able to take mortgage debt net of these savings.

Figure 2.1. – Residential mortgage debt as percentage of GDP in the Netherlands in 2009 & 2010



Source: European Mortgage Federation, Hypostat 2010, A review of Europe's mortgage and housing markets, November 2011.

A significant share of Dutch mortgages is State guaranteed by the so called National Mortgage Guarantee (NHG). If a homeowner fails to repay (part of) his mortgage, under specific conditions, a guarantee is provided by the 'Stichting Waarborgfonds Eigen Woningen' that was founded in 1993 by the Dutch government. This guarantee not only decreases the risk for mortgages providers, but also provides more certainty for homeowners. Furthermore, in contrast to many other European countries that abolished the system years ago, mortgage interest payments are almost fully tax-deductible in the Netherlands.[12] This makes a mortgage between 35 to 50 percent cheaper, depending on the household income tax bracket. As an effect, the Dutch mortgage market is characterized by a high incidence of complex mortgage structures and a high loan-to value ratio of typically 90

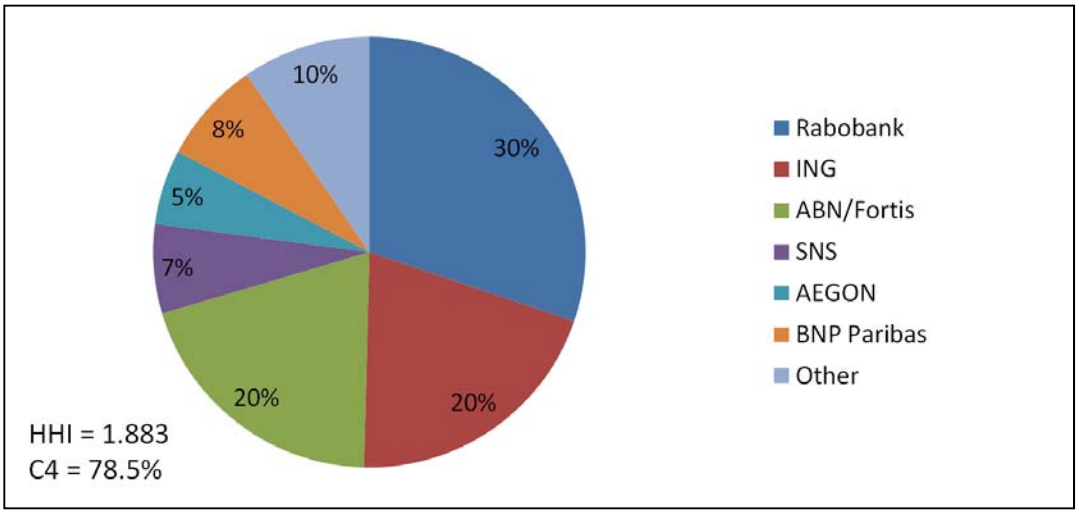
[12] The so called, and recently highly debated, 'hypotheekrenteaftrek'.

per cent. For comparison, the average EU ratio is almost 20 per cent points lower.[13] This is also the reason why Dutch residential mortgage debt as a percentage of GDP is so high compared to other countries.

2.1.1. Market players

The most important mortgage providers in the Netherlands are banks. While analyzing the players in the market it is important to make a distinction between bank holdings and bank subsidiaries or brands, as most companies use several brands to sell their products.[14] Looking at Dutch bank holdings there exist three major players in the market: ING, Rabobank and Fortis-ABN Amro and one smaller player, SNS, as also displayed by figure 2.2. Apart from these players, several foreign banks operate(d) on the Dutch market through subsidiaries, such as BNP Paribas, RBS and Argenta. Besides banks, insurance companies and pension funds are also active in the Dutch mortgage market. Important players are inter alia AEGON and Delta Lloyd.

Figure 2.2. – Overview of market shares of Dutch mortgage providers in 2010 (based on newly registered mortgages)



Source: NMa, sector study Hypotheekmarkt (2011), p. 20.

Looking at figure 2.2. it becomes clear that the market is highly concentrated. Considering market brands, there exist around 70 to 90 mortgage providers, but taking into

[13] E.g. the average EU ratio was around 71 per cent in 2004. From: Sterken, 2006.
[14] Florius, MNF Bank and MoneYou are for example all subsidiaries of ABN Amro

account their overarching holdings, we are left with 6 significant players.[15] The three biggest players in the market comprised more than 70 per cent market share in 2010. Rabobank has historically been the biggest player on the market, followed by ING and the combination Fortis-ABN.[16] We will refer to these three as 'the large banks' in the remainder of this thesis.

2.1.2. Market oversight

Given the high concentration in the industry and the economic importance of the sector, the former Minister of Finance, drs. G. Zalm, and the former General Director of the NMa, Mr. A.W. Kist, agreed in 2003 that the NMa would expand the supervision of the financial sector.[17] This underlined the awareness that structural attention to the sector was of great importance. With support of the Ministry of Finance the NMa set up a special support team that closely monitors the financial market, the so-called Monitor Financial Sector (MFS). This team of specialists carries out market studies into competition in the market on a permanent basis and publishes a Financial Sector Report once a year.[18]

Due to the large amount of mortgage debt, the sensitivity of the housing market to macroeconomic developments is considered to be substantial. Sterken already pointed out in 2006, that this makes the Dutch economy vulnerable to shocks. Sterken (2006) argues that even if competition in the market would be perfect, economic instability could highly disrupt the market. Therefore, given the importance of the housing market, special care should be taken with respect to the competitive environment. The next section covers a closer examination of competition in the banking industry and provides theoretical and empirical evidence of competitive settings in banking and the Dutch mortgage market specifically.

[15] E.g. more than 5 per cent market share
[16] See NMa, sector study Hypotheekmarkt, 2011.
[17] NMa, Monitor Financial Sector, report 2003.
[18] Due to unknown reasons no report has been published in 2011. The 2010 report does not mention (competition in) the Dutch mortgage market

2.2. Competition and banking

The literature on competition and banking generally points to the existence of a trade-off between stability and competition. Even though competition is not responsible for instability, more competitive pressure can worsen coordination between investors and depositors. The idea is that stronger competitive pressure enlarges the perceived fragility of a bank by investors. According to Vives (2010), this increases the likelihood of a self-fulfilling crisis due to a bank run by investors and depositors. Furthermore, an increase in the level of competition beyond a certain threshold can increase the incentive for excessive risk taking, as a bank has 'less to loose' than in a monopolistic situation. Increased competitive pressure puts more stress on banks that operate less efficiently and have higher marginal costs. In recent years for example, innovation and competitive pressure led to a focus on increased marketability of financial products, which induced extreme risk taking.[19] These effects together increase the likelihood of bank failure when competition intensifies and can lead to the exit of banks. Exit of banks is never good for the stability of the financial sector as it not only hurts consumers, but also other banks that are connected in the large financial network through interbank lending, the so-called contagion effect. This implies high social cost in case of bankruptcy.

Other authors, on the contrary, find evidence for the argument that stability measurements do not necessarily impair competition. Boot and Marinc (2005) conclude that higher capital requirements could encourage entry in an industry where banks of different quality are operating. Entry in the market increases the competitive pressure, while capital requirements, under certain conditions, can bring more stability. Furthermore, capital injections by the government aim to overcome liquidity problems of banks and increase financial stability in the market. The bail-out of a bank not only can improve stability, it can also support a competitive environment, as the exit of a player in the market means also the exit of a former competitor.

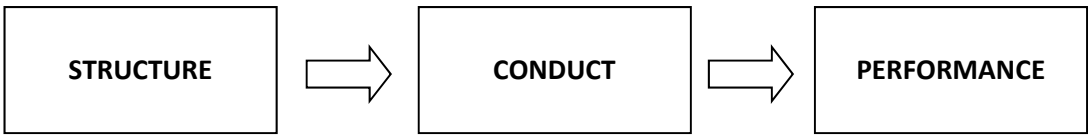
So, even though the trade-off between stability and competition is not completely unambiguous, the banking sector has always occupied a special role in the area of competition policy and has been characterized by close monitoring.

[19] Boot & Marinc, 2011.

2.2.1. Competition and concentration

In traditional industrial organization theory, competition is in general determined by the number of players in a market and their relative market share. The more concentrated the industry is, the less competitive pressure the players experience. The practice of using concentration ratios to evaluate competitive pressure in a market is based on the general theory of structure-conduct-performance (SCP-approach). This approach states that a firm's performance depends on the conduct of the firm, which is in turn determined by the structure of the industry. In a competitive market environment, individual firms are assumed to be too small to be able to individually affect the market price, while in a more oligopolistic situation prices are determined by a player's conduct.[20] According to the SCP approach, perfect competition brings the most efficient market structure, as consumers pay the lowest possible price and dead-weight loss is minimized. An increase in concentration would lead to an increase in market power and would therefore imply a deterioration of efficiency and social welfare.

Figure 2.3. – Overview of the SCP-hypothesis



Whenever a player is leaving the market, due to bankruptcy or a merger for example, two effects come into play: unilateral effects and coordinated effects. Unilateral effects arise when a decrease in the number of firms provides individual firms with an incentive to raise prices, irrespective of the pricing decisions of the other firms, possibly due to the creation of a dominant position. Coordinated effects, on the other hand, arise if the increase in concentration leads to interaction by a group of firms that is profitable for each of them, given the reaction of the others. This can result in an increased likelihood of (tacit) collusion.[21] Due to these effects, competition decreases when concentration increases, according to the SCP approach.

[20] Cetorelli, 1999.
[21] Olczak, 2009.

Contrary to the Structure-Conduct-Performance approach, the Relative-Efficiency approach focuses more directly on the conduct of the firm, instead of on the structure of the industry.[22] This so-called non-structural hypothesis, suggested by Demsetz (1973) and others, states that the performance of a firm is not influenced by the concentration in the industry, but that, vice versa, market concentration reflects efficiency. The Relative-Efficiency approach assumes that a firm's performance is based on its efficiency. The most efficient, low-cost structured firms can increase profits by lowering their price and gain market share. Therefore, there exists a positive relationship between firm profits and the concentration of the industry, not caused by dominant or collusive behaviour, but caused by the efficiency of certain firms.[23] The Relative-Efficiency approach does therefore disagree with the traditional assumption that an increase in concentration hurts competition and decreases social welfare. Rather, the market structure changes as an effect of competition. Strong competitive pressure can force firms to increase efficiency and reduce costs, for example through scaling.[24] This would increase concentration as a result of increased competition. The causal relationship between concentration and competition is therefore ambiguous.

Figure 2.4. – Overview of the RE-hypothesis

The hypothesis of the SCP approach that structure influences performance can easily be tested empirically by regressing firm profits on a concentration measure, such as HHI or C3 ratios.[25] The hypothesis cannot be rejected if the coefficient is positive and significant.[26] Evidence of empirical studies on the SCP hypothesis is generally mixed, however. Bikker & Haaf (2001), for example, test for the impact of market structure on competition in banking and find support for the SCP hypothesis that concentration impairs competition. Other influential papers, like Berger & Hannan (1989), perform a cross-section analysis of the banking industry. Based on data of 470 banks in 195 local banking markets between 1983-85,

[22] Cetorelli, 1999.
[23] Molyneux and Forbes, 1995.
[24] Bikker & Spierdijk, 2011.
[25] The HHI ratio is the sum of the squared market shares of all firms in the industry; the C3 ratio is the sum of the market shares of the three largest players. The higher the ratios, the more concentrated the industry is.
[26] Toolsema, 2003.

the authors find that deposit rates are significantly lower in markets with higher concentration ratios. An extensive study of Gilbert (1984), however, in which he compares the results of 45 empirical studies that are based on the SCP approach, does not consistently accept the hypothesis. He concludes that only half of the studies show a significant positive relationship between concentration and prices.

Several other studies suggest that the relationship might not be monotonic as assumed by the SCP hypothesis. Jackson (1992) suggests that the SCP holds for low levels of concentration, but becomes insignificant and either changes to the opposite when concentration is large. In an assessment of the Italian banking industry both Cetorelli (1999) and Coccorese (2004) find that there is no conflict between competition and concentration in the banking industry, as banks had been characterized by competitive conduct, despite of their large market shares. Other studies, like Neave and Nathan (1991) and Claessens and Leaven (2004, p. 19) even find a positive relationship between concentration and competition. The latter states that: "More concentrated banking systems face a greater degree of competition".[27] Strong empirical and theoretical evidence that describes a one-to-one relationship seems to lack. It is therefore hard to identify the true relationship between concentration and competition.

More recent work, the so-called 'new empirical industrial organization' literature leaves the SCP and RE approach. This literature focusses on specific bank level models to test for profitability, such as the Panzar-Rosse model and the Bresnahan-Lau test. The Panzar-Rosse model[28] tests for the effect of changes in input prices on a bank's profitability using bank-specific data. The model tests for imperfect competition by measuring the impact on bank-level revenues when factor input prices vary. The Bresnahan-Lau test[29] is a conjectural variations model that examines the extent to which a firm's pricing policy depends on the prices of its competitors and its response to an output change. This depends on the competitiveness of the industry as a whole, such that the model can test for imperfect competition. These tests take account of the fact that concentration ratios not always tell us something about the competitive pressure in the industry.

[27] See also Boot, 2007.
[28] Panzar & Rosse (1987)
[29] Bresnahan (1982).

2.2.2. Evidence of competition in the Dutch mortgage market

We now turn to the discussion of some empirical literature using the Panzar-Rosse and the Bresnahan-Lau model to evaluate competition in the Dutch banking industry. The European Commission several times raised their concern about insufficient competition in the European banking market, especially due to the high concentration and potential high barriers to entry.[30] Numerous authors empirically investigated competition in the market using the Bresnahan-Lau and the Penzar-Rosse methods. In general, the evidence of competition in the banking industry as a whole is mixed. Molyneux et al. (1994), for example, uses the Panzar-Rosse method to test for competition in major European banking markets and finds that the markets in Germany, Spain, France and the UK are characterized by monopolistic competition. Bikker and Groeneveld (2000) find similar results when applying the Panzar-Rosse method to the European Union as a whole and Neven and Röller (1999) find evidence of market power in the European banking markets using the Bresnahan-Lau method.

Other studies, however, cannot reject the hypothesis of perfect competition. Toolsema (2002), for example, assesses the degree of competition in the Dutch consumer credit market by using the Bresnahan-Lau test. The results indicate that there is no evidence of market power. In the same year, Bikker and Haaf (2002) use the Panzar-Rosse model and find evidence that large banks compete perfectly with each other, while small and medium-sized institutions are faced with imperfect competition.

For the Dutch mortgage market in particular, results seem to be more conclusive when considering studies that use the "new empirical industrial organization" approach. While some papers based on the SCP or RE hypothesis do find evidence for imperfect competition, there seems to be a lack of evidence for market power when examining more recent studies. Corvoisier and Gropp (2002), for example, conclude that the customer and mortgage loan markets are characterized by market power. This paper does however use the SCP approach and bases its conclusion on the observation that firms seem to price less competitively when concentration increased. The reports of the Monitor Financial Markets of the NMa do not address the mortgage market in depth between 2003 and 2009, but the

[30] Communication from the European Commission (2007), Communication from the Commission: sector inquiry under art 17 of Regulation 1/2003 on retail banking.

2003 report raises concerns about the lack of transparency with respect to switching possibilities for consumers. The report furthermore indicates that there might exist market power in the Dutch mortgage market; a conclusion based on the SCP hypothesis.[31]

On the contrary, Swank (1995) applies the Bresnahan-Rosse method to the Dutch loan and deposit market and tests for the degree of oligopoly. He finds that competition for mortgage loans has significantly intensified since late 1950s, while the market for saving deposits became less competitive. Bikker (2003) also applies the Bresnahan-Lau method to the European loan and deposit market and does not find evidence for imperfect competition in the Dutch market either. In a working paper published by the Dutch Central Bank, de Haan & Sterken (2006) perform an empirical analysis based on the Bresnahan-Lau model to study the price setting behaviour of Dutch banks. Their study shows similar results and concludes that the market is characterized by competitive price setting. Based on a study of Coccorese (2005), a conjectural variation parameter λ is developed that indicates whether a firm expects its competitors to match its price. When λ = 1 it means that all rivals perfectly match the price of the bank, which would indicate collusion. When λ = 0 firms no do respond to each other and when λ goes to minus infinity the bank is undercut by its rivals, which would imply perfect competition. De Haan and Sterken find the conjectural parameter for all banks to be negative. Given the outcome of these studies and the lack of further evidence of anti-competitive behaviour, the Dutch market for mortgages seems to be competitive.

2.2.3. Evidence for price leadership

The above discussion brings us to the last step of determining competitiveness of the Dutch mortgage sector. That is, the study of De Haan & Sterken (2006) not only investigates the amount of competition in the market, but also the sequence in price setting of banks.[32] De Haan & Sterken use three different methods to test for the interest rate setting behaviour for 5- and 10-year contracts of mortgage loans. In their analysis they incorporate the data from the four largest Dutch banks during the period 1997-2003. The goal is to determine to

[31] NMa, Monitor Financial Sector, report 2003.
[32] Toolsema & Schoonbeek touched upon this issue in light of a Stackelberg Duopoly in a paper of 2000 (On the Effects of Industry-Wide Cost Changes in a Stackelberg Duopoly).

what degree banks respond to changes in funding costs and in which way the banks are responding to each other.

First of all, a Vector Error Correction Model is estimated using daily data on bank-level. This model shows that the pricing behaviour of each of the banks is influenced by the pricing decision of the other banks. Subsequently, De Haan and Sterken test for price leadership by one of the banks using a discrete choice model. The dependent variable in this model is the decision to change the interest rate or not, again using daily data. The results show that one of the banks (Bank A) unilaterally influences the decision of its competitors. All other three banks follow Bank A when setting their price, such that Bank A can be regarded the price leader. Finally, a conjectural variation model estimates whether firms still price competitively despite of the fact that there is a price leader. The results imply that even though one bank may act as a price leader, this does not withhold the other banks to set their interest rate competitively. Competitive in the sense that rivals may decrease their price by more than the price leader or increase their price by less.

Discussions following the paper of De Haan & Sterken indicated that there was not much disagreement on the identity of 'Bank A'. Several discussions with players in the market made clear that even though Bank A should absolutely remain anonymous in the working paper, it is generally assumed that this bank is Rabobank. Rabobank is the largest player in the market and our interviews confirm that there exists a strong presumption about the price leader in this industry.

The fact that the Dutch mortgage market seems to be characterized by price leadership is an interesting result, as the empirical literature shows significant evidence for competitive prices. Perfect competition is generally not associated with an industry conduct of price leadership, because price leadership is generally regarded as an effective means to avoid competition. To explain how it is possible that competitive interest rates arise, despite the existence of a price leader, we now turn to the development of a theory of price leadership in banking.

2.3. Models of price leadership

Industrial Organization economists consider firms in an industry to either choose a price or a quantity, when determining their position in the market. Competition can therefore occur in

price, known as Bertrand competition; or in quantity, referred to as Cournot competition. Competition in an oligopolistic industry can be simultaneous, or sequential. In case of quantity competition, this market structure is referred to as the Stackelberg equilibrium, after Stackelberg (1952). In such equilibrium, one firm is the leader and is the first to set its quantity, the other players follow and serve the remainder of the industry. In the banking industry, however, players are generally assumed to compete in prices, e.g. interest rates.[33] A Stackelberg equilibrium is in this case transformed into a price leadership equilibrium. The classical literature on price leadership by, for example, Stigler (1947) and Markham (1951), describes price leadership as an industry practice in which one firm sets its price and the other firms follow the leader's initiative. According to Stigler, however, price leadership is used in two very distinct senses in the literature: dominant price leadership and barometric price leadership.

2.3.1. Dominant price leadership

Dominant price leadership is the most well-known form of price leadership. A dominant firm, e.g. the firm with the largest market share, chooses his price and allows the smaller players in the market to sell what they wish to sell at the given price. Subsequently, the leader supplies the remainder of the demanded quantity.[34] This type of price leadership assumes that the leader can set the price and this price is taken as given by the small competitive fringe, which faces a perfectly elastic demand schedule. The dominant firm will therefore set the price that maximizes his total expected profits. Prices will consequently be higher than under normal Bertrand competition. This type of leadership has been the focus of most theoretical models. These models, however, cannot explain price leadership in an oligopolistic setting with several equally sized firms. In such a market, the other large firms will not take the price as given, but will act strategically.[35]

[33] See Toolsema, 2003, p. 5
[34] Stigler, 1947.
[35] Rotemberg & Saloner, 1986.

2.3.2. Barometric price leadership

The second sense in which price leadership is used in economic literature allows for a multiple of equally sized firm. This theory of price leadership refers to a situation in which one firm conventionally is the first to announce a price. The remainder of the firms usually follows, even though the leader has no power to force its rivals to charge the same price. The price leader is assumed to respond more quickly to changing market conditions and acts as a barometer for the rest of the industry. This type of price leadership is usually referred to as barometric price leadership. According to Markham (1951, p. 898):

"The barometric firm possesses no power to coerce the rest of the industry into accepting its price. It simply passes along information to the 'Big Three' or 'Big Four'"

Prices that reveal under barometric price leadership are usually close to the price that would emerge under perfect competition.[36]

Several essential features of the industry that would be typical to the phenomenon of barometric price leadership have been recognized by the literature. Lanzillotti (1957) and Cooper (1996) summarize the most important ones as follow:

1. The number of firms in the industry can be small and concentration can be high, but there is a significant competitive fringe.
2. Product differentiation is possible, but products are fairly good substitutes to products of other rivals and differences in quality are easy to imitate.
3. Entry to the industry must not be too difficult, mainly restricted by scale or capital requirements.
4. Firms face small, but sufficiently different cost curves and the competitive fringe does not produce at full capacity.
5. Followers usually do not exactly match the price of the leader, but undercut it.
6. Unless the price leader has showed "unusual adeptness" in its response to demand changes, the identity of the price leader usually changes occasionally.

[36] Cooper, 1996.

This list of features is based on characteristics that have been distinguished in a number of industries in which barometric price leadership had been observed at the time, such as the newsprint industry, the gasoline industry and the airline industry.[37]

As barometric price leadership can arise in a market situation where several large firms are operating, it is not necessarily the largest firm that acts as the leader; even though in practice this frequently is the case. Several papers studied the emergence of a price leader and a number of potential causes have been identified. One of the most frequently studied sources of leadership is based on differences in capacity, in which the high capacity firm acts as a leader.[38] Another well-known argument is an asymmetry in cost, as proposed by inter alia Damme & Hurkens (2004). They build a two-stage model in which waiting is more risky for the efficient firm than for the inefficient firm, such that the low-cost firm endogenously arises as the price leader. Other papers base the emergence of a price leader on differences in quality[39], brand loyalty of consumers[40] or information asymmetries[41]. At least, price leadership usually arises due to structural characteristics of the market.

2.3.3. Stackelberg wars

Von Stackelberg (1952) already discussed in early work that oligopolistic firms that act strategically, generally have preferences over which role they want to play. In many situations both firms prefer to take on the same role. In case of quantity competition, both firms typically prefer the leadership position. A puzzle arises in which both firms try to obtain the leadership role, also called a Stackelberg war. In case of price competition, the situation usually is reversed; in which both firms prefer to be a follower. The intuition behind this is simple: the leader sets his optimal price that will be higher than the price that would arise under Bertrand competition. The follower, subsequently, is able to slightly undercut the leader and reap a larger share of total profits.[42] Therefore, institutional and historical features of the industry, instead of players' preferences, usually determine which player becomes leader and which player becomes follower.

[37] Cooper, 1996.
[38] See for example Deneckere & Kovenock, 1992.
[39] Anderson & Kovenock, 1993.
[40] Deneckere et al., 1992.
[41] Cooper, 1996.
[42] Damme & Hurkens, 2004.

2.3.4. Price leadership in the Dutch mortgage market

Comparing this theoretical framework of price leadership with the situation on the Dutch mortgage market, it appears that the Dutch market has historically been characterized by a form of barometric price leadership. As explained in the first section of this chapter, the Dutch market is oligopolistic in nature, with three large firms operating against a much smaller competitive fringe. None of the firms comprises a dominant position, such that the demonstrated price leadership cannot be of the first form. Furthermore, prices seem to be competitive, which points towards a situation of a price leader that acts as a barometer for the remainder of the industry.

The Dutch mortgage market complies with most of the typical features of market structure and conduct outlined above. The market is characterized by several equally sized firms, together with a substantial competitive fringe, products are differentiated but close substitutes and entry barriers were, at least before the crisis, not considerably high. According to the Chief Economist of Rabobank, Wim Boonstra, the only real barrier is the financial constraint.[43] The next chapter therefore develops a theoretical model of barometric price leadership that captures these feature of the Dutch mortgage market and attempts to describe how prices in the market are determined.

2.4. A model of barometric price leadership

Based on the theoretical and empirical evidence from the previous section, the model developed in this section describes the sequential price setting behaviour in the Dutch mortgage market. The model investigates how a price leader could have emerged and how market prices can still be competitive despite the existence of this leader. The model relies on classical models of barometric price leadership as first introduced by Stigler (1947) and Markham (1951) and later extended by Rotemberg & Saloner (1986) and Cooper (1996). But first, we describe how a price leader in the Dutch mortgage market historically could have emerged.

[43] Wim Boonstra in a presentation he gave on November 18th in Bergen following the sector study report of the NMa.

2.4.1. Emergence of an endogenous price leader

In the existing literature not much has been written about the endogenous emergence of a price leader. Standard game theoretical models often impose the sequence of price setting exogenously. Several papers however, did, as explained above, develop theories on the endogenous determination of the leader. Some build their theory on the existence of asymmetry in cost. Others provide approaches that are based on asymmetry in capacity constraints, quality or brand loyalty. In case of the Dutch mortgage market neither asymmetry in costs, nor asymmetry in capacity constraints seems to be applicable, as the large financial institutions generally have similar access to capital markets. Furthermore, mortgage products are regarded to be fairly good substitutes, such that large differences in quality or brand loyalty are not to be expected. Several other authors have founded their model on the assumption of asymmetric information, as introduced by Rotemberg & Saloner (1986) and more recently by Cooper (1996). The model developed in this section follows the reasoning of these authors.

To explain how asymmetry in information could have led to the emergence of a price leader in a market that seems to be largely transparent, we should considers the situation of the Dutch mortgage market in an historical perspective. We show how a price leader could have emerged *historically*, which determined the necessary conditions for the *present-day* industry. In Markham (1952, p. 896):

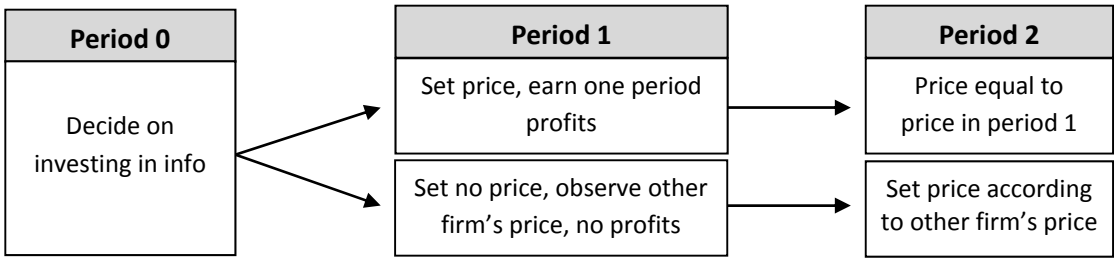
"The reasons why a particular firm is the barometric firm must be found in the historical background of an industry and the institutional and other features which have shaped its development"

Evidently, in the last decades, many things changed in the characteristics of the banking industry. Technological progress, advanced computers and the development of the internet allow banks nowadays to perfectly observe each other's prices and instantly change them. However, some decades ago prices could not be adjusted as easily and it was only possible to observe each other's price after the start of a sales period. Furthermore, relevant information about demand and cost was a lot harder to gather and a lot less transparent than it is now. Financial institutions selling mortgages differ from other firms in the sense

that they commit themselves to a certain interest rate for a fixed period of time.[44] These institutions therefore have to make an accurate estimation of future cost in order to make no large losses on their mortgage portfolio. A bank's cost are usually assessed by the EURIBOR rate, the Euro Interbank Offered Rate, a benchmark rate on the money market against which interbank lending takes place and serves as a benchmark for the development of cost. The EURIBOR interest rate depends heavily on market characteristics. In the past, information about these cost and demand characteristics was not as heavily available as it is now and was therefore more costly. The fact that the banking sector was much more rigid and less transparent in the past is exactly what is used as the setting for our model of endogenous price leadership.

You could think of it as in the following story. Suppose there are two banks, each on one side of a street. Each day demand for mortgage loans is unknown, which makes it hard to determine their optimal price. However, in the middle of the street a kiosk sells the morning newspaper, which contains the relevant information about demand. Both firms can opt to buy a newspaper and incur the cost of it, or wait until the other bank buys one and observe their price first. In the meanwhile, however, the informed bank can start selling mortgages, while the uninformed bank cannot, as it did not set a price. Prices cannot be changed easily, so once prices are set they cannot be adjusted for the rest of the day. Both firms therefore have two options: buy the newspaper or wait and determine demand from the other firm's price.[45] Figure 2.5. provides a graphical illustration of the sequence of moves, in which players decide to buy a newspaper or not in period 0, set a price or wait in period 1 and set a final price according to all available information in period 2.

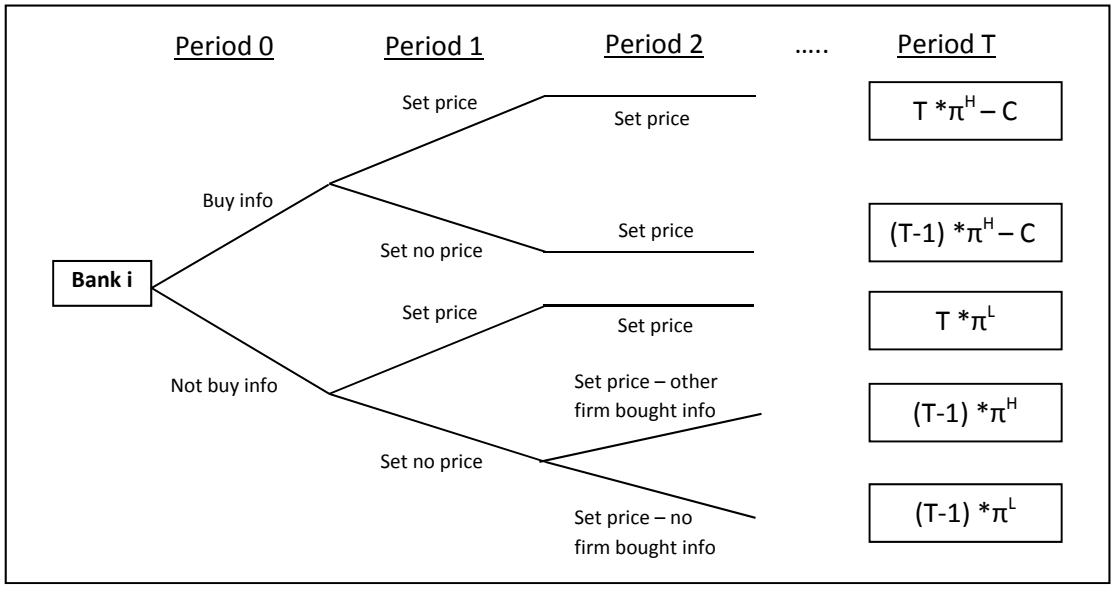
Figure 2.5. Schematic structure for historical price setting behaviour in the banking sector



[44] E.g. depending on the term of the mortgage
[45] Cooper, 1996.

In this model, competition is therefore assumed to take place in a two-stage game, in which the firms decide whether to acquire information in the first stage and set prices in the second. The firms face similar demand functions and at the start of each period the firms do not have the exact knowledge of what cost and demand will be. The firms can opt to buy or invest extra effort to acquire information, or they can wait until the other firm buys information and sets its price. In each period the firms can decide to buy information against cost *C*, which gives them perfect information about future demand. The other firms cannot observe this decision and information cannot be credibly communicated. Cost *C* is assumed to be larger than the profits from a single period, but *C* goes to zero in the limit, such that in the limit at least one firm finds it profitable to invest in information. The game consists of *T* periods and in the limit T goes to infinity; before *C* goes to zero as suggested by Cooper (1996). It is important to note that T goes to infinity before *C* goes to zero, which implies that *C* is always larger than the lost period profit if T goes to infinity.

Figure 2.6. – Two-stage game in which each firm can opt to buy information and then set its price



At the start of each period the firms decide to set a price or wait until the next period. Not setting a price at the start of a period implies losing that period of sales and prices cannot be reset in a later period once they are set (two assumptions that will be relaxed in a later section). In the second stage of the game the firms compete in prices. Figure 2.6. graphically displays the decision tree of each firm, whereby firms opt to buy information in period 0 and decide on setting a price in period 1. Setting the 'right' price based on

information will yield expected profits π^H, while setting a price not based on information will result in lower expected profits of π^L. Not setting a price in period 1 will result in a lost period of sales, such that total profits will be equal to (T-1) * π^i. In this way expected profits in period T are calculated for every decision nod.

Several outcomes are possible: 1) all firms buy information; 2) no firm buys information; 3) only one firm buys information; 4) all firms set a price in the first period; 5) only the informed firm sets a price in the first period; 6) an uninformed firm sets a price in the first period; 7) no firm sets a price in the first period. With some propositions following the reasoning of Cooper (1996) this section shows that asymmetry of information can lead to an unique equilibrium outcome of endogenous price leadership. In this equilibrium the informed firm sets its price in the first period, while the other firms choose not to buy information and set prices in the second period. Below, we concisely describe the most important implications of the propositions, but for a more detailed analysis we refer to the paper of Cooper.

First of all, we can prove by contradiction that at least one, bút only one firm will buy information. Suppose neither firm buys information and prices are simultaneously set in the first period. Either firm can do better by buying information at cost *C*, which goes to zero in the limit, and use this information to set their price. This gives them a higher payoff when T goes to infinity, as T *π^H – C is larger than T*π^L in the limit. Now suppose both firms buy information and prices are set sequentially. As both firms are equally well informed, the follower can always do better by setting prices simultaneously and win an extra period of sales, e.g. T *π^H – C is larger than (T-1) *π^H – C. So, since the game is now symmetric, prices will be set simultaneously and the equilibrium changes to a Bayesian price equilibrium. As *C* is larger than the single period profits, it is more costly for the firm to buy information, than to wait until the second period when the informed firm has set its price and lose one period of profits. Therefore, in equilibrium only one firm invests in information.

Given that one firm possesses better information, we can now show that prices are set sequentially and that the informed firm is the first one to set its price. Proof is again by contradiction. Suppose an uninformed firm sets its price before the informed firm. The price and beliefs of the uninformed firm are then not influenced by the decision of the informed firm. The informed firm can always do better by announcing its price at the same time as the uninformed firm and gain an extra period of sales without influencing its beliefs.

Now suppose the informed and the uninformed firms simultaneously set their price in the first period. The informed firm will fully reveal its information, as this will not influence the decision of the uninformed firms. The uninformed firm earns π^L, which is smaller than his one period profit in a follower position π^H. The uninformed firm can gain by waiting until the next period and observe the informed firm's price. This yields him a higher total profit when T goes to infinity, as (T-1) $*\pi^H$ is larger than T $*\pi^L$ in the limit. In equilibrium, prices are therefore set sequentially and the informed firm always sets its price before the uninformed firm.

These propositions show that asymmetry of information can lead to an equilibrium outcome of endogenous price leadership in which only one firm buys information. The informed firm announces its price in the first period, while the uninformed firms wait until this price is revealed and set their prices in the following period. The informed price leader will always reveal its full information price.[46] This leads to an endogenous price leader that invests in information.

This model can explain the emergence of the leader-follower structure in the banking sector that empirical evidence has shown us.[47] In the above model the leader is randomly determined, but in reality the firm that expects to gain most out of extra information is probably the one that will invest in it. Considering the Dutch banking sector, Rabobank historically has been a bank with large capacities; capacities the bank largely used to finance household mortgages. Rabobank has therefore always been the largest player in the market. The importance of their mortgage branch gives an explanation for the large investments Rabobank made in creating an extensive research centre and knowledge network; more than any other Dutch bank. The bank states on its own website "Rabobank views knowledge as a critical asset. Our quality research resources are central to our success as a stable, consistent, knowledge-driven bank".[48] In a publication on the history of Rabobank, the bank underlines the historical importance of knowledge as their critical competitive advantage as well.[49] This historically obtained asset of knowledge could have made Rabobank the endogenous price leader in the present-day industry, a point to which we turn now.

[46] For a more detailed proof of the propositions we refer to Cooper (1996).
[47] Haan & Sterken, 2006
[48] From: www.rabobank.com/content/research
[49] See: Mooij, J. (2011), De Rabobank van Dichtbij, Utrecht.

2.4.2. The assumptions for a barometric model

Based on the fact that a historically emerged leader is active in the industry, we will now develop a model of competition in the Dutch banking sector in the modern banking situation. To be able to capture reality in a theoretical model, we should rely on some simplifying assumptions. We consider an economy which is oligopolistic in nature, composed of several firms producing slightly differentiated, but close substitutable goods. As pointed out in previous sections, in 2010 the Dutch mortgage market was characterized by three main players: Rabobank, ING and the combination ABN Amro - Fortis. Together these banks comprised more than 70 per cent of the market; the other 30 per cent acting as a competitive fringe. Simplifying the structure of the Dutch mortgage market, a basic oligopolistic model of two equally sized firms could be considered: the leader and the rest of the players, which act simultaneously and can therefore be considered as one for our analytical purposes. For simplicity reasons, we therefore develop a duopoly model, which facilitates our reasoning without changing the qualitative results.[50]

The players are labelled B_i, whereby i = 1, 2. They compete in prices and each face per period linear demand of the form:

$$q_1 = a - b \cdot p_1 + d(p_2 - p_1) \qquad (1)$$

Several other authors, like Rotemberg & Saloner (1986), use the same simple oligopolistic model when examining price leadership; which captures a differentiated, but interdependent demand function of price competition. We assume a to be a positive constant and $b > 0$ such that demand is downward sloping in price. Furthermore, it is assumed that $0 < d < \infty$, such that demand for the goods is not totally independent, but products are not perfectly homogenous either. The number of periods is labelled T, with T going to infinity.

These basic demand functions fulfil the following three assumptions of Cooper (1996), such that the reasoning of Cooper from the previous section can be applied to our model:

[50] Several authors use this simplifying assumption, see for example Rotemberg & Saloner, 1986.

Assumption 1 *Demand functions are continuous such that* $q_i(p_i, p_j) > 0$*, so the demand function satisfies the following relationships:* $\frac{\partial q_A}{\partial p_A} < 0, \frac{\partial q_B}{\partial p_B} < 0$

As *b* > 0, an increase in p_i will always lead to a decrease in q_i, such that the relationship is satisfied.

Assumption 2 *Monopoly demand is finite for all* p_i *and strictly decreasing in the monopolist price*

If only one firm sets a price and becomes a monopolist, the firm faces the demand function $q_i = a - b \cdot p_i$. Monopoly demand is therefore finite when $a < b \cdot p_i$, so when p_i becomes very large. As *b* is positive, demand is strictly decreasing in price.

Assumption 3 *Taking the best response function as given, player's profits are twice differentiable and strictly concave*

Strict concavity implies that the second derivative of the profit function should be negative. As $\pi_i = p_i \cdot q_i = p_i(a - b \cdot p_i + d(p_j - p_i))$, the first derivative with respect to p_i is $\pi_i' = a - bp_i + dp_j - dp_i - bp_i - dp_i = a - 2bp_i - 2dp_i + dp_j$ and the second derivative is $\pi_i'' = -2b - 2d$, which is always negative as *b* > 0 and *d* > 0. So profits are strictly concave.

Marginal costs are assumed to be constant and similar for all firms, which allows us to take prices net of marginal cost without loss of generality, following the reasoning of others like Cooper (1996) and Kovenock & Widdows (1998).[51] This gives us a model of margins, with p_i being the margin, instead of the price. This means that Euribor and other mortgage specific costs are assumed to be identical for all banks, which probably does not hold in reality. Nevertheless, banks' individual cost curves are likely to be very similar, such that our assumption will not affect the qualitative results. This simplifies our per period profit function to $\pi_i = p_i \cdot q_i$, the total revenues. We assume that all firms perfectly know their demand function and are completely and symmetrically informed about their marginal cost. Firms do however not know the size and direction of exogenous demand shocks. In

[51] Papers that also assume marginal costs to constant and similar. Here we deviate from the model of Rotemberg & Saloner.

reality banks are not perfectly informed about their marginal cost either, as banks have to estimate these cost for a long-term period on the moment they sell a mortgage. Banks therefore do face uncertainty about these cost, but for simplicity we ignore this disturbance and incorporate it in a general demand disturbance.

The demand disturbance is modelled as a common disturbance *a*, which affects demand of all firms in the same way, and an idiosyncratic disturbance *ε*, which increases demand for firm 1 by the same amount as it reduces the demand for the other firm 2.[52] This yields the following demand functions:

$$q_1 = a + \varepsilon - bp_1 + d(p_2 - p_1) \quad (2)$$

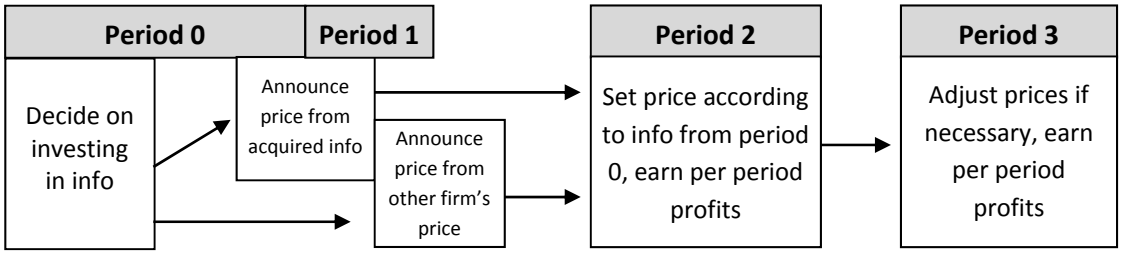
$$q_2 = a - \varepsilon - bp_2 + d(p_1 - p_2) \quad (3)$$

The demand disturbance *ε* is assumed to be uniformly distributed and uncorrelated with *a*. A priori the values of both *a* and *ε* are unknown for both firms and fluctuate per period. Only the average values are common knowledge, with *a* having a mean of *a*' and *ε* having a mean of zero. The standard deviation of *a* and *ε* is assumed to be reasonably small.

There are two important assumptions from the analysis of Cooper in the previous section that held in the past, but are no longer viable in modern banking. We have to relax these assumptions to come to a reliable model for the modern situation. Improved technologies allow firms nowadays to change prices instantly and immediately, such that the assumption that prices cannot be reset at a later stage should be relaxed. We therefore assume that prices can be reset at the start of each period. Furthermore, the development of the internet and other informational resources allow banks to continuously monitor each other's rates. Firms consequently no longer have to wait an long period of time before they can set a price and lose an entire period of sales. In other words, over time period 1 became much shorter, such that only a small amount of sales are lost when waiting for the other firm to set a price. For simplicity reasons we assume that period 1 becomes so small, that the moment the informed firm announces a price, the other firm immediately follows, such that only a negligible amount of potential sales are lost, which we therefore ignore. This is schematically illustrated in figure 2.7.

[52] Rotemberg & Saloner, 1986. Note: page 10 of Rotemberg & Saloner contains a typographical mistake, Q_1 should be Q_2 in the second formula.

Figure 2.7. Schematic structure for present-day price setting behaviour in the banking sector



The fact that a price leader has emerged historically, enables us to relax these assumptions in the present-day situation. Institutional features have shaped the development of investment in information and caused an asymmetry is information between the banks. As Sterken (2006) already points out, asymmetry of information may be in the form of one of the banks possessing superior information about demand shocks. The previous section explained how Rabobank could historically have obtained this position of superior information. The fact that Rabobank invested in a large research and knowledge centre and an extensive network, gives them the opportunity to better extract market information.

Furthermore, the mortgage branch of Rabobank is larger than for other banks, such that their large installed base allows them a priori to receive more market signals than other firms in the industry. This is especially important in the light of the financial crisis, as the Dutch mortgage market locked down due to the bad macro-economic conditions. Few new clients entered the market, such that probably the most important source of customers were the clients that needed to renew their mortgage. The bank with the largest installed base can do best in estimating what demand will be in coming periods, as this bank can predict the amount of mortgage renewals from its own large customer base. This allowed Rabobank to receive more internal market signals during the crisis. Furthermore, it can be argued that the stable position of Rabobank in a market which was in turmoil, allowed the bank to obtain superior information. In this way Rabobank was probably better informed about demand shocks than the other large banks.

In our model, we therefore assume that one of the firms (1) is better informed and knows the exact values of a and ε, while the other firm (2) only knows the mean of a ($\tilde{a}$) and ε (zero). We again assume that the informed firm cannot credibly communicate its

information. As the other firms believe that Rabobank's price reflects market conditions accurately and with tolerable promptness, rivals wait for this bank to set its price.

2.4.3. A barometric price leadership model for the Dutch market

As described in the previous section, empirical evidence indicates that the period before 2004 was not only characterized by price leadership, but also by *competitive* prices. The leading bank was followed by most of the others, without retaining the rivals from setting a competitive price. Based on the above assumptions we now turn to the development of a theoretical model based on the work of Rotemberg & Saloner (1986) that explains why such price setting behaviour is possible even with the existence of a price leader. Keep in mind that when firms compete in prices, neither firm wants to be the first to announce its price, as his rivals are then able to undercut this price.

Therefore, suppose first that the firms set their prices simultaneously. The uninformed firm has no information of the demand shock and will therefore always set the same price p_2 based on its expectations of p_1. Given the demand functions (2) and (3) the informed firm maximizes: $\pi_1 = p_1(a + \varepsilon - b \cdot p_1 + d(p_2 - p_1))$, which leads with straightforward calculations to a best response function $p_1 = \frac{a + \varepsilon + dp_2}{2b + 2d}$.

The uninformed firm maximizes its expected profit

$E\pi_2 = E\{p_2 \cdot (a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))\}$. Given that ε has a mean of zero, the expected value of ε is zero; the expected value of $a = \tilde{a}$. The uninformed firm will therefore set a price of $p_2 = \frac{\tilde{a} + dEp_1}{2b + 2d}$. As the uninformed firm expects ε to be zero, his best expectation of p_1 is the price the informed firm will set, given $\varepsilon = 0$ and $a = \tilde{a}$. As shown in the appendix[53] $Ep_1 = \frac{\tilde{a}}{2b + d}$ in this case, such that the uninformed sets

$$p_2^{sim} = \frac{\tilde{a}}{2b + d} \qquad (4)$$

This implies that the informed firm will set a price of

[53] See Appendix 1.1. for the exact derivation of these equations

$$p_1^{sim} = \frac{a + \varepsilon + dp_2}{2b + 2d} = \frac{2ab + 2b\varepsilon + da + d\varepsilon + d\tilde{a}}{4b^2 + 2d^2 + 6bd} = \frac{\tilde{a}}{2b + d} + \frac{a - \tilde{a} + \varepsilon}{2b + 2d} \quad (5)$$

So, only if $\varepsilon = \tilde{a} - a$ prices of both firms are the same.[54] For simplicity, we assume for now that demand is symmetric, such that $\varepsilon = 0$. This makes the following discussion more straightforward without loss of generality. Given the prices for both firms in equation (4) and (5) we can calculate profits for leader and follower in case they move simultaneously.

The profit for the follower is equal to $\pi_2^{sim} = p_2(a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))$, plugging in the values for p_1 and p_2 and assuming $\varepsilon = 0$, this yields the following profits for the follower[55]

$$\pi_2^{sim} = \frac{\tilde{a}}{2b + d}\left(a - \frac{b\tilde{a}}{2b + d} + d\left(\frac{a - \tilde{a}}{2b + 2d}\right)\right) \quad (6)$$

The same holds true for the leader, such that in equilibrium

$$\pi_1^{sim} = \left(\frac{\tilde{a}}{2b + d} + \frac{a - \tilde{a}}{2b + 2d}\right)\left(a - \frac{b\tilde{a}}{2b + d} - (b + d)\left(\frac{a - \tilde{a}}{2b + 2d}\right)\right) \quad (7)$$

Now suppose an endogenous price leader arises, as explained in the previous section, and prices are set sequentially. The uninformed firm will use all information from the informed firm's price to determine its own price, such that he can infer a exactly from p_1.[56] The previous section already stated that the informed firm always reveals its true information. We denote the relationship between a and p_1 by $a(p_1)$. For simplicity reasons, we again assume that demand is symmetric, such that $\varepsilon = 0$, which leaves us with more straightforward calculations, without changing the qualitative results. Given the observed p_1 in the first period, the uninformed firms will set their price p_2 such that it maximizes: $\pi_2 = p_2(a(p_1) - b \cdot p_2 + d(p_1 - p_2))$.

This yields a best response function $p_2 = \frac{a(p_1) + d \cdot p_1}{2b + 2d}$. The informed firm, knowing that the other firm will set this price p_2 in the second period, maximizes:

$$\pi_1 = p_1(a - b \cdot p_1 + d(p_2 - p_1)) = p_1(a - b \cdot p_1 - d \cdot p_1 + d\left[\frac{a(p_1) + d \cdot p_1}{2b + 2d}\right]) .$$

[54] See Rotemberg & Saloner, 1986.
[55] Here we deviate from the reasoning of Rotemberg & Saloner, who make the simplifying assumption that both firms charge the same price when calculating π_2. Rotemberg & Saloner furthermore do not calculate π_1.
[56] Based on the assumption of Rotemberg & Saloner, 1986.

Maximizing this profit function with respect to p_1 gives a first-order-condition of[57]:

$$\pi_1' = a - 2bp_1 - 2dp_1 + \frac{da(p_1) + d^2 p_1}{2b + 2d} + \frac{da'(p_1) \cdot p_1}{2b + 2d} + \frac{d^2 p_1}{2b + 2d}$$

$$= \frac{2a(b+d)}{d} - \frac{(4(b+d)^2 - 2d^2)p_1}{d} + a(p_1) + p_1 a'(p_1) = 0 \qquad (8)$$

In equilibrium, the informed firm reveals it true information and will set its best response price p_1 according to *a*. The follower can infer *a* exactly from p_1, such that in equilibrium $a = a(p_1)$ should hold true. The uninformed firm's beliefs of *a* are thus correct. Substituting this equation in (8) leaves us with the comprehensive equation

$\frac{(2b+3d) \cdot a(p_1)}{d} - \frac{(4(b+d)^2 - 2d^2)p_1}{d} + p_1 a'(p_1) = 0$, which can be simplified to

$$\lambda a(p_1) + \beta p_1 + p_1 a'(p_1) = 0 \qquad (9)$$

with $\lambda = \frac{(2b+3d)}{d}$ and $\beta = -\frac{4(b+d)^2 - 2d^2}{d}$. This is mathematically called a first-order ordinary differential equation as it contains only one independent variable (p_1) and derivatives with respect to that variable. Such an equation can be solved by integrating, because integrating both sides of a formula is an action that preserves the solutions. The integral of the left side of the formula gives us $\beta \cdot p_1^{\lambda+1} + a(\lambda+1)p_1^{\lambda} + k$, while integrating zero gives us a constant, which can take any value, including zero.[58] One of the solution is therefore:

$$\beta \cdot p_1^{\lambda+1} + a(\lambda+1)p_1^{\lambda} + k = 0 \qquad (10)$$

To discover the value of the unknown constant *k* we consider the simple case when *a* = 0. As prices and quantities cannot be negative, we can find out the true value of *k*. In equilibrium, equation (10) should hold true and furthermore firm 2 should be able to infer *a* = 0 from the price of firm 1. Firm 2's best response function gives $p_2 = \frac{dp_1}{2b + 2d}$ for *a* = 0, but then $q_1 = -bp_1 + d(p_2 - p_1) = -bp_1 - dp_1 + \frac{d^2 p_1}{2b + 2d}$ which is always smaller than zero. Therefore, when *a* = 0, p_1 should be equal to zero, such that p_2 is equal to zero as well and both firms will not supply anything. As $\beta \neq 0$ (because both *d* and *b* are different from zero),

[57] Rotemberg & Saloner do not show calculation methods in their paper, but come to the same conclusion.
[58] See Appendix 1.2. for the exact derivation

we can infer that *k* should be equal to zero for equality (10) to hold true. This holds for any value of *a*, such that (10) becomes $\beta \cdot p_1^{\lambda+1} + a(\lambda+1)p_1^{\lambda} = 0$. Dividing both sides by p_1^{λ} gives the unique solution of $\beta \cdot p_1 + a(\lambda+1) = 0$. Substituting the values of β and λ and rewriting yields

$$p_1^{L} = \frac{a(b+2d)}{2(b+d)^2 - d^2} \tag{11}$$

As mentioned before, in equilibrium, firm 2 can infer *a* exactly from p_1, such that $a = a(p_1)$. We can rewrite (11) such that *a* becomes a function of p_1 and in equilibrium this gives us $a(p_1) = a = \frac{p_1(2(b+d)^2 - d^2)}{(b+2d)}$. Given the best response function of firm 2, $p_2 = \frac{a(p_1) + d \cdot p_1}{2b+2d}$, we can substitute $a(p_1)$ and p_1 to obtain the optimal price for firm 2, being equal to:

$$p_2^{F} = \frac{a(2b+3d)}{2(2(b+d)^2 - d^2)} \tag{12}$$

Comparing prices for both leader and follower shows that P_2 is always smaller than P_1 when $a \neq 0$, as both b and d are larger than zero. So, the uninformed firm waits until the informed firm announces its price, derives the exact value of *a* from p_1 and then undercuts that price. This leads us to the following propositions.

Lemma 1 *In equilibrium* $p_2^{F} < p_1^{L}$*; followers strictly undercut the price of the price leader.*

Proposition 1 *In a PLE[59] prices will be competitive. The more homogeneous the goods are, the closer the prices will be to zero.*

Proof is by contradiction. Suppose the leader has set its price and the follower will exactly match this price. The leader, knowing that the followers will match his price, has an incentive to increase the price to the monopoly level. This gives the followers an incentive to undercut the leader's price and capture a larger share of the market. Matching the leader's price can therefore not be an equilibrium.[60] As proved above, the follower's price will always be lower

[59] Price leadership equilibrium
[60] Rotemberg & Saloner, 1986.

than the leader's price. When we consider repeated games and goods become increasingly good substitutes (such that *d* goes to infinity), prices will tend closer to the competitive price of zero (see equation 11 and 12). In a price leadership equilibrium profits above the competitive level are therefore the result of product differentiation. This proposition proves that despite of the existence of a price leader, prices can be set around the competitive price level. ■

Proposition 2 *$\pi_2^{F} > \pi_2^{sim}$; in a PLE followers earn strictly higher profits than in a SPE[61]. Followers will therefore always wait for the leader.*

Proof. Price leadership may be an effective means to eliminate price competition. The above model proves that this does not always have to be the case, because prices tend to the competitive level as the goods become increasingly homogenous. If products are not perfectly homogeneous however, *ex ante* expected profits are higher in a price leadership equilibrium than in a simultaneous setting, because both leader and follower are able to charge a higher price. Suppose for simplicity $\varepsilon = 0$ again. In equilibrium, the expected price charged by the follower is equal to $p_2^{sim} = \frac{\tilde{a}}{2b+d}$. The price the follower sets in the sequential move game is equal to (12) and is, as proved, always lower than the leader's price. To show that expected sequential prices are higher than expected simultaneous prices we therefore have to prove the following inequality $E\left[\frac{a(2b+3d)}{2(2(b+d)^2-d^2)}\right] > E\left[\frac{\tilde{a}}{2b+d}\right]$, which yields $\frac{\tilde{a}(2b+3d)}{2(2(b+d)^2-d^2)} > \frac{\tilde{a}}{2b+d}$ and $3\tilde{a}d^2 > 2\tilde{a}d^2$. This is always true for a > 0, such that a sequential move game yields higher prices than a simultaneous game.

Let us now turn to profits. Given that $p_2^{sim} = \frac{\tilde{a}}{2b+d}$, the expected profits for the follower from pricing simultaneously are equal to $E\pi_2^{sim} = E\left[\frac{\tilde{a}}{2b+d}\left(a - \frac{b\tilde{a}}{2b+d} + d\left(\frac{a-\tilde{a}}{2b+2d}\right)\right)\right] = \frac{\tilde{a}^2(b+d)}{(2b+d)^2}$. To proof that the follower earns higher *ex ante* expected profits in the sequential equilibrium, we should compare this

[61] Sequential price setting equilibrium

profit to the expected sequential profits. The follower sets a price equal to equation (12), so plugging this value into its profit function $\pi_2^F = p_2(a - b \cdot p_2 + d(p_1 - p_2))$ gives us an expected profit $E\pi_2^F = E\left[\left(\frac{a(2b+3d)}{2(2(b+d)^2 - d^2)}\right)\left(a - \frac{a(b+d)(2b+3d)}{2(2(b+d)^2 - d^2)} + \frac{ad(b+2d)}{2(b+d)^2 - d^2}\right)\right]$

$$= E\left[\frac{\left(a(2b+3d)\right)\left(a(2b^2+5d^2+5bd)\right)}{\left(2(2(b+d)^2 - d^2)\right)^2}\right]. \quad (13)$$

In order to be able to compare simultaneous and sequential profits, we assume $a = \tilde{a}$, without changing the qualitative results.[62] This yields

$$E\pi_2^F = \left(\frac{\left(\tilde{a}(2b+3d)\right)\left(\tilde{a}(2b^2+5d^2+5bd)\right)}{\left(2(2(b+d)^2 - d^2)\right)^2}\right)$$

Using some extensive algebra we can show that the expected value of π_2^F is always larger than the expected value of π_2^{sim} for $a > 0$, given that both *b* and *d* are larger than zero.[63] In equilibrium, the followers are therefore *ex ante* always better off under sequential price setting than under simultaneous price setting. In effect, followers will always wait for the (historical) price leader to set his price. ■

Proposition 3 *In a PLE $\pi_2^F > \pi_1^L$; the follower earns strictly higher profits than the leader.*

Proof. The model shows that in the sequential move equilibrium, the follower always undercuts the leader when products are substitutes. This allows the follower to capture a larger share of the market and earn higher profits. Let us first turn to the profits of the leader, who sets is price equal to equation (11). Plugging this value into firm 1's profit function yields a profit of $\pi_1^L = p_1(a - b \cdot p_1 + d(p_2 - p_1))$, which gives the expected profit function

$$E\pi_1^L = E\left(\frac{\left(2a(b+2d)\right)\left(a(2b^2+d^2+4bd)\right)}{\left(2(2(b+d)^2 - d^2)\right)^2}\right) \quad (14)$$

[62] We assumed the standard deviation of a to be small, such that a will always be reasonably close to $\tilde{a}$

[63] See Appendix 1.3. for the proof

We can compare this profit with the profit of the follower from equation (13). With some algebra[64] we can show that the expected value of π_2^F is always larger than the expected value of π_1^L for $a > 0$, given that both b and d are larger than zero. In equilibrium the follower is therefore always better off than the leader. Leaders, furthermore, earn in equilibrium lower profits by sequential price setting than by simultaneous price setting as their expected profit π_1^L is smaller than π_1^{sim}. In equilibrium the expected profits of simultaneous price setting are equal to

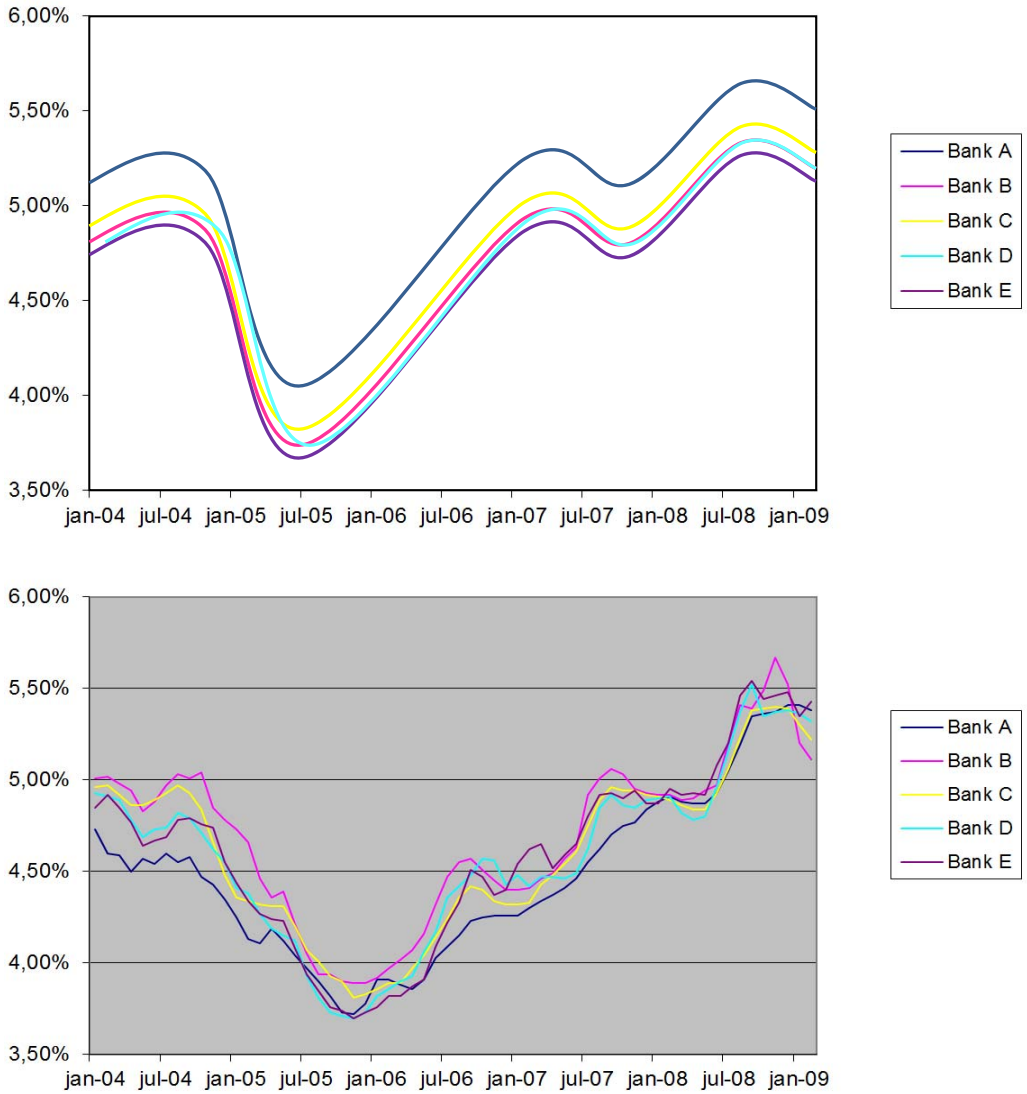
$$E\pi_1^{sim} = E\left[\left(\frac{\tilde{a}}{2b+d} + \frac{a-\tilde{a}}{2b+2d}\right)\left(a - \frac{b\tilde{a}}{2b+d} - (b+d)\left(\frac{a-\tilde{a}}{2b+2d}\right)\right)\right] = \frac{\tilde{a}^2(b+d)}{(2b+d)^2}$$. We again assume $a = \tilde{a}$, to be able to compare with profits in (14). Appendix 1.5 shows that in equilibrium the leader is worse off in a sequential game, as the follower undercuts the leader's price.[65] Nevertheless, the extra gain in profit for the follower is much larger than the loss in profits for the leader. ■

As explained in 2.4.1. the historical structure of the industry has led to the emergence of a leader and sequential price setting behaviour. The follower is *ex ante* better off by waiting until the leader has set its price and infer demand from that price. Even though in present times the leader prefers both the follower position as well as a simultaneous price setting equilibrium over the leadership role, he can do no better than announce his price in period 0. The leader knows that the uninformed firm will wait for the leader to set his price and not setting a price in period 1 will lead to a lost period of sales. As prices can be reset at a later stage, it does not make sense for the informed firm to wait until period 2 to set its price, because the uninformed firm will adjust its price accordingly and both firms will end up in the original sequential equilibrium. Setting a price at a later stage would therefore only result in a lost period of sales and not in higher profits. In equilibrium, the historically determined leader consequently announces its price in period 0 and the uninformed firm follows directly by undercutting the price of the leader.

[64] See Appendix 1.4. for the proof
[65] Again see Appendix 1.5. for the proof

The above series of propositions shows that barometric price leadership can lead to competitive prices, even though the market is characterized by a leader-follower structure. A market situation that was demonstrated for the Dutch mortgage market by de Haan & Sterken (2006). The model predicts that the price of the followers is always lower than the price of the leader, as the followers undercut the leader after setting its price. In theory we would therefore expect a price pattern as depicted in the upper half of figure 2.8, with bank A being the leader.

Figure 2.8. - Average mortgage rates of five large Dutch banks as expected by the model (a) and the actual tariffs (b) (based on the actual tariffs of NHG-mortgages 10-year fixed)



Source: NMa, sector study Hypotheekmarkt, 2011, p. 28.

In reality, however, we see fluctuations of the price around the leader's price as can be seen in the lower part of figure 2.8. Figure 2.8. shows the development of prices of the five large banks from the start of 2004 until start-2009. Even though we do not have detailed information on the identity of the different players, we have strong reasons to assume that bank A is the Rabobank. Due to noise about marginal cost and demand fluctuations, followers in practice will not always strictly undercut the leader. Nevertheless, the leader's price will serve as a barometer around which the other firms set their price, based on their own marginal cost curve. Figure 2.8. clearly pictures such a stable equilibrium in which the rates of the follower banks fluctuate around the price of the leader, e.g. bank A.

The fact that the model does not exactly mirror reality is a result of the strong assumptions we made in our model. As said, in reality, marginal costs might not be equal across all firms and might not be perfectly known. As explained before, banks face uncertainty in the future (EURIBOR) interest rate they have to pay to finance their mortgage portfolio, while prices (consumer interest rates) are usually fixed for 10 years or more. Besides, efficiency might differ between bank, such that marginal cost are not equal across firms, as we assumed in the theoretical model. Furthermore, followers may not be able to infer demand information exactly from the price of the leader and the leader might still be able to capture some market share between setting its price and waiting for the followers to set their price. The fact that our model is based on an oligopoly of two firms, instead of a multiple of players might also slightly change the results. Including more players in the model increases the diversity of products and marginal costs and decreases transparency. Expanding our model to four players would however still lead to one price leader that possesses better information and set a price first, while the other firms wait and slightly undercut the leader in the second period. The reason is that the uninformed firms always gain by waiting until the informed firm has revealed its information and its best response is always to charge a lower price. So, even though our strong assumptions can lead to small deviations from the equilibrium outcomes of our model, they do not change the qualitative results.

2.5. Conclusion

This chapter sketched the competitive situation in the Dutch mortgage market before the credit crisis by analysing theoretical and empirical evidence. The Dutch market is, just like other European banking sectors, highly concentrated, especially due to consolidation in recent years. In essence, three major players operate on the market, which we refer to in the rest of this thesis as 'the large banks', comprising Fortis-ABN Amro, ING and Rabobank. Empirical evidence by de Haan and Sterken has shown that the Dutch mortgage market is characterized by a leader-follower structure, in which (allegedly) Rabobank is the historical leader and is first to set its price. Nevertheless, prices seem to be set competitively, a market situation that is best captured in a model of barometric price leadership. In the modern banking situation Rabobank might not be as contented with its position as a leader as it was in the past. Due to technological developments in recent decades, Rabobank's ability to benefit from the leadership role has been eroded. Their historical position as a knowledge-driven bank forces them, however, to fulfil this role in the industry. In recent years much has changed in the mortgage market and the banking sector overall. The credit crisis altered the market situation extensively, which seemed to have changed the price setting behaviour in the industry. These developments are the main topic of the following chapter.

3. Developments on the Dutch mortgage market

In recent years the European banking landscape has changed substantially. The industry had already been characterized by strong consolidation due to internationalisation and liberalisation, but the outbreak of the financial crisis in 2007 changed the entire structure of financial markets in Europe and the rest of the world. This chapter covers the developments in the past five years on the Dutch mortgage market and studies the effect on competition. It analyses the study performed by the NMa and critically evaluates the methods used and conclusions drawn by the NMa.

3.1. Developments on the market

As explained in the previous chapter, generally the more concentrated the industry is, the less competitive pressure the players experience. In an oligopoly as the banking sector, firms are therefore likely to possess some degree of market power. The amount of power not only depends on the number of firms in the industry, but also on its relative size, the barriers to entry and exit and customer behaviour.

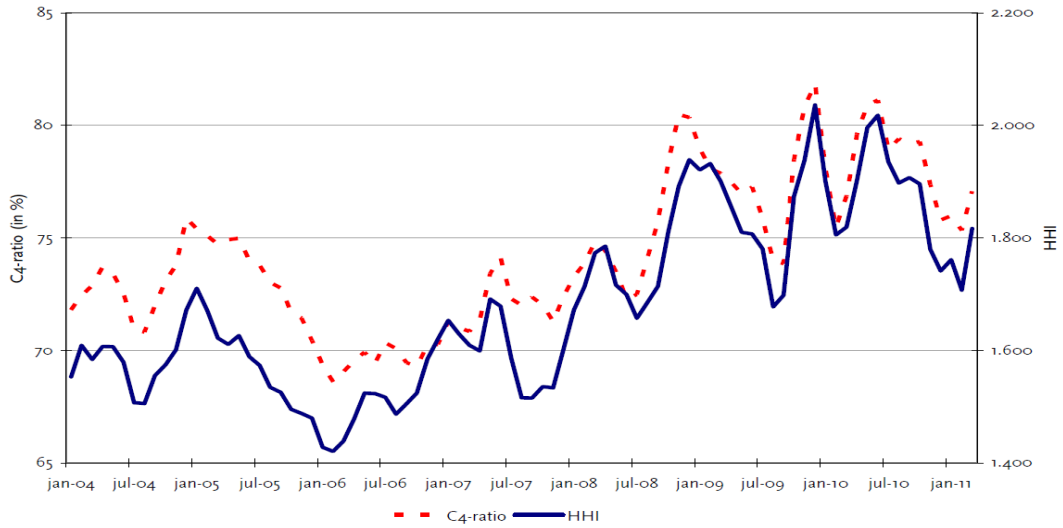
The outbreak of the worst financial crisis since the Great Depression led to drastic changes in the competitive landscape of the banking sector. The complex valuation and liquidity problems in the US caused the collapse of many financial institutions and bailout of banks. In the Dutch market this resulted in the exit of several players due to bankruptcy or voluntary exit. In 2008 the Dutch subsidiary of Lehman Brothers, ELQ Hypotheken, forcibly left the market due to the problems and eventual bankruptcy of their holding company.[66] In the same year GMAC and Sparck Hypotheken left the market after it became too difficult to attract sufficient mortgage funding due to the credit crunch.[67] The Dutch bank DSB came into disrepute in October 2009, after Pieter Lakeman, president of the 'Hypotheekleed' foundation, advised all accountholders of the bank to immediately withdraw their money.

[66] ELQ stopt met verstrekken van hypotheken (2008, 15 September), AssurantieMagazine.
[67] Prijsvechter Gmac verlaat de hypotheekmarkt (2008, 14 March), Brabants Dagblad & Sparck stopt met nieuwe hypotheken BKR klanten (2008, 4 June), Hypotheek-Online.

The subsequent bank run led to a rapid destruction and bankruptcy of the bank on October 19th.[68]

In addition to the exit of these four fallen players, several foreign mortgage providers gradually became less active on the Dutch market. According to the NMa[69] the market share of, for example, Argenta decreased from 5% in 2006 to 0.2% in 2010 and BNP Paribas became less active before leaving the market entirely in December 2011.[70] In the same period, two of the largest Dutch banks, ABN-Amro and Fortis, were merged and nationalized, such that the concentration on the market increased considerably. Figure 3.1. from a sector study report of the NMa, shows the drastic increase in C4 as well as HHI ratio between 2004 and 2011. The C4 ratio increased with more than 10 per cent points between mid-2006 and mid-2010 and the HHI ratio climbed up from 1.400 to 2.000 in the same period, exceeding both the threshold applied by the US as well as the EU merger guidelines (respectively 1.800 and 2000).[71]

Figure 3.1. – Concentration ratio Dutch mortgage market (based on new registered mortgages January 2004 – March 2011)



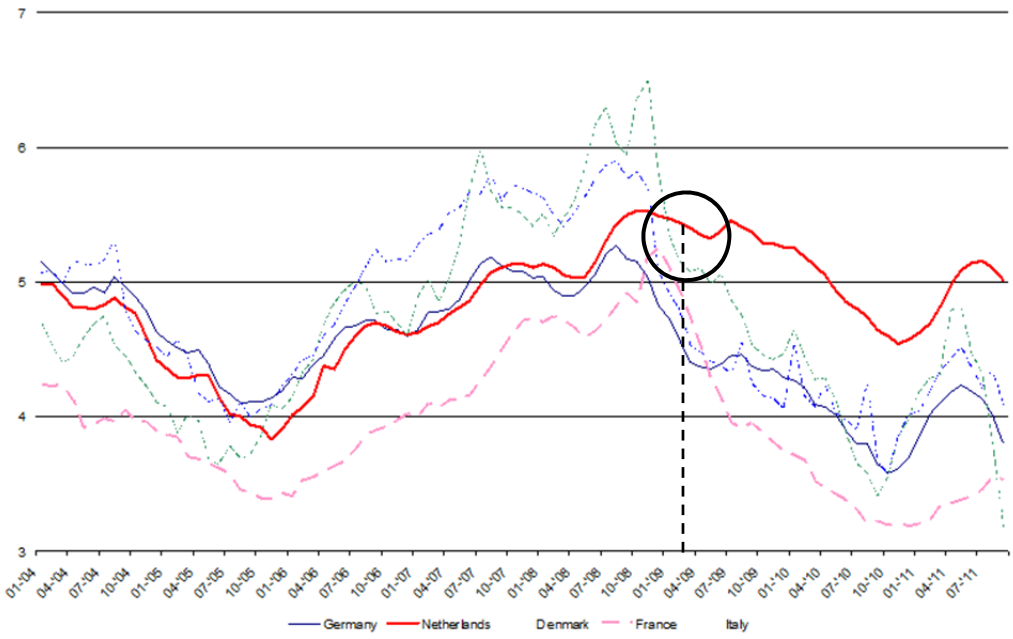
Source: Sectorstudie Hypotheekmarkt, NMa, May 2011, p. 24.

This in itself would have drawn the attention of the NMa, which is closely monitoring the sector with a special support team (Monitor Financial Sector) since 2003. However, in

[68] Rechter verklaart DSB failliet (2009, 19 October), De Telegraaf, p.1.
[69] NMa (2011), Sectorstudie hypotheekmarkt; een onderzoek naar de concurrentieomstandigheden op de Nederlandse hypotheekmarkt, Nederlandse Mededingingsautoriteit Den Haag, May.
[70] BNP Paribas stopt op Nederlandse hypotheekmarkt (2011, 12 December), nu.nl
[71] McIntosh, C. & Hellmer, S., (2011)

addition to the increased concentration, in this period of drastic structural changes, the margins on Dutch mortgages reached levels that were not only high in historical perspective, but also compared to neighbouring countries.

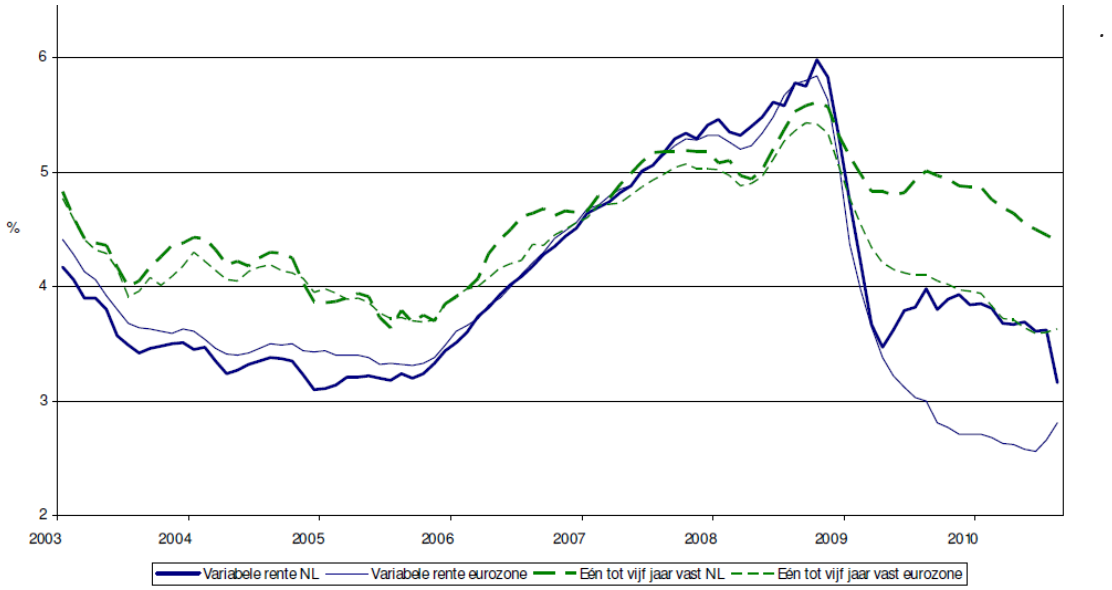
Figure 3.2. – An international comparison of 5-10 year fixed mortgage interest rate



Source: Presentation of Overvest & Tezel on ACE conference Bergen, 18 November 2011, p. 9.

Figure 3.2. shows the 5 to 10 year fixed mortgage interest rates for five European countries, e.g. Germany, Denmark, France, Italy and the Netherlands. In the period 2004 to start-2009 the Dutch mortgage rate was at a level that was average compared to surrounding countries. However, around the beginning of 2009 something changed. While mortgage rates started to drop in surrounding countries, the Dutch rates decreased much slower and suddenly, from the start of 2009, the Netherlands became the most expensive provider. Comparing the Dutch interest rate with the Eurozone average on short term (five year fixed and variable) mortgages in figure 3.3. shows an even more pronounced discontinuity around the spring of 2009. According to these figures, mortgage interest rates thus not only suddenly increased compared to neighbouring countries, but also compared to the rest of the EU. In response to these developments and the rising debate in the media about the high mortgage margins, the NMa started an investigation.

Figure 3.3. – A comparison of variable and 5-year fixed mortgage interest rates of NL and EU-zone



Source: Quickscan Hypotheekrente, NMa, November 2010, p. 11

3.2. Sector study of the NMa

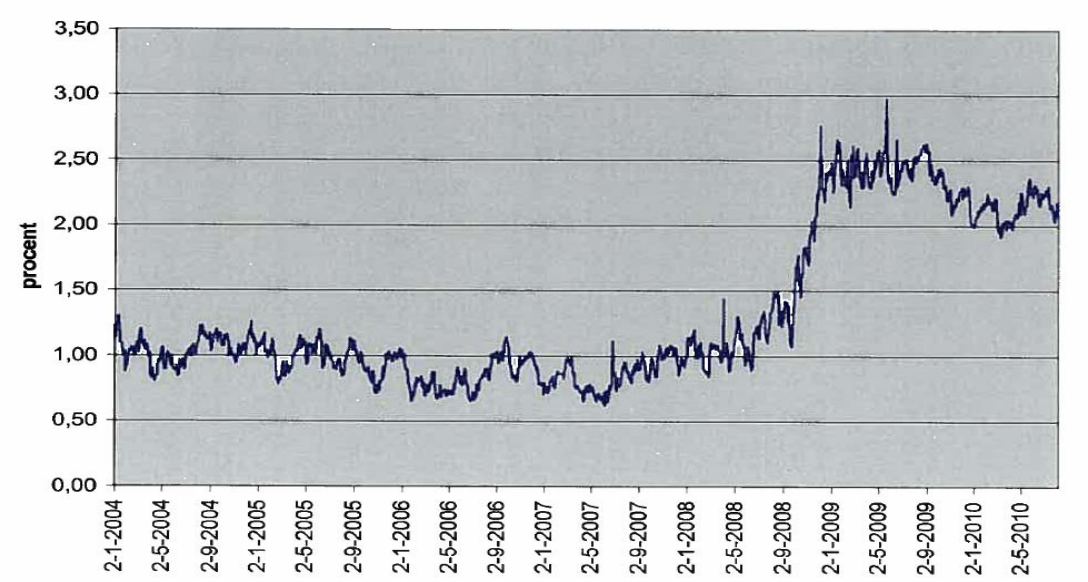
On August 12, 2010, the Dutch interest group 'Vereniging Eigen Huis' (VEH), wrote a letter to the Dutch competition authority with the request to conduct further investigation into the level of margins on the Dutch mortgage market (see Appendix 8.3.). The decrease in funding cost starting mid-2008 seemed not to be reflected in the interest rate customers had to pay. According to the VEH, the margin between the 10-year fixed mortgage rate and the swap rate rapidly doubled from 1% to above 2% from end-2008, as depicted in figure 3.4.[72] The mortgage providers, so the VEH argued, had until that point in time not given a convincing explanation for the increased mortgage margin. As long as the banks were not able to do so, the VEH was concerned that a certain degree of cartel formation might have been going on.

At the same time, banks argued that the margin calculation of the VEH was far too simplistic and that the increased margins were the effect of greater risks on the market due to the financial crisis and the reduced access to the securitization market. The credit crisis forced banks to pay higher risk premia on top of the swap rate, which required higher

[72] VEH (2010), Verzoek tot nader onderzoek naar hypotheekrente van Nederlandse geldverstrekkers, Letter to the NMa, August 12, 2010.

margins to cover these premia, or so the banks claimed.[73] Furthermore, rules for maturity matching tightened, which increased funding cost as well. The margin in figure 3.4. would therefore be highly overestimated. Banks were, however, not willing, nor able, to provide a specified calculation of their funding cost, as it was, according to them, hard to make such a calculation due to cross-subsidization between business units. Critics argued that banks even though should be able to make such an estimation. In an article on the Danish mortgage model Morten Baekmand Nielsen, head investor relations of Nykredit, the largest mortgage provider of Denmark, recently stated: "you are not going to tell me that these banks do not know exactly what they spend on funding".[74] In any case, the NMa saw enough reason to investigate the market more closely.

Figure 3.4. – Suggestive evidence of margin increase between 10-year mortgage rate and swap rate



Source: Verzoek tot nader onderzoek naar hypotheekrente van Nederlandse geldverstrekkers, Letter to the NMa, VEH, August 2010, p. 4.

3.2.1. A first Quick Scan

Soon after the complaint of the VEH, the NMa announced that the Monitor Financial Sector would start to closely investigate the matter, as this team had already been in charge of monitoring the financial sector. In November 2010 the NMa published a so called Quick Scan in which the authority concluded that the margins on Dutch mortgages indeed were high in

[73] Nederlandse Vereniging van Banken (2010), NVB ziet NMa-onderzoek met vertrouwen tegemoet, Internetdocument on www.nvb.nl, 1 November, see appendix 8.2.
[74] Belangstelling voor het Deense hypotheekmodel (2012, 18 February), Het Financieele Dagblad

historical perspective since mid-2009. This finding applied to fixed as well as variable mortgages. The report furthermore confirmed that interest rates were high in an international perspective. In the calculation of the margins the NMa took into account potential increases in the cost of financial institutions. This first Quick Scan of the NMa was fairly strong and clear in its opinion: the Dutch margins were high and needed further investigation. Pieter Kalbfleisch, chairman of the Board of the NMa, announced in a press release on November 1st that "the higher margins could, among other explanations, indicate a lack of competition (…) a lack of competition that can lead to unnecessarily high rates for consumers".[75] The NMa therefore considered a thorough investigation to be important, as a lack of competition could result in higher prices to customers.

The same morning, newspaper De Telegraaf headlined "Banks accused of price agreements".[76] The 'Nederlandse Vereniging van Banken' (NVB), displeased by this insinuation, reacted strongly, as reported by newspaper articles in appendix 8.2.[77] The banks argued that this kind of communication from the NMa was not very helpful in restoring confidence and stability in the financial sector. Immediately, the NMa published a second press release in which she stated that the conclusion of the newspapers could not be drawn on basis on the Quick Scan.[78] The NMa invited banks and other stakeholders to react on the findings of the Scan and indicated that the input would play an important role in the further investigation. Minister of Finance Jan Kees de Jager also requested further explanation from the banks on the question why margins were so high.[79] Newspaper articles as in appendix 8.2. display that the VEH was content with the first conclusions from the report and announced that:

"The fact that the NMa starts an investigation already puts a great moral pressure on the banks (…) we hope that the banks therefore already start to lower their mortgage rates now".[80]

[75] NMa: hypotheekmarges in Nederland hoog (2010, 1 November), press release on nma.nl, [my translation], see appendix 8.2.
[76] Banken verdacht van prijsafspraak (2010, 1 November), De Telegraaf, p. 1, see appendix 8.2.
[77] Banken gaan de strijd aan met Nma (2010, 2 November), Het Financieele Dagblad, see appendix 8.2.
[78] NMa: geen vermoeden van prijsafspraken tussen banken (2010, 1 November), press release on nma.nl, see appendix 8.2.
[79] De Jager wil uitleg over hoge hypotheekmarges, (2010, 16 November), nu.nl, see appendix 8.2.
[80] NMa: 'Hypotheekmarges in Nederland hoog' (2010, 1 November), Het Financiële Dagblad, [my translation], see appendix 8.2.

3.2.2. An extensive sector study

Between August 2010 and May 2011 the Monitor Financial Sector, together with the Economic Department of the NMa, worked on the extensive sector study 'Mortgage market'. On May 30th 2011 the report was officially published.[81] The study examines factors such as markets structure, customer choice, entry and exit barriers and margin development that could indicate secret price agreements between the large banks. To compose the report, the NMa used several resources such as empirical data, interviews and input from mortgage providers and consumers. The Economic Department of the NMa supported the study with empirical analyses.[82] In the report the NMa not only considered the possibility of secret price agreements or cartel formation, she also looked at a number of other factors. Among other things, the NMa took into account the increased concentration in the market, the effects of the financial crisis on the access to funding, increased risks in the market and the possible consequences of conditions the European Commission imposed on several banks after they received State aid.

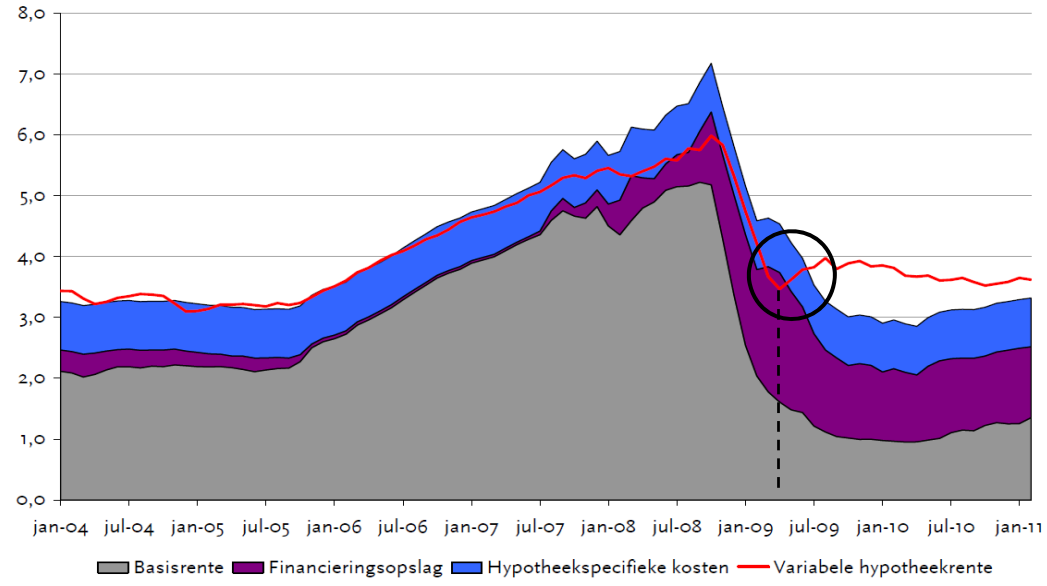
To be able to make a profound analysis, the NMa did not use the margin calculation method based on the swap rate as done by the VEH, but made a split between the different cost sources to account for changing funding cost and risk premia. The aim was to study the *development* of the margins, rather than the exact level, which is in principle hard to determine, according to the NMa. In this way the NMa tried to picture the competitive pressure in the market and tried to show how it evolved over time. This is the reason why the margins as calculated by the NMa differ from the one calculated by VEH, which is solely based on the difference between the average 10-year fixed mortgage interest rate and the 10 years swap rate. The NMa used three methods[83] that were applied on variable as well as fixed-rate mortgages and tested with robust checks. The same methods had been used in the Quick Scan, but were adapted at some points following the feedback of several banks. All three methods show similar results of the margin developments.[84] This section therefore

[81] NMa (2011), Sectorstudie hypotheekmarkt; een onderzoek naar de concurrentieomstandigheden op de Nederlandse hypotheekmarkt, Nederlandse Mededingingsautoriteit Den Haag, 30 May.
[82] Mulder & Lengton, 2011.
[83] E.g. the mortgage tariff calculation method, the average funding cost method and the marginal funding cost method
[84] Methods are based on data on an aggregated level, so picture the *average* mortgage margin. Trends of individual banks can deviate.

focuses on only one of the methods, the mortgage tariff calculation method, which depicts the developments in the most evident way.

The mortgage tariff calculation method calculates the average margin by abstracting the risk free base rate, the funding costs and other costs (such as default risk and operational costs) from the mortgage rate. The funding costs are determined by the funding sources of the bank. The main three sources are: securitization, the capital market and deposits, of which the NMa used a weighted average for their calculations. The calculation of the funding costs is based on the matching funding principle, in which the bank fully covers the interest rate risk. The increased difficulty in attracting funds during the crisis is taken account for. The mortgage specific costs include a risk premium to account for default risk, prepayment risk and pipeline risk and a mark-up for operational cost. Based on the insights of market experts, the NMa assumes a total premium of 0.8 per cent point; a premium that the NMa does not increase over time as the number of forced sales would not have gone up in recent years.[85]

Figure 3.5 – Construction of the variable mortgage interest rate (mortgage tariff calculation method)



Source: Sectorstudie Hypotheekmarkt, NMa, May 2011, p.13.

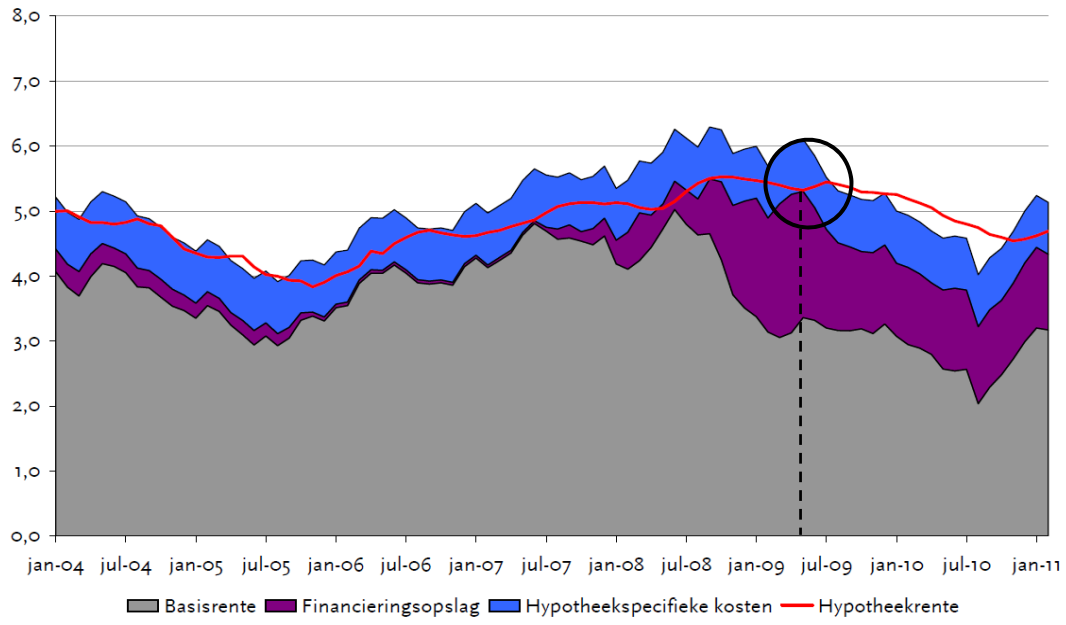
The solid area in figure 3.5. and 3.6. shows the different cost sources, while the red line illustrates the mortgage interest rate. Based on these mathematical analyses the NMa

[85] See p. 70 of the sector study of the NMa (2011). For a more detailed description of the the data underlying figure 3.5. see appendix 8.6.

confirmed the claim of the VEH and concluded that the mortgage margins indeed reached historical high levels after 2008.

Figure 3.5. and 3.6. show that around the beginning of 2006 mortgage interest rates started to rise. This was mainly caused by a strong increase of the base rate and (after 2007) an increase in funding cost. Around July 2009, the interest rate on both variable as well as fixed mortgages started to surpass the costs, as the base rate started to sharply decrease. Before that date, margins seemed to be negative. This does not mean that banks were actually losing money on their mortgages; the NMa report indicates that some assumptions might have been too conservative, inter alia that banks fully obey the matched funding principle. The real break with the observed pattern of interest rates following costs can in both graphs be observed a few months before July, around March/April 2009. From that point onwards, mortgage costs were decreasing, while the interest rate remained around the same level, such that margins suddenly started to increase.

Figure 3.6. – Construction of the 5-10 fixed mortgage interest rate (mortgage tariff calculation method)



Source: Sectorstudie Hypotheekmarkt, NMa, May 2011, p. 14.

This pattern is more pronounced in figure 3.5. than in figure 3.6., because the base rate of long-term funding did not decline as much as the rate of short-term funding. The different calculation methods of the NMa all show a similar pattern of rising mortgage

margins after 2008, and a decline to levels that were common before the crisis around September 2010. The decline in margins is more pronounced for the long-term mortgages and can be more clearly observed in the average funding cost calculation method and marginal funding cost method.

On account of these conclusions the NMa started to thoroughly analyse the market. First, the Economic Department of the NMa carried out an independent empirical analysis to explain the interest rates in the Dutch market over 2004-2010.[86] In the analysis the mortgage interest rate – not the margin – was used as the dependent variable, while independent variables were grouped into four categories: cost variables, risk variables, market concentration variables and industry/bank specific variables. Mulder & Lengton (2011) started with a time series analysis at the industry level, using monthly data. The null-hypothesis of non-stationarity could not be rejected in the regression and as the results of this first analysis did not seem very reliable, the NMa did not use them in the remainder of the report.[87]

The report continues with a panel analysis at the bank level, using annual data, as monthly data are not publicly available at this level. Mulder & Lengton find statistically significant evidence that the degree of concentration in the market, measured by the HHI and C3 ratios, influenced the mortgage interest rate. Market share, on the contrary, did not prove to be significant. Furthermore, Mulder & Lengton concluded that the mortgage interest rate had been significantly related to cost and that the capital market risk had a significant positive effect on the interest rate. These factors seemed to be twice as important as the impact of market concentration. The NMa therefore accounted for both cost and risk in their calculation method of the margins as depicted in figure 3.4. and 3.5., in which cost and risk are able to fluctuate over time.

Additionally, Mulder & Lengton find a statistically significant relationship between the extent to which the players are able to exercise an active pricing policy and the mortgage interest rate. In response to the State aid received by several banks during the credit crisis, the European Commission imposed restrictions that did not allow these banks to act as a

[86] This analysis was later published in the NMa working paper series as Mulder & Lengton, 2011

[87] As a matter of fact, Mulder & Lengton do not solve the non-stationarity problem properly. They estimate the model in first-differences to solve for unit-root and cointegration, however to solve these problems properly they should have used an auto correction model. This does not influence the final conclusions, as the analysis is ignored in the rest of the paper.

price leader.[88] For each year, Mulder & Lengton calculated the number of months that these banks priced among the lowest three. The data showed that when the banks priced less aggressively, the interest rates had a tendency to incline. The econometric analysis therefore concluded that the increased mortgage rates were the consequence of several factors, but mainly caused by increased costs and risks and to a lesser extent by the increased concentration ratio in the market.

This econometrical report formed a basis for the in-depth sector study of the NMa. The report starts with a thorough analysis of the structure of the Dutch mortgage market and the recent developments in market share and concentration, which went up considerably as depicted by figure 3.1. This was not only caused by the aforementioned exit of some players, but also by decreased entry of potential competitors due to difficulties of attracting funding during the crisis. Subsequently, the NMa investigated pricing behaviour in the industry and the possibility and likelihood of price agreements. Based on the high concentration ratio in the market, the transparency of prices and the fact that the market was characterized, at least during the crisis, with high barriers to entry, the NMa concluded that the mortgage market seemed sensitive to collusion. Further tests were conducted to investigate whether there existed additional indications for collusion. The NMa used variance tests to examine the spread in mortgage margins among the banks and concluded that no remarkable patterns could be found, such that evidence for potential price agreements was not existing.

The fact that the large banks set higher prices than the (declining) competitive fringe, would, on the other hand, indicate market power on the side of the large banks. Furthermore, consumer inertia and entry and switching barriers would give incumbent players in the mortgage market a considerable amount of market power, so the NMa argued. Based on these findings, the NMa composed a report in which she concluded that the high margins on the mortgage market were mainly caused by a temporary decrease in competitive pressure during the financial crisis due to the exit of (part of) the competitive fringe. This would have increased unilateral market power of the incumbents. The entry of new providers after 2010 would have had led to a subsequent decrease in margins. The NMa, even though, did admit that also the commotion around the margins could have contributed to the decline, an explanation already predicted by the VEH (see quote page 48). Based on

[88] A more in-depth explanation follows in the next chapter

the comprehensive study, the competition authority considered no need for price regulations of any form.

3.3. Critique on the NMa sector study

Even though the report relieved the Dutch banking sector from cartel suspicion, many stakeholders were not satisfied. While banks immediately responded that all consumers now knew they paid a 'fair price', Vereniging Eigen Huis replied by stating that interest rates were still too high compared to other European countries. VEH regretted that no comparison with surrounding countries had been made.[89] The VEH furthermore stated that interest rate margins were still too high compared to what could have been expected based on capital market interest rates. The Consumentenbond called the report 'highly unsatisfactory' and did not agree that the margin declined to 'normal levels' again, something that was not shown in the Quick Scan either, based on data until mid-2010.[90] The Consumentenbond responded in an interview:

"These findings are the contrary of what the NMa stated hardly six months ago. Besides, it is contradictory to our own research."[91]

Several forums on the internet even mentioned that the Dutch government was supervisor (NMa) and bank (ABN/Fortis) at the same time and that this conflict of interest would have been the reason for the "butter soft conclusion" of the NMa.[92] The discussion that followed immediately after the publication of the NMa report therefore made clear that the last word had not been said on the subject.

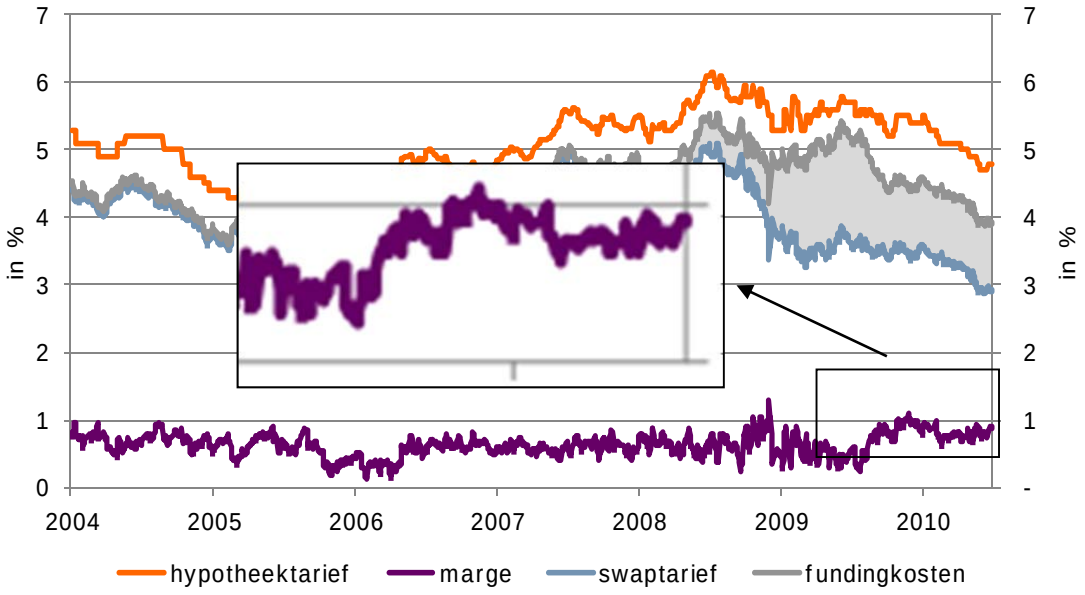
In November 2011 the Association of Competition Economics (ACE) organized the 9th annual ACE conference in Bergen, Norway. The ACE aims to provide a forum for discussion

[89] Nma-onderzoek: betaalt de Nederlander nu wel of niet te veel voor zijn hypotheek? (2011, 30 May), Volkskrant, see appendix 8.2.
[90] See p. 23 & 24 of the NMa Quick Scan
[91] The Consumentenbond considered the conclusions of the NMa contradictory, because the NMa concluded in the Quick Scan that margins increased from mid-2009 and were still high, while the final report concludes that margin had temporarily been high and were 'back to normal'. From: Consumentenorganisaties verbijsterd over uitkomst NMa-onderzoek (2011, 30 May), De Telegraaf, [my translation], see appendix 8.2.
[92] For example: wegwijs.nl (2011, 30 May)

and debate on issues related to the economics of competition. A conference is organized every year in November to bring together government, academia and the private sector to discuss certain interesting cases of that year. This year the NMa was invited to present the Dutch mortgage market case.[93] Generally a consultant of the counterparty in question attend the session to enter the debate, but this time Chief Economist and Executive Vice-President of Rabobank itself, Wim Boonstra, was present. On behalf of the NMa, Gulbahar Tezel, Head of the MFS, and Bastiaan Overvest, project leader of the investigation, presented their considerations and conclusions. The NMa noted that at points its analyses were "quick and dirty", due to time constraints and a very complex market situation, but stated that the MFS tried to make a convincing story based on the gathered evidence.[94]

Marco Haan, academic at the University of Groningen, was discussant in the session and remarked in the debate that the report was comprehensive, but that several issues would have needed some more scrutiny. Rabobank, pleased with the report of the NMa, made some remarks on the conclusions. Rabobank did admit that concentration and margins increased, but did not agree with the fact that margins would be high, margins would rather be "back to normal".[95]

Figure 3.7. – Mortgage rate, margin, swap rate and funding cost 2004-2010 according to Rabobank



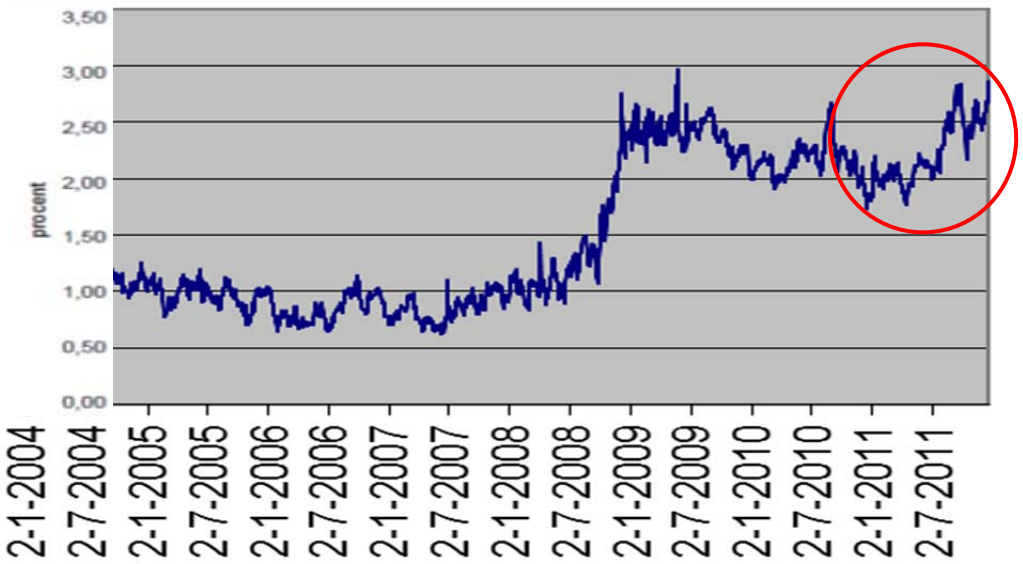
Source: Presentation Rabobank ACE Conference Bergen – Wim Boonstra, 2011, 18 November.

[93] See appendix 8.4. for the program. A transcript is available upon request.
[94] NMa presentation ACE Conference Bergen, (2011, 18 November), online available.
[95] According to Boonstra in his presentation of the ACE conference (2011, 18 November), online available.

However, zooming in on the above graph from the presentation of Rabobank, see figure 3.7., it seems that in the bank's own calculations, margins also doubled around mid-2009 from 0.5 to 1.0 per cent and were still considerably high at the end of 2010 compared to the average 0.6 margin before the crisis.[96] The bank indeed stressed in the presentation that margins had, quite different from what NMa had concluded, not come down. This graph does therefore not seem very convincing evidence that exculpates the financial institutions from charging 'too high' prices.

Based on the suspicion that prices would still be at an inexplicable high level, the VEH wrote a second letter to the NMa on December 22nd 2011, see appendix 8.3. This letter contained the request to more closely monitor the mortgage market and to take another critical look at the current mortgage margin.[97] The direct motivation for the letter was the exit of BNP Paribas, that announced to leave the Dutch market per 1st January, and the announcement of SNS not to sell mortgages through intermediaries anymore. The VEH argued that margins were again increasing after a short decline during the publication of the NMa report and had never been 'back to normal'. The VEH appended figure 3.8. in their letter to support the claim, which shows that margins never seem to have gone back to levels that were normal before 2008 and still are at a considerably high level.

Figure 3.8. – Suggestive evidence of persistently high mortgage margin also after 2010



Source: Letter of the VEH to the NMa to closely monitor the mortgage market, December 22, 2011, p.3

[96] A margin of 1 percent point on 5 percent interest rate is 20 percent and can be considered reasonably high. The underlying data behind the figure are not available.

[97] VEH (2011) Letter to the NMa to closely monitor the mortgage market, December 22nd.

The NVB refused to give an explanation for the anew increasing margin. The NMa responded in a letter that she was still closely monitoring the market and would provide further information in case the results would give reason to do so. According to the figures, the evidence in the report of the NMa that margins would be *strongly* decreasing after 2010 thus seems to be somewhat ambiguous. The different calculation methods of the NMa show different developments of the margin and so do the calculations of Rabobank and VEH. Both Rabobank and VEH agree that margins are still high, even though NMa concludes they came down around the time of the announcement of the NMa sector inquiry. It is therefore questionable whether margin indeed fell back to levels that were normal before the crisis.

The on-going debate about the mortgage margins after the publication of the NMa report clearly shows the dissatisfaction of many stakeholders with the study. Even though the NMa started the investigation quite toughly with the Quick Scan in November 2010 and performed an extensive sector study, the final report seems to lack persuasiveness. To illustrate this, the arguments of the NMa as well as the arguments of the banks need some closer examination.

3.3.1. High margins compared to neighbouring countries

Looking at figure 3.1. is becomes clear that while the interest rate of the other European countries seems to follow the cost developments, the Dutch rate shows a clear breaking point around the spring of 2009. One of the main criticisms of both VEH and Consumentenbond on the sector study of the mortgage market was the fact that the NMa did not make any comparison with neighbouring countries. This indeed seems peculiar, as the international difference in mortgage rates was the initial motivation for the NMa to start the investigation. Furthermore, the Quick Scan did provide an comprehensive comparison of the mortgage rates in France, Belgium and Germany and confirmed that mortgage rates indeed relatively increased after the beginning of 2009.[98]

The NMa shortly mentions the international comparison in the final report, but states that the adapted margin calculation methods made it hard to provide an international benchmark, due to the lack of recent, detailed and reliable data about volumes and prices. In a footnote the NMa shortly indicates that a rough comparison with Germany proved that

[98] NMa (2010), Quickscan Hypotheekrente, Den Haag, November, p. 28 & 29.

Dutch margins relatively increased after 2008, but declined to more normal levels around the publication of the report.[99] This would indicate that further investigation is needed, but the issue does not receive any closer attention in the remainder of the report.

3.3.2. Risk

The NMa working paper by Mulder and Lengton suggests that both risk and costs are important determinants of the interest rate. The large banks exactly appoint these two factors as the reason for the difference in interest rate between the surrounding countries. Banks argued that the Dutch market and its mortgage products are structurally different from other European markets (see also chapter 2). Banks would therefore face higher risk.[100] Sources for this increased risk would be the higher loan to value, due to the tax deductibility of the mortgage interest, and the possibility of free early redemptions.[101] Interest rates do, however, not show any mark-up compared to other countries in the years prior to 2009 to compensate for these risks.

Nevertheless, we cannot exclude that risk did increase to some extent compared to other countries during the crisis due to the tax-deductibility in the Dutch market. This specific feature of the Dutch mortgage market increases the risk of future repayments during times of crisis. When mortgage holders lose their jobs, they not only face problems repaying the original amount of mortgage costs, their mortgage costs are also increasing as they enter a lower income-tax bracket. However, there is no indication that these considerations influenced pricing strategies. Also, the number of forced sales in the Netherlands seems to be relatively low compared to other countries and only very moderately increased in recent years.[102] Furthermore, due to limited payment debts and the large share of mortgages with a National Mortgage Guarantee, the Dutch market is considered reasonably robust.[103] Despite of the effect of the tax-deductibility of Dutch

[99] NMa (2011), Sectorstudie hypotheekmarkt; een onderzoek naar de concurrentieomstandigheden op de Nederlandse hypotheekmarkt, Nederlandse Mededingingsautoriteit Den Haag, May, p. 12.
[100] According to Boonstra in his presentation of the ACE conference (2011, 18 November).
[101] In December 2010 the IMF even warned the Dutch authorities that the level of Dutch mortgages were among the highest in the world compared to house prices
[102] From NMa, 2011, p. 70.
[103] According to DNB in 2011

mortgages, the explanation of the banks with respect to risk does therefore not seem very powerful.

Nonetheless, the incorporation of a risk element in the analysis of the NMa does not seem very thoroughgoing and would have needed some further attention. In the breakdown of the mortgage margin, as in figure 3.5. and 3.6., risk is a stable element that would not have altered over the years. To provide a more in-depth analysis of the increased risk elements it would have therefore be sensible to study risk as a separate factor, instead of plotting in one graph with cost elements.

3.3.3. Cost

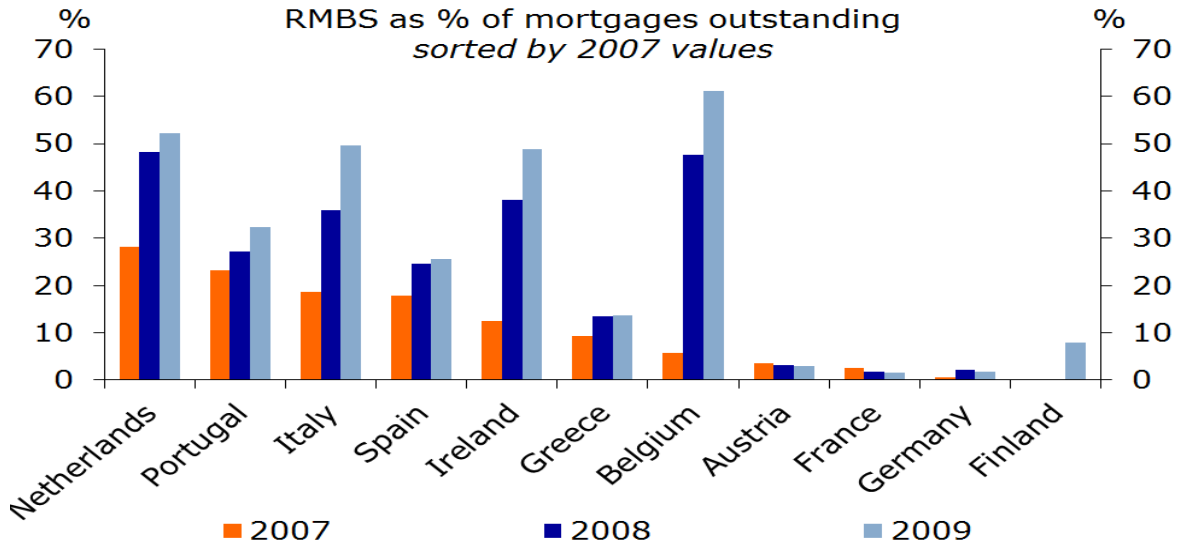
Apart from risk, banks furthermore argued that the closure of the securitization market led to huge problems for many Dutch banks, as these banks relied heavily on securitization funding compared to other countries, such as Germany. Banks that could not find long-term funding anymore, had to fall back on the savings market. This market is, however, relatively small in the Netherlands, due to the fact that a huge part of private savings is contractually put into pension funds and insurance companies.

Additionally, the banks argued, the share of short-term savings (< 1 year) in the Netherlands disproportionally increased compared to other countries. As an effect, long-term mortgages would increasingly have to be financed with short-term debt, which would imply greater risks.[104] This argument implies that long-term mortgages would bear more risk than short term mortgages. You would therefore expect a higher mark-up above the risk-free rate for long-term mortgages than for short-term mortgages. However, looking at figure 3.5. and 3.6., the opposite seems to be the case. During the period of high margins, the mark-up on short-term mortgages is around three per cent points, while for long-term mortgages this is only two per cent points. The argument is therefore either invalid for both types of mortgages, or, at least, margins would be too high for short-term mortgages. This is alarming as around 50 per cent of Dutch households rely on mortgages with a short-term interest rate.[105]

[104] According to Boonstra in his presentation of the ACE conference (2011, 18 November).
[105] NMa, 2011.

Apart from that, these arguments might explain part of the difference with Germany, which relies less on securitization and has a higher level of free savings than the Netherlands. It does however not explain the sudden discrepancy in interest rate with, for example, Italy, which has very comparable levels of securitization and savings; neither does it explain the sudden rise above the EU average. Figure 3.9. shows the amount of securitization used by banks as a funding source for mortgages. Germany indeed had a much lower share of securitization than the Netherlands, but many other countries such as Portugal, Italy and Belgium relied on comparable amounts of securitization in 2007.[106] These countries did not show such a drastic increase in mortgage margins.

Figure 3.9. – The amount of securitization as funding source for outstanding mortgages



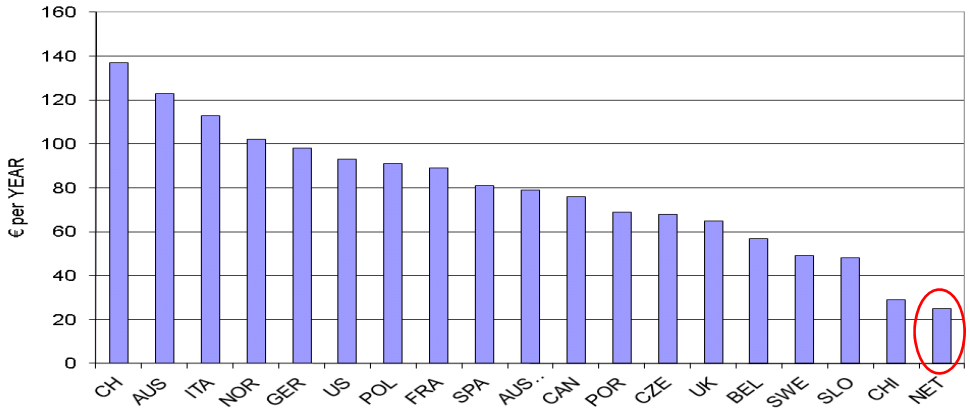
Source: Boonstra, 2011, p.26.

On top of this, the Dutch banking sector in general is one of the most efficiently operating ones compared to other countries when looking at Figure 3.10. This figure shows that the Netherlands offered the cheapest cost package of basic banking services in 2005. Such comparison has not been done more recently, but according to Rabobank, the Netherlands still belongs to one of the cheaper European countries.[107] It does therefore not seem very convincing that increased cost could solely have led to an interest rate 25 per cent higher than the average Eurozone rate.

[106] According to Rabobank, however, some of these markets are significantly smaller in scale than the Dutch mortgage market

[107] In the Rabobank presentation on the ACE Conference, Bergen, 18 December, 2011.

Figure 3.10. – Cost of basic banking services in €, 2005



Source: Boonstra, 2011, p. 19

3.3.4. Collusion

In the final report, the NMa concluded that the market for Dutch mortgages seemed to be favourable for collusion. Not only because the market is highly concentrated, but also because it is a transparent market that, at least temporarily, faced high entry barriers due to the financial crisis. Banks argued that these entry barriers were non existing and that it was very easy to enter the market.[108] Though, if entry would have been that simple, you would expect to observe a significant inflow of firms, especially in a period of high margins. This inflow was however not existing during that period, such that the existence of entry barriers seems likely. On top of this, as explained in the previous chapter, the market is characterized by a leader-follower structure; an issue the NMa did not take into account. Several papers, such as Mouraviev & Rey (2011), find evidence that price leadership can facilitate collusion, because deviations by the leader can immediately be punished as these deviations are directly observed by the followers. This reduces the leader's incentives to deviate and makes a collusive outcome more easily sustainable. This implies that the mortgage market would even be more sensitive to collusion than already assumed by the NMa.

To investigate the likelihood of collusive behaviour the NMa used mean-variance tests. These methods try to identify remarkable or inexplicable patterns in average prices and/or the variance of prices, for example in the Abrantes-Metz method.[109] The approach is

[108] Such as Wim Boonstra in the Rabobank presentation on the ACE Conference, Bergen, 18 December, 2011
[109] Abrantes-Metz, R. Froeb, L., Geweke, J., Taylor, C. (2006), A variance screen for collusion, *International Journal of Industrial Organization*.

based on the idea that in some known cartel cases, variability in prices was lower during, than before and after the cartel. The NMa investigated the spread – the difference between the highest and the lowest rate – of window prices among the large banks, but did not find such lower variability. Furthermore, the NMa investigated the spread of the standard deviation with the Abrantes-Metz method. This method examines whether there is a relationship between the level of the margin and the standard deviation of the mortgage rate. If a cartel exists in a period of relative high margins, you would expect a lower standard deviation due to the price agreement. Plotting this in a figure would therefore give a point cloud around the low standard deviation. The tests, however, neither showed significant evidence of low variance in prices, nor of a smaller spread among prices. On the basis of this evidence, the NMa concluded that there was no reason to suspect collusive agreements.

This seems, however, to be a peculiar way of using the outcome of screens, which are intended to be used as "a statistical test designed to identify industries where competition problems exist, by looking for events that are highly improbable unless firms in the industry have coordinated their actions".[110] The test is not designed to prove that competition problems do not exist when the test results are negative. To illustrate this, consider a casino: the probability that someone wins fifteen times in a row is incredibly small. If the owner sees this happen, this does not enable him to prove the person is cheating, but he may better want to closely watch this person during the rest of the game. On the contrary, if that person is sometimes losing, this does not prove that he is not cheating. Screens therefore do not prove collusion, neither do they disprove collusion. In their analysis, the NMa actually uses the lack of circumstantial evidence, the low standard deviation, to dismiss the direct evidence of inexplicably high prices in a market that is sensitive to collusion. The used tests do therefore not seem a very convincing proof that collusion is not existing.

Furthermore, the Abrantes-Metz test is designed to test for explicit cartels in which price agreements are made. It does, however, not test for tacit collusion, where prices are implicitly coordinated, but not explicitly fixed. In such cases, prices usually are not identical and generally show larger variance than in a cartel situation. The NMa did not investigate the possibility of this kind of behaviour. Besides, if the NMa really suspected an explicit cartel, it seems peculiar that solely an econometrical test is performed, instead of

[110] Abrantes-Metz, R. & Bajari, P. (2009), Screens for Conspiracies and their Multiple Applications, *Antitrust*, 24, (1), p. 66.

undertaking a dawn raid, which the NMa would normally do when collusion is expected.[111] By the time the NMa would have found indications of coordination with the Abrantes-Metz test, all evidence probably would have been disappeared and merely the test would not have provided sufficient evidence in court. In addition, if the test would have flagged for collusion, that alone would not have been sufficient to build a case on. The approach chosen by the NMa, therefore gives the impression that the NMa never really considered cartel formation a possibility and did not properly investigate the probability of coordinated behaviour in the industry.

3.3.5. Increased concentration

The NMa recognized that increased cost and risk could not by itself explain the high margins and therefore relied on the argument of increased concentration. The NMa argued that the exit of (part of) the competitive fringe during the crisis led to a temporary decrease in competitive pressure. As explained in the first section of this chapter, this could be due to two effects: a unilateral effect and a coordinated effect. As the NMa considered coordination of prices to be unlikely, she appointed the increase in *unilateral* market power as main cause for the rise in mortgage margins. In their analysis, the NMa used HHI and C3 ratios as measures for concentration. The previous chapter explained that these measures are widely recognized by the traditional Industrial Organization literature, but are very much questioned by more recent empirical work. Equating competition to concentration can therefore not be regarded as a suitable measure, because the relationship is not unambiguous.

The limitedness of HHI ratio as a measure for competition in this market becomes also apparent when taking into account that the HHI is calculated on the basis of newly registered mortgages, not on the (much larger) installed base of banks. By measuring the HHI on new mortgages, the increase in HHI could be much larger.[112] Consider the following situation: there are 100 customers and there exist three large banks that respectively

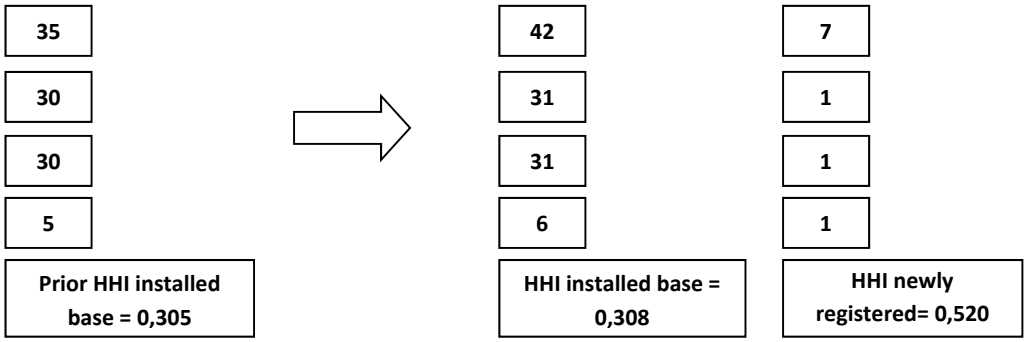
[111] On October 18th, for example, the Commission did undertake unannounced inspections at several large European banks to investigate a suspected cartel in the Euro interest rate derivatives sector (EURIBOR), Source: Memo/11/711 from the Commission, October 19th 2011, Brussels. However, a lack of strong evidence towards price coordination might also explain why the NMa did not perform a dawn-raid.

[112] As argued by Marco Haan in his presentation on the ACE Conference, Bergen, 18 December, 2011

possess 35, 30 and 30 customers and there is a competitive fringe that constitutes the remaining 5. At a certain point in time 10 new customers are entering the mortgage market. Customers have most confidence in one of the banks, for example the largest and most stable one[113], such that seven customers move to that bank; one customer to each of the other two large banks and one to the small fringe.

Figure 3.11. shows what happens if the HHI is calculated on basis of the newly registered mortgages. The method used by the NMa would give an HHI of 0.520, while calculating the HHI on basis of the installed base yields an HHI of 0.308. The sketched situation might be a bit exaggerated, but is illustrative to show that the method of calculation of the HHI matters. In the econometrical estimations, the HHI-effect could in this way have attained a larger importance than can be assumed reasonable. On the other hand, the question remains what would be a better measure of market power: the large installed base of incumbents for which banks cannot change the price, or the newly registered mortgages and switching customers for which banks *can* set the price. The latter group is, however, expected to be small in times of crisis in which few new mortgage holders wish to enter the market. In any case, it is a matter of debate that would have deserved some more attention.

Figure 3.11. – Difference in calculation of HHI

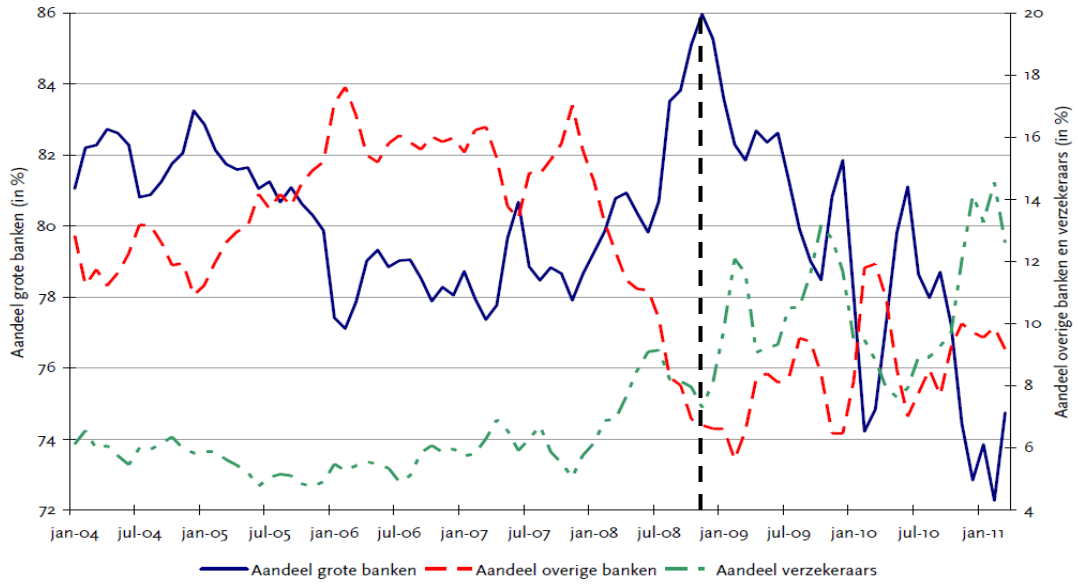


Besides the method of calculation of the HHI, it is important to note that the HHI can only adequately tell us something about the level of market power if products are somewhat differentiated. Since, if products are perfectly homogeneous, under price competition, prices are already perfectly competitive when there are just two competitors. So, only if there is a

[113] In our argument this could be Rabobank, the only bank that was not in need of State support during the financial crisis and was therefore probably regarded the most strong and stable bank.

considerable amount of product differentiation, an increase in the HHI will have a strong positive effect on the price due to a unilateral effect. As pointed out in the first chapter of this thesis, product differentiation can be assumed to be considerably small among mortgage providers if we control for specific mortgage characteristics. Mulder & Lengton (2011) *do* control for this in their empirical analysis.[114] So even though the (marginal) HHI is higher during the period of the mortgage margin increase, the relationship might be weaker than expected by the NMa.

Figure 3.12. – Development market share of large banks, small banks & insurance companies (based on new registered mortgages January 2004 – March 2011



Source: Sectorstudie Hypotheekmarkt, NMa, May 2011, p.23.

Apart from the fact that the calculated HHI might not be as indicative for unilateral market power as expected, figure 3.1. shows that HHI gradually started to increase from the beginning of 2007. Margins, however, increased much more drastically in the spring of 2009, a period in which the HHI was actually decreasing to more normal levels of 1.700 again. Figure 3.12. displays a more detailed analysis of the increase in market share of the different mortgage providers. This figure shows a strong increase in market share of the large banks, at the expense of the smaller banks and insurance companies, between mid-2008 and end-2008. From the beginning of 2009, a strong decline can be observed, after which the share of large banks is back at levels that were common before the crisis around mid-2009, the

[114] Mulder & Lengton use 5 year fixed NHG mortgage rates

moment the margins start to incline. The margin increase does therefore not seem to match the trend in HHI. The explanation of an increase in unilateral market power, due to a higher HHI, does therefore not seem sufficient to explain the sudden rise in interest rate margins.

3.3.6. Price leadership bans

What potentially remains is an increase in the coordinated effects, either endogenously or triggered by an exogenous event. One such event could be the conditions imposed by the European Commission on several Dutch banks. Soon after the out-break of the financial crisis many of the large Dutch financial institutions, such as ING, ABN Amro-Fortis and AEGON, received State aid. The European Commission, in response to the given State aid, set up behavioural conditions for the aided banks with the goal to preserve a competitive environment. In this light, several large banks faced forced divestures and price leadership bans. These price leadership bans stated that aided banks were not allowed to be price leader or set prices among the lowest three providers in the market, such that aided banks could not use State aid to offer more favourable tariffs. It is quite likely that these bans could have had substantial effects on prices and price setting behaviour. As several of the (large) banks were limited in their ability to compete in prices, the others could potentially experience less competitive pressure.

The NMa considered these conditions and indeed found that there exists a significant relationship between these price restrictions and the mortgage rates. The empirical study tests for this relationship by verifying the number of months per year that the three state-supported banks belonged to the lowest three suppliers. Using this statistic, Mulder & Lengton (2011) are however not able to test the exact influence of the price leadership restrictions, as they cannot observe the relevant break on a monthly basis. According to Mulder in a personal interview, a more thorough analysis of this influence was desirable, but not feasible given the constraints of time and available data. Nevertheless, the analysis does confirm that when the three aided banks price less aggressively, either at their own discretion or due to PLBs, the interest rate significantly increases.

The negative sign in their regression results shows that an active pricing policy of banks leads to lower interest rates on the market.[115] Even though the internal NMa working paper suggests that the bans have contributed to the higher mortgage margin, the NMa dismissed the conditions as explanatory variable in its final report, which states:

"The State aid conditions do not explain the remarkable margin increase after 2008, because the increase took place before the conditions were enacted. Furthermore, the margins have fallen sharply again since mid-2010 to levels that were common before the credit crisis even though the conditions are still in place." [116]

The NMa did not go into any more detail. In the ACE presentation in November 2011, Bastiaan Overvest also confirmed that the NMa saw no reason to further look into the matter as it would be "a complicated story" to explain the increase in margins with the price leadership bans.

However, the fact that the conditions were enacted in November 2009, while the margins started to increase a couple of months before, does not mean there could not be a causal relationship. The EC conditions prescribed the State aided banks to behave in a certain manner and did therefore influence the price setting behaviour of these banks. Furthermore, other potential factors that influence the mortgage rate seem to lack sufficient explanatory power to completely clarify the sudden increase in margins. It is therefore worthwhile to further investigate these price leadership conditions and examine their potential effect on the mortgage interest rate.

3.4. Conclusion

In this chapter we showed that the Dutch mortgage market changed drastically during the financial crisis and studied the sector study of the NMa on the sudden increase in mortgage margins around mid-2009. The explanations and interpretations of the NMa are neither sufficient nor satisfactory to explain this increase. Even though the NMa concludes

[115] Mulder & Lengton, 2011.
[116] NMa (2011), Sectorstudie hypotheekmarkt; een onderzoek naar de concurrentieomstandigheden op de Nederlandse hypotheekmarkt, Nederlandse Mededingingsautoriteit Den Haag, May, p. 40, [my translation].

that the market is highly sensitive to coordinated behavior, especially after the developments in the market, the authority does not thoroughly analyze the possibility of such actual behavior. Instead, the NMa used inconclusive mean-variance tests as proof that there is no cartel suspicion. Besides, in a market that had already been characterized by price leadership, the NMa underestimates the possible consequences of price leadership bans by the European Commission on State aided banks. The NMa dismisses the conditions as a potential explanation for the increased margin sleight of hand, arguing that their enactment was after the initial rise in margins. This does, however, not mean that a causal relationship cannot exist. As the explanation of an increase in unilateral market power of the NMa does not seem sufficient to explain the historically high margin, the next chapter further examines the Dutch State aid and the consequent price leadership conditions. The chapter analyzes what the possible consequence could have been on the interaction between the large banks and their individual price setting behavior.

4. Dutch State aid and behavioural conditions

The collapse of the financial system soon after the outbreak of the subprime mortgage crisis changed the structure of the banking sector dramatically. A number of banks proved unable to withstand the enormous write-offs of bad loans and collapsed, others were taken over by the state or received aid to keep their heads above the water. The Dutch banking sector faced difficult times. The Dutch government took severe measures and several large banks received to a larger or lesser extent support from the state. This chapter zooms in on the period October 2008 to end 2009 to examine the State aid received by the large Dutch banks and the developments towards the price leadership conditions of the European Commission. Subsequently, the chapter analyses the potential effects of such behavioural conditions.

4.1. State aid in the Dutch banking sector

The financial crisis followed a period of explosive growth, not only in credit provision, but also in asset prices, especially housing. Although around end-2006 the default on subprime mortgages already started to rise, it was not until the summer of 2007 when banks really started to feel the liquidity problems.[117] Financial institutions had engaged in increasingly risky investments as subprime mortgages and fell into difficulties when the bubble bursted. In the heat of the financial crisis, after periods of rising concern about the stability of the financial markets, September 2008 marked a dramatic turning point with the collapse of Lehman Brothers. The US Government decided that this bank was not "too big to fail" to be saved and confidence in the soundness of other banks decreased intensively. This led to problems of liquidity access and banks became reluctant to lend to each other and to the real economy.[118] As interbank lending dropped essentially to zero, several major European banks, such as RBS, HBOS and Fortis Belgium, nearly collapsed.[119]

To European Member State governments it had become clear that it was necessary to intervene to prevent the further collapse of banks and to restore confidence in the overall

[117] Alhorn & Piccinin, 2009
[118] Commission Staff Working Document, Facts and figures on State aid in the Member States, Autumn 2010 Update
[119] Alhorn & Piccinin, 2009

financial system. Furthermore, the provision of credit by banks was necessary to stabilize the real economy that entered into a deep recession. In October 2008 the European ministers of Finance reached an agreement to secure a guarantee of at least 50.000 euros on saving deposits, which the Netherlands increased to 100.000 euros.[120] Besides, the ministers came to a similar guarantee for interbank loans to stimulate financial transactions between banks and agreed to support financially viable banks through recapitalizations. Recapitalization can take place in various forms: by revaluing upwards the asset side through capital injections, providing guarantees or purchasing existing assets, or by revaluing downwards the debit side.[121] Most governments decided to use some combination of these.

4.1.1. The EU Guidelines on State Aid

The Treaty of the European Union prohibits State support of national governments in order to keep a level playing field among the Union. Article 107 of the Treaty on the functioning of the European Union (TFEU) states:

"Any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."[122]

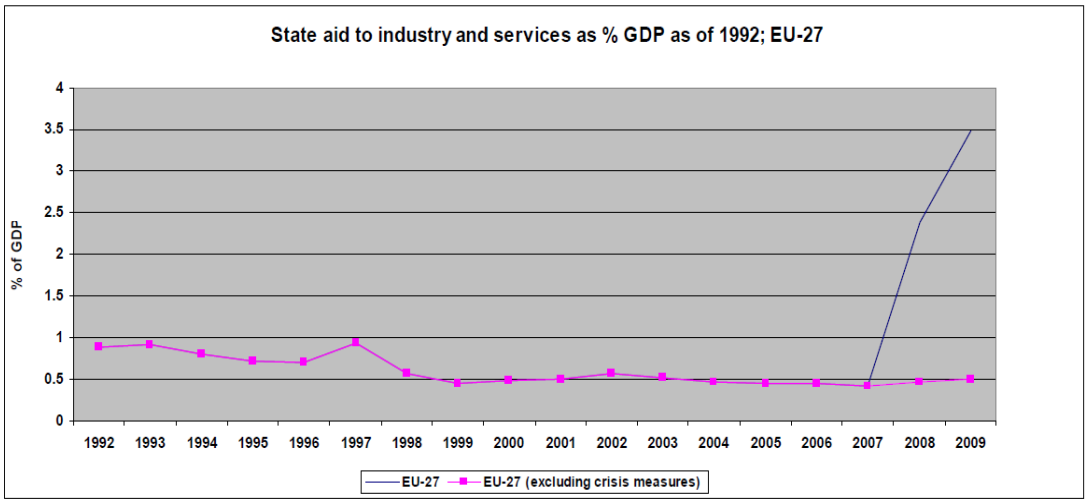
The objective of Article 107 is to ensure that government interventions do not distort intra-EU competition by providing an advantage to selective firms or institutions. The idea behind this is that even though State aid in the short-run can lead to lower prices for consumers, these benefits have to be compared with long-run losses. If State aid is used to exclude competitors by preventing exit or by means of predatory pricing, aid may distort competition in the long run and hurt consumers who will face future price increases.[123] In the history of the European Union the Commission has therefore been very strict and reticent in the

[120] Article on the Economic crisis: www.europa-nu.nl/id/vhrtcvh0wnip/economische_crisis
[121] Beck, 2010
[122] The Treaty on the Functioning of the European Union, Article 107 (1) (ex Article 87 TEC; formerly Article 92 of the 1957 Treaty of Rome), *Official Journal of the European Union*, C83/47, 30 March 2010.
[123] Friederiszick, H.W., Röller, L. & Verouden, V. (2006)

approval of State aid; in most cases the provision of State aid was blocked. The Commission did however recognize that the extreme circumstances during the financial crisis allowed for aid under Article 107(3)(b) of the Treaty, that permits state aid 'to remedy a serious disturbance in the economy of a Member State'.[124]

All Member States had their recapitalization schemes to be approved by the European Commission and this amount was overwhelming. In the period from October 2008 until October 2010 the Commission dealt with more than 200 debt guarantee and recapitalization schemes and 41 individual bank cases. This adds up to a total amount of state support of 1.6 trillion euros or 13 percent of EU-27 GDP of 2009, of which the largest part were state guarantees on bank liabilities.[125] The rest of the amount has been approved, in order of importance, for recapitalization measures, impaired asset relief and direct liquidity measures. Figure 4.1. pictures the development of European state aid to industry and services as a percentage of GDP from 1992 to 2009 and shows that aid had exploded from 2007 as a consequence of the financial crisis.

Figure 4.1. – State aid to industry and services 1992-2007



Source: Commission Staff Working Document, Facts and figures on State aid in the Member States, Autumn 2010 Update, p. 15

Not only the amount of cases and the short time frame were unique in the history of the European Commission, but also the complexity of the cases. The Commission therefore

[124] Article 107 TFEC prohibits specific kinds of aids and gives the EC the power to clear some such aid as "compatible with the common market"

[125] E.g. three quarters. Source: Commission Staff Working Document, Facts and figures on State aid in the Member States, Autumn 2010 Update

set out a framework, outlined in four Communications, that was based on the same general principles as the Rescue and Restructuring Guidelines of the 2004 'Community Guidelines on State aid for rescuing and restructuring firms in difficulty'. These principles require [126]:

- Aid to be as minimal as possible;
- Appropriate burden-sharing of the cost;
- The restoration of viability in the longer term without State aid;
- Adequate measures to minimize distortions to competition.

Aiming to ensure that effects on competition are minimized as much as possible, the Rescue & Restructuring Guidelines allow the Commission to impose 'compensatory measures', such as divestures, production caps or other behavioral commitments.[127] The purpose of such measures is not only to compensate non-aided firms for unequal treatment, but also to avoid moral hazard; e.g. to signal that State aid cannot be obtained free of charge. The Commission did recognize that circumstances were considerably different, as not just one bank was collapsing, but the entire financial system. Nevertheless, all recapitalization schemes were evaluated by and had to comply with these basic principles.

On the 13th of October 2008 the Commission announced in a first and general Banking Communication the applications of the state aid rules to banking. [128] This Communication sets out that aid should be non-discriminatory, time-limited and minimal in scale and scope. It furthermore requires appropriate burden sharing and private sector contribution, restructuring and winding-up procedures and behavioral rules to prevent unfair competition, such as restrictions on pricing or expansion. These behavioral rules were considered necessary in case State aid added up to a considerable amount of a bank's risk-weighted assets [129] and despite of restructurings could potentially seriously distort competition. This first Communication mainly focuses on a guidance for guarantee schemes as these proved to play a key role in the beginning of the State aid period. Besides guarantee schemes, recapitalization measures became a second important instrument for State aid.

[126] Adler et al., 2010
[127] See Article 39 of the Rescue and Restructuring Guidelines - EC2004/C244/02.
[128] EC2008/C 270/02 - Communication from the Commission - The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis, 13 October, 2008
[129] E.g. more than 2 percent

These measures were shortly addressed in the first Communication, but on the 5th of December 2008 dealt with separately in a second Recapitalization Communication.[130] In order to support free competition, the Commission prescribed that state capital injections need to be compensated with prices that are market oriented. The Commission furthermore emphasized the importance of safeguards to prevent distortions to competition:

"*Public recapitalization, in particular its remuneration, should not have the effect of putting banks that do not have recourse to public funding, but seek additional capital on the market, in a significantly less competitive position*."[131]

Next to recapitalization measures, many governments tried to tackle the problems at the root of where it all began: the impaired assets. The write-downs on asset-backed securities were huge when the uncertainty about their value started to rise. To avoid competition distortions due to impaired asset reliefs, the Commission came in February 2009 with the Impaired Assets Communication.[132] This third Communication not only covers the purchase of impaired assets, but also the nationalization of banks and provides an approach for the valuation of these assets. Its main aim is to remove the uncertainty of the size of write-downs and losses to banks and governments.

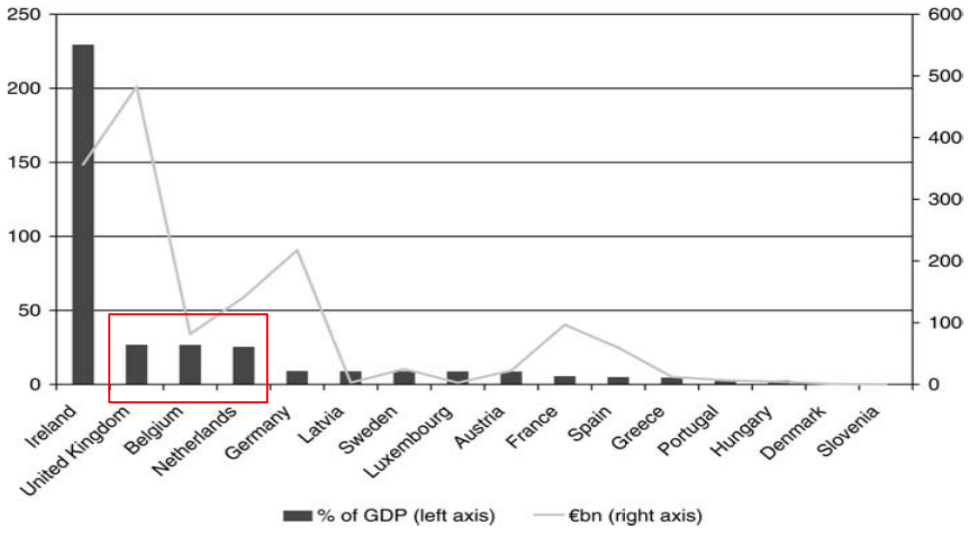
Finally, on the 23rd of July 2009 the European Commission closed its series of Communications with the publication of the Restructuring Communication.[133] This last Communication deals with restructuring plans for aid-receiving banks and is regarded to have set the framework for the ex-post evaluation of the State aid measures. The guidelines state inter alia that restructuring should not last more than five years as to quickly return to financial stability. All four Communications are based on the same fundamental principle: bring financial stability and minimize distortion of competition.

The European Commission used the above framework to deal with the 200 cases it faced between October 2008 and October 2010. Some countries were hit more severely by

[130] EC2009/C 10/03 - Communication from the Commission - The recapitalisation of financial institutions in the current financial crisis: limitation of aid to the minimum necessary and safeguards against undue distortions of competition, 5 December, 2008
[131] Article 10 of the Recapitalization Communication, p. 2
[132] EC2009/C 72/01 - Communication from the Commission - On the Treatment of Impaired Assets in the Community Banking Sector, 25 February, 2009
[133] EC2009/C 195/04 - Communication from the Commission - The return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State aid rules, 23 July, 2009

the crisis than others and therefore relied more heavily on State aid. The next figure shows that, discarding Ireland, which was a very exceptional case, the Netherlands was among the three countries that most heavily supported its financial sector, not only in absolute terms, but also relative to GDP. The Netherlands, together with Belgium and the UK, spent almost three times more on effective aid as a percentage of GDP than the fourth country, Germany. In many European countries just one financial institution was affected, but in the Netherlands, four of the major banks were in need of state support.[134]

Figure 4.2. – State aid across Member States (total effective aid in % of GDP and €m)



Source: Adler et al., 2010, p. 67

4.1.2. Dutch banks in need of State aid

ABN Amro-Fortis was the first Dutch bank that got into trouble in the fall of 2008. On the 3rd of October the Dutch government decided to take over the Dutch businesses of Fortis, including the ABN Amro assets owned by Fortis Netherlands; assets that were earlier taken over by a holding of RBS, Santander and Fortis. The institution was nationalized for an amount of 16.8 billion euros, which according to Wouter Bos, minister of Finance at the time, was market conform and did therefore not constitute as State aid.[135] One week later the Dutch government announced that it would make available 20 billion euros to support the

[134] Countries as Finland, France, Spain, Portugal and Sweden saw only one financial institution being affected, whereas in Germany 13, in Belgium 5 and in Ireland and NL 4 institutions were approved aid. Source: Sutton, 2010.

[135] EC C(2010)5347 final – Decision on the prolongation of the temporary approval of additional State support to Fortis Bank Nederland and ABN Amro, 5 April, 2011

equity balance of financial institutions and another 200 billion euros as guarantee for interbank loans.[136] A fund that was addressed by three of the large banks within one month.

On October 17th, the Dutch government stated that it would support ING with a recapitalization of 10 billion euros via special securities to reinforce their tier-1 capital.[137] In return, the Dutch government put forward two members of the Supervisory Board and ING committed itself to pay all the costs associated with the capital injection to the government. AEGON was next and received a capital injection on October 27th of 3 billion euros against similar conditions as the ING Group.[138] With already three of the large five banks in difficulties, SNS REAAL did not hold off and asked for a capital injection of 750 million euros hardly two weeks after AEGON and ING (for more detail see newspaper articles in appendix 8.2.).[139]

The European Commission was rapid in her response and temporarily approved all three interventions within one month.[140] In a Press release on the decision, European Competition Commissioner Kroes stated:

"*The capital injection is necessary to maintain the markets' confidence and to ensure the refinancing of this company. The intervention is limited in time and its distortive effect is minimised through appropriate safeguards.*"[141]

The Commission did however underline that the approval was conditional and of a temporary nature. Within six months the Dutch authorities had to submit a plan in which they secured the long term viability of the banks and adopted measures to minimize the distortion to competition.

The received aid soon appeared to be insufficient and in the beginning of 2009 ING transferred the risk of 80 per cent of their portfolio of American Alt-A mortgages to the Dutch government. This so-called illiquid asset back-up facility was worth 27.7 billion euros and was only given temporal approval by the EC, which announced an in-depth

[136] Nederland garant voor 200 miljard (2008, 13 October), NRC, p.1.
[137] Staat neemt belang in ING Groep, geen aandelenemissie (2008, 17 October), Beurscourant
[138] Ook staatssteun voor Aegon (2008, 28 October), Het Financieel Dagblad
[139] Staat versterkt kapitaal SNS REAAL met 750 miljoen euro (2008, 13 November), De Nederlandse Bank
[140] For ING on November 13th, for AEGON on November 27th and for SNS REAAL on December 11th 2008
[141] EC IP/08/1822 – Press release – State aid: Commission approves Dutch emergency recapitalization of AEGON, 27 November, 2008

investigation.[142] The combination Fortis-ABN in the meantime was still experiencing difficulties, despite of the nationalization and the short-term funding of 45 and 16.1 billion it received (and paid back in July 2009).[143] At the end of June 2009 ABN Amro-Fortis received a capital injection of 800 million euros in securities and a capital relief of another 1.7 billion euros by taking over the risk on several mortgage portfolios by the State.[144] Nearly five months later this was followed by a last capital injection, to the indignation of many Dutch taxpayers, to ABN Amro-Fortis of 4.4 billion euros.[145] The European Commission announced to start an in-depth investigation, not only into the capital injections received by Fortis-ABN, but also into the nationalisation of October 2008.[146]

Figure 4.3. – Overview of State aid received by Dutch financial institutions

Financial Institution	**Received State aid**	**Date**
Fortis - ABN-Amro	€ 45 billion short term liquidity facility	October 3rd, 2008 (repaid July 2009)
	€ 16.1 billion short term liquidity facility	October 3rd, 2008 (repaid July 2009)
	€ 800 million special securities	June 26th, 2009
	€1.7 billion capital relief	June 26h, 2009 (partly repaid)
	€ 4.4 billion capital injection	November 19th, 2009
ING Group	€10 billion special securities	October 17th, 2008 (partly repaid)
	€ 27.7 billion illiquid asset back-up facility	January 26th, 2009
AEGON	€ 3 billion special securities	October 27th, 2008 (repaid June 2011)
SNS Reaal	€ 750 million recapitalization	November 13th, 2008 (partly repaid)

At the end of 2009, the Dutch authorities depleted nearly the entire 20 billion euros available to capital injections and 52 billion of state guarantees. This amount was not only overwhelmingly high, but could also dramatically disrupt market competition, especially because Rabobank was the only large[147] bank not receiving State aid. This is exactly why the European Commission decided to thoroughly analyse the provided State aid. In an attempt to prevent distortions of competition, the Commission would therefore only give final authorization subject to certain (behavioural) conditions.

[142] EC IP/09/514 – Press release – State aid: Commission temporarily authorizes illiquid asset facility for ING, 31 March, 2009
[143] Compensatory measures were only implemented after the pay-back of this first amount of aid
[144] 2,5 miljard steun van Financiën voor ABN Amro (2009, 26 June), NRC, p. 1
[145] Bos: extra steun ABN Amro en Fortis nodig en nuttig (2009, 19 November), EuropaNu
[146] EC IP/09/565 – Press release - State aid: Commission opens in-depth investigation into alleged aids to Fortis Bank Nederland and Dutch activities of ABN Amro, 8 April, 2009
[147] E.g. more than 10% market share

In November 2011 the Dutch House of Commons appointed a parliamentary inquiry Commission, known as Commissie de Wit, named after its chairman SP member of parliament Jan de Wit, to investigate the crisis measures the Dutch government had undertaken between September 2008 and January 2009. Purpose of the inquiry was to gain insight in the creation of the measures and to draw lessons for the future. Several witnesses and stakeholders were interviewed between mid-November and mid-December 2011, including European Commissioner for Competition at the time, Neelie Kroes.[148] In the interview she explained the aim of the imposed behavioural conditions:

"It were proposals from the Netherlands, The Hague, that had to be verified with the Treaty, to give anyone as much chance on a level playing field as possible. Otherwise you are keeping someone's head above the water, while you are making it the others much harder to compete without State aid."[149]

The scope and nature of the behavioural conditions imposed by the European Commission and their potential effect is something to which we turn now.

4.2. Behavioural conditions of the European Commission

The temporal approval of the recapitalisation measures to four of the Dutch banks was followed by investigations on the side of the European Commission and proposals on the side of the Dutch authorities. Within six months the aid recipients had to submit a plan showing inter alia how distortions to competition were limited to the minimum. In these six months consultations between banks, the Commission and the Dutch authorities were held. According to Mrs Kroes in the parliamentary inquiry: "In such a situation there is obviously a dialogue going on".[150] The basis of the decisions adopted by the European Commission nevertheless were the four Communications outlined in the previous chapter.

[148] European Commisioner for Competition from 2004 - 2010
[149] Parliamentary Inquiry Financial System - Official report of public hearings – Mrs. Neelie Kroes on 7th of December 2011, Den Haag, p. 1452, [my translation].
[150] Parliamentary Inquiry Financial System - Official report of public hearings – Mrs. Neelie Kroes on 7th of December 2011, Den Haag, p. 1461, [my translation].

After a long in-depth investigation and several rounds of discussion on the conditions of the aid and the extent of restructuring, ING received final authorization for its restructuring plan in November 2009.[151] In view of the large amount of aid involved, ING had to thoroughly restructure by separating its complete insurance branch, divest ING Direct US and carve out their business unit of Westland Utrecht Hypotheekbank (WUH). On top of that, the bank agreed with behavioural conditions to limit distortions to competition: an acquisition ban for three-years and a price leadership ban for the EU for a period of three years maximum.

The behavioural conditions were based on the guiding principle mentioned in the temporal approval that "aid must be limited (…) so as not to allow the beneficiary to engage in aggressive commercial strategies that would imply undue distortions of competition".[152] The price leadership ban as in the decision of the Commission is described as follows:

"The Netherlands furthermore commits that ING will adhere to a price leadership ban: Without prior authorization of the Commission, ING will not offer more favourable prices on standardized ING products than its three best priced direct competitors with respect to EU-markets in which ING has a market share of more than 5%.

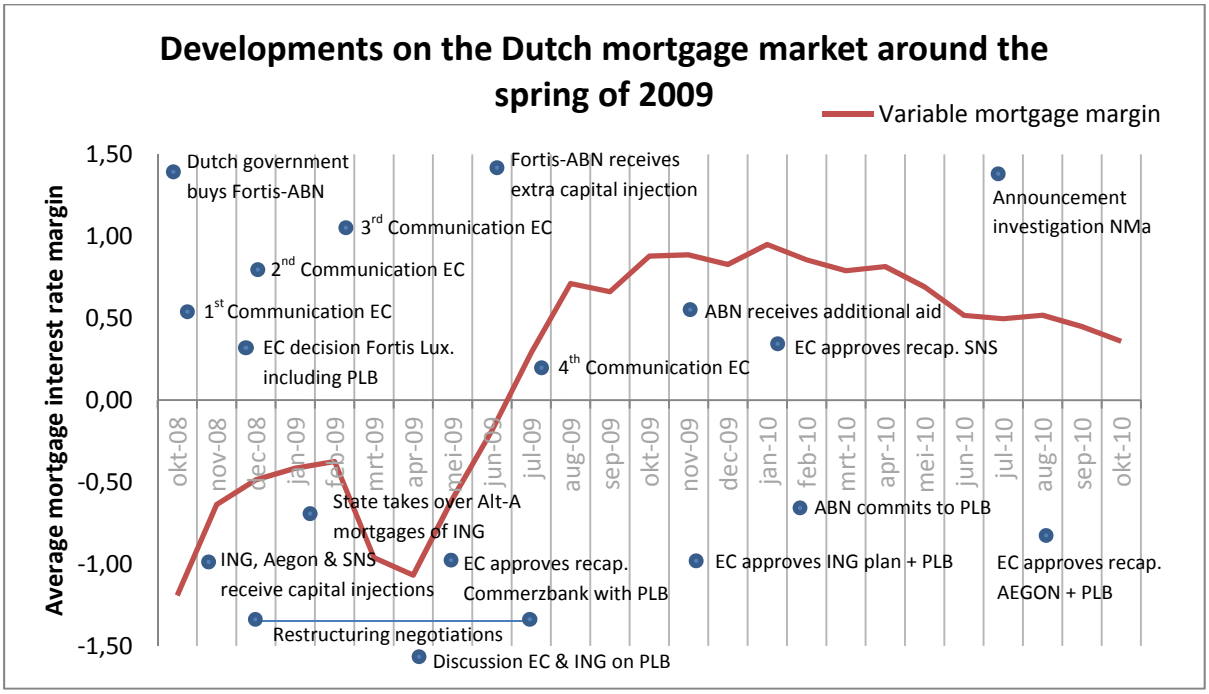
This condition will apply for three years starting from the date of the present Decision or up to the date on which ING has fully repaid the Core-Tier 1 securities to the Netherlands, whichever is shorter."[153]

The approval of recapitalisation for SNS and AEGON followed a few months later.[154] As the aid received by SNS was sufficiently small (less than 2 per cent of their risk-weighted assets), no other behavioural measures were considered necessary. For AEGON, however, a similar - but less strict - price leadership ban as for ING was imposed, in which AEGON complied not to be first market leader on the mortgage market. Furthermore, commitments

[151] EC 10/2009 – Commission decision on the State aid implemented by the Netherlands for ING's illiquid Assets Back-Up Facility and Restructuring Plan, 18 November, 2009
[152] EC N 528/2008 – Temporal Commission decision on Aid to ING Group NL, 13 November, 2008, Art. 68
[153] EC 10/2009 – Commission decision on the State aid implemented by the Netherlands for ING's illiquid Assets Back-Up Facility and Restructuring Plan, 18 November, 2009, p. 35
[154] Approval for SNS is on 28th January 2010, approval for AEGON on 17th August 2010

were made to repay the State capital before the end of June 2011.[155] The final decision of Fortis-ABN took a considerable amount of time due to the complexity of the measures, including nationalization. In the meanwhile, however, several progress reports were published, such as the one of February 5th 2010, in which the bank commits to a price leadership clause, that prohibits the bank from setting the lowest price in the market.[156] The final decision was published more than a year later, in which the Commission approved the restructuring plan subject to several conditions including an acquisition and price leadership ban and an appropriate own contribution to the cost.[157] Even though the measure had been imposed on other banks before, the ING decision was the first time the price leadership condition was explicitly mentioned in the Netherlands.

Figure 4.4. – Developments on the Dutch mortgage market October 2008 – October 2010



Source: the variable mortgage margin is based on the mortgage tariff calculation method used by the NMa; it is the average margin on the interest rate of variable mortgages (data from figure 3.5.)

Figure 4.4. pictures the developments in the market in the period of State aid decisions, together with the mortgage margin that shows a drastic increase starting in the

[155] AEGON repays €1 billion before December 2009, another €0.5 billion in August 2010 and the remaining €1.5 billion in June 2011; price leadership bans are therefore omitted per July 2011

[156] EC 11/09 Procedures relating to the implementation of Competition Policy - Recapitalization measures in favor of FBN and ABN Amro Group, 5th February, 2010, art. 144

[157] EC 11/2009 Commission Decision on the measures implemented by Dutch State for ABN AMRO Group NV (following the merger between Fortis Bank Nederland and ABN AMRO N), 5 April, 2011

spring of 2009. The figure shows that the margin started to rise well before the first restructuring was approved and price leadership bans were imposed. However, as the figure also shows, numerous developments were going on before the bans were eventually enacted[158]. Even though officially the first price leadership ban was imposed on ING in November 2009, numerous discussions, consultations and negotiations characterized the process towards the ban in the preceding months. It is therefore reasonable to assume that the conditions did not come as a complete surprise to the banks. To examine at what point in time the scope and nature of these measures became apparent, we further zoom into the developments during this process of consultation and negotiation.

In October 2008, the moment the first State aid was granted, the Commission published its first Communication. Article 27 of this Communication states that any guarantee scheme must include safeguards to avoid the potential abuse of the preferential status. The Commission suggests behavioural constraints that restrict 'commercial conduct' such as advertising, *pricing* or expansion.[159] Compensatory measures that were earlier also imposed on (non-financial) State-aided firms under the Rescue & Restructuring Guidelines. The second Communication of the Commission also underlines the importance of (behavioural) safeguards to protect competition.[160] This makes clear that in the earliest phase of the State aid guidelines there had already been spoken about price restrictions. The last, fourth, Communication was published in July 2009 and set the framework for restructuring measures, including a potential price leadership ban. In the parliamentary inquiry of Commission de Wit, Commissioner Kroes explained the process towards the publication of the Banking Communications:

"The Communications were not the product of one working day of my people. It is a process that has been handled in extremely close consultation with the various stakeholders. We were already before the date of publication of the Banking Communications discussing what its contents might be. At the time of publication it is therefore not entirely a surprise."[161]

[158] For a complete list of developments in the period 2008-2011, see Appendix 8.5.
[159] EC2008/C 270/02 - Communication from the Commission - The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis, 13 October, 2008
[160] See quote earlier in this chapter
[161] Parliamentary Inquiry Financial System - Official report of public hearings – Mrs. Neelie Kroes on 7th of December 2011, Den Haag, p. 1457, [my translation].

This quote makes clear that banks were aware of (the scope of) the content of the Communications and the potential measures they would face in the near future, in particular PLBs, before the actual publication of these Communications.

After the first Communication, the potential price restrictions were also implicitly mentioned in the temporal approvals of the three banks. All three decisions mention the fact that measures are necessary so as to not allow for 'aggressive commercial strategies' of the institutions.[162] In the six months that followed, intensive consultations have been held between the different parties to agree upon the final measures. Article 32 of the final decision for ABN Amro explicitly mentions: "During the procedure, numerous information exchanges, teleconferences and meetings between representatives of the Dutch State, ABN AMRO NL and FBN and the European Commission took place".[163]

Also in case of ING, several meetings took place between October 2008 and November 2009. According to a public document of the European General Court, the Commission, the Dutch government, the Dutch central bank and ING came together on April 24th 2009 in which the Commission expressed that it would only give final approval under specific conditions of divestment, acquisition measures and a price leadership ban.[164] For ING, it probably became clear during this meeting that pricing measures would be inevitable for their restructuring plan to be accepted. The conditions, implemented in November 2009, should therefore not be considered as unexpected measures suddenly being imposed, but rather as a result of on-going negotiations, as also depicted in figure 4.4.

In the meantime, Rabobank, as the only non-aided large Dutch financial institution, was concerned about its competitive position, as appears from newspaper articles from this period.[165] Price leadership bans on their greatest competitors would therefore most probably be favourably received by Rabobank. Especially because these competitors previously tended to undercut Rabobank and the bank was no longer able to capture a larger

[162] For ING in article 68 of the temporal decision of 13 November 2008, for AEGON in article 69 and 70 of the temporal decision of 27 November 2008 and for ABN in article 144 of the temporal decision of 5 February 2010
[163] EC 11/2009 Commission Decision on the measures implemented by Dutch State for ABN AMRO Group NV (following the merger between Fortis Bank Nederland and ABN AMRO N), 5 April, 2011
[164] Decision General Court of the European Union, 2 March 2012, T-29/10 & T-33/10, article 14.
[165] See for example: Rabobank jaagt concurrentie in gordijnen met uitspraken (2009, 20 June), de Telegraaf, see appendix 8.2.

share of first-period profits as the barometric leader, as explained in chapter two.[166] It is therefore not hard to imagine that the non-aided banks would attempt to lobby for such conditions in Brussels soon after the first banks received aid.[167] Mrs. Kroes confirmed this in the parliamentary inquiry by stating:

"(…) in the private interview I mentioned that the healthy players also came to visit me for coffee. They said: go ahead, but keep in mind that it is not going to happen that those that are kept above water with tax money now, later can compete in a market where we have to compete on our own."[168]

This furthermore indicates that the price leadership bans may have been actively lobbied for well before their actual implementation.

In addition, not only could the Dutch banks have anticipated such measures due to the implicit statements in the Communications and temporal approvals, these behavioural commitments also had precedents elsewhere. As early as December 2008, the Commission approved the Belgian state guarantee to Fortis. In this decision Fortis commits itself 'not to offer one of the best interest rates on household deposits'.[169] A few months later, in May 2009, Commerzbank (Germany) is facing similar conditions after the approval of its 18 billion recapitalization. The bank is not allowed to offer more favourable terms than its competitors, even in markets in which it has a much lower market share than most Dutch banks (already from 5 per cent).

"*Germany and Commerzbank have undertaken to prevent undue distortions of competition by adhering to a number of requirements. One of these is an obligation for Commerzbank, in principle, not to offer prospective customers more favourable terms than its main competitors in its future core business areas*." [170]

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[166] As explained in Chapter 1, Rabobank, as a historical barometric leader, did not earn the largest profits in the modern banking situation, as its ability to capture a large market share in setting its price first had been eroded. Rabobank therefore received lower profits than before and would probably welcome conditions that would prohibit its rivals to undercut the bank's prices.

[167] Rabobank klaagt in Brussel over concurrentie (2009, 29 August), Z24 Zakelijk Nieuws

[168] Parliamentary Inquiry Financial System - Official report of public hearings – Mrs. Neelie Kroes on 7th of December 2011, Den Haag, p. 1452, [my translation].

[169] EC NN 42/2008 Decision on Restructuring aid to Fortis Bank and Fortis Bank Luxembourg, 3 December, 2008, Art. 94

[170] EC N 244/2009 State aid – Commerzbank – Germany, 7 May, 2009, Art. 110

It is one of the first decisions of a large restructuring case of the financial crisis and provides guidance for further EC cases. Within this context, the second Competition Policy newsletter of 2009 evaluates the case and the decision in an comprehensive article.[171] The article analyses the measures taken, the procedural context and provides an assessment of the decision. The price leadership ban is, according to the European Commission, considered a suitable mean to prevent expansion of aided banks at the expense of their non-aided competitors. The article states:

"These behavioural commitments introduced in the Commerzbank decision have since become a standard instrument under the Restructuring Communication"

Taken all these developments towards the spring of 2009 together, it is reasonable to assume that around the spring of 2009 it became clear to the Dutch banks, that pricing measures would eventually have to be incorporated in their restructuring proposal to the European Commission.[172] Remarkably it is exactly around this period that margins start to incline towards unprecedented heights (see figure 4.4).[173] This suggests that the EC conditions possibly affected interest rate margins. The NMa concludes that no causational relationship exists between the leadership bans and the margin, as the measures were enacted well after the initial increase in margins. However, as the need for these measures became evident months before, *expectations* about the bans could have influenced the pricing behaviour of the large banks. To analyse how the measures could have influenced price setting strategies, we first turn to some literature that addressed this issue in evaluating State aid decisions.

4.3. The potentially detrimental effect of price leadership clauses

Soon after the first authorizations by the European Commission, several authors addressed their concern about the behavioural remedies imposed on banks. The conditions

[171] Genner et al., 2009, p. 85
[172] Proposals the Netherlands had to submit around May 2009
[173] Compared to the period Jan-2004 to Feb-2011

were designed to prevent an increase in market power of recipients due to cross-subsidization or even predatory pricing. However, while the remedies removed the ability of such pricing strategy, they, at the same time, increased the market power of non-aided banks by limiting the aided bank's ability to compete. The Commission therefore faced a trade-off between competitive distortions prevented by the remedies and distortions caused by them.[174] The Rescue & Restructuring Guidelines of 2004 already underlined the importance of an appropriate assessment of the relevant market structure and competition to ensure that:

"Any compensatory measure does not lead to a deterioration in the structure of the market, for example by having the indirect effect of creating a monopoly or a tight oligopolistic situation."[175]

It appears that during the State aid negotiations, comparable internal discussions within the European Commission were going on about the application of specific types of compensatory measures and, especially, the price leadership ban. The 2010 Restructuring Guidelines, in paragraph 44, states that

"State aid cannot be used to offer terms (for example as regards rates or collateral) which cannot be matched by competitors which are not in receipt of State aid. However, in cases where limitations on pricing behaviour of the beneficiary may not be appropriate, for example because they may result in a reduction of effective competition, Member States should propose other, more suitable, remedies to ensure effective competition, such as measures that favour entry."[176]

This illustrates that the Commission was fully aware of the potential drawbacks of price leadership bans as regards market competition.

Commentators such as Alhorn & Piccinin (2009) raised similar concerns in September 2009, just before the remedies were imposed on the Dutch banks, namely that pricing

[174] Alhorn & Piccinin, 2009
[175] Article 39 of the Rescue & Restructuring Guidelines, 1 October 2004.
[176] EC2009/C 195/04 – Communication from the Commission - The return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State aid rules, 23 July, 2009

measures were likely to distort competition to a larger extent *ex post* as incentives to compete in a price-competing industry were completely diminished. The aim of the European Commission was to keep a level playing field in the long term for all players in the market, but, by imposing restrictions, the Commission required some banks to behave differently than they might have done under normal conditions. An extensive report of the CEPR by Beck et al. (2010) commissioned by the EC formulates it as follows:

"Banks that are prevented from trying to be a market leader just become passive followers exerting no real competitive discipline on their rivals, as though in some publicly-sponsored cartel." [177]

Such clauses not only immediately restrict competitive pressure in the market; the effect is even more severe, as not one, but a large proportion of banks ended up facing the restrictions in the Dutch market.[178] Even though the European Commission seemed to be aware of the potential consequences, the Commission nevertheless decided to impose the price leadership bans. Arguably, an important reason for the Commission to impose such conditions in the Dutch cases was that the Commission had set a legal precedent by implementing the same pricing conditions on other financial institutions in the European Union before, such as for Commerzbank.[179] The Commerzbank case and other German cases took place in an early phase of the authorization process and were therefore very determinative.

One can question, however, whether the German precedents were of full relevance, as the situation in Germany was substantially different from the Netherlands. First of all, German bank concentration is considerably lower than in the Netherlands. While in the Netherlands the C5 ratio is around 85 per cent, this ratio amounts to only 25 per cent in Germany (Lyons & Zhu, 2012).[180] Commerzbank, as a result, possessed considerably smaller market shares in most of their markets than the Dutch banks. Secondly, in Germany, State aid was a lot less widespread, such that a smaller number of retail banks faced the price

[177] Centre for Economic Policy Research, www.cepr.com; Beck et al., 2010, p. 56
[178] Together comprising almost 50 per cent of the market (measured in market share)
[179] The decision of ING actually refers to the decision of Commerzbank, see footnote 45 of the ING decision
[180] A paper Lyons presented on the 10th annual International Industrial Organization conference on March 17th in Arlington, Virginia, US.

leadership conditions.[181] In Germany there remained therefore a sufficient amount of competition at the retail level. In the Netherlands, however, the market share of the aided banks was substantially higher and all large banks, except one, had to comply with the price leadership ban. Therefore, the Dutch situation was to such an extent different, that the European Commission should in principle have had sufficient ground to deviate from the German precedents. The July 2009 Restructuring Communication states that:

"The design of the measures will be tailored to market characteristics to make sure that effective competition is preserved."[182]

In a footnote to this line the Commission emphasizes that, inter alia, concentration levels would be particularly taken into account. This seems, however, not appropriately accounted for in the Dutch cases.

Furthermore, the Restructuring Communication of July 2009 prescribes that behavioural restrictions would only be necessary when structural commitments are not sufficient. The Commission states in the decision of ING:

"In line with point 32 of the Restructuring Communication, a price leadership commitment may not be necessary in markets where significant structural commitments have been provided."[183]

In case of ING, the Commission decided upon several divestments with a bearing on the Dutch retail banking market, including ING's complete insurance branch and their business unit of Westland Utrecht Hypotheekbank (WUH). In Article 143 of the decision (p.28), the Commission notes on the divestment of ING's insurance business that "the scale of the proposed divestments is appropriate to mitigate the distortions of competition". Furthermore, in Article 144 (p.28) the Commission notes that the WUH divestment is

[181] In Germany 13 banks received State aid, most of which were Landesbanken. Germany counts a total of 1995 financial institutions of which 19 specific mortgage banks and 5 other big banks, apart from the 10 Landesbanken. This makes clear that in Germany sufficient institutions that did not receive State aid remained. Source: Hufner, 2010.

[182] EC2009/C 195/04 – Communication from the Commission - The return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State aid rules, 23 July, 2009, p. 10

[183] EC 10/2009 – Commission decision on the State aid implemented by the Netherlands for ING's illiquid Assets Back-Up Facility and Restructuring Plan, 18 November, 2009, Article 149, p. 29

"appropriate because it is apt to constitute a viable business in the future that can compete in the retail banking business in the Netherlands." This would imply that additional behavioural commitments would not be necessary. Nevertheless, in Article 149 (p.29), the Commission "considers commitment to a price leadership ban in line with the Restructuring Communication requirements". It are however, these requirements that state that a price leadership ban may not be necessary when sufficient structural commitments have been accounted for. This suggests that the Commission either regarded the divestments of ING to be insufficient, or that price leadership conditions were imposed due to the commitment to precedents or pressure by the non-aided banks.

In addition, during the on-going negotiations with the Dutch State and the European Commission, banks may have feared for far-reaching divestments and other pro-competitive measures and therefore have priced less aggressively. These measures were aimed to overcome incentive problems of banks using State aid to, inter alia, set predatory prices. It cannot be fully excluded that during these negotiations, banks did not want to put themselves in the spotlights by pricing aggressively and risk stricter repayment and restructuring requirements, e.g. in the form of a divesture of further retail branches of which allegedly had been spoken. ING, at the same time tried to emphasize that it was a structurally sound bank and that further structural commitments were unnecessary.[184] Therefore, ING possibly had taken the price leadership commitments quickly for granted, to prevent that they had to carve out further viable parts of their business. This could also be a partial explanation for the lack of aggressive pricing strategies, and therefore higher margins, around the summer of 2009.

As both ABN Amro-Fortis and AEGON soon after faced similar measures as ING, Rabobank was the only large player not subjected to price leadership conditions. A player that historically had been the price leader in a market where its competitors were undercutting its price. Not allowing for such undercutting by imposing price restrictions on aided-banks, bears the risk of significantly reducing competition in the market and giving Rabobank an autonomy in setting its price. Some mortgage providers indeed confirmed that the restrictions distorted competition in the industry, because the aided banks would have

[184] In October 2009 L. Coppi wrote a report on behalf of the Dutch Central Bank highlighting an economically sound approach to divestments and behavioral compensatory measures in the context of the restructuring of banks which had received significant amounts of State aid.

increased their prices.[185] In the parliamentary inquiry of Commissie de Wit, professor of economics Sweder van Wijnbergen questioned the decision on the price leadership bans of the European Commission by hinting on the price leadership bans:

"In my opinion, the competence of the European Commission can broadly be questioned. One gets the impression that the entire State aid dossier on banking very little knew what she was doing. If the intention is to preserve fair competition, major players should not be forbidden to compete."[186]

Commissie de Wit, however, seems to have missed this strong statement and the price leadership conditions are neither questioned nor discussed in the remainder of the final report. This seems peculiar as the parliamentary inquiry commission goes into much depth on other compensatory measures, such as the ING divestments. This suggests that Commissie de Wit was not sufficiently aware that the PLB could have given banks the wrong incentives to compete.

Important to note is that the price restrictions were conditioned on window prices, not on real prices. As Beck et al. (2010) notes, it is hard to enforce such pricing limitations, as banking products are generally characterized by certain charges and fees that differ across products and customers. Banks would therefore still be able to give certain discounts to customers, which makes it hard to properly compare prices. However, even though banks are not completely committed to window prices, these prices do form the starting point for negotiations and are therefore likely to shift the average price level upwards. Furthermore, the analyses and final report of the NMa are based on actual prices, instead of window prices to evaluate price leadership. Their data shows that the aided banks not only increased their window prices, but also their actual price levels around the spring of 2009.

[185] Nma, 2011, p. 39

[186] Parliamentary Inquiry Financial System - Official report of public hearings – Dr. Sweder van Wijnbergen on 18th of November 2011, Den Haag, p. 615, [my translation].

4.4. Conclusion

This chapter analysed the State aid and subsequent compensatory measures of the European Commission to the Dutch financial institutions. During the period October 2008 until November 2009 nearly all large Dutch banks received considerable amounts of aid from the Dutch government. Consequently, these institutions faced price leadership commitments that prevented them from using State aid to set prices aggressively. Considering the developments in the period October 2008 to November 2009 it is reasonable to assume that the Dutch banks became aware of the certainty of the incorporation of these measures in the final approval of the European Commission by spring 2009. At the same time, they were amidst a delicate position as regards the upcoming discussions on the necessary depth of restructuring measures. It is around this moment that mortgage interest rate margins started to rise. The NMa dismisses the price leadership conditions as a potential explanation for the increased margin, despite internally produced evidence to the contrary.[187] What the NMa ignores, however, are possible anticipation effects of the large banks; banks that had already been accustomed to a (competitive) leader-follower structure in their industry.

The previous section made clear that behavioural conditions can substantially influence market conduct. In the Netherlands, this effect may have been even more severe because almost all banks faced pricing restrictions. As Rabobank was the only major player not subjected to a price leadership clause, the EC measures eliminated virtually all competitive pressure from this historical price leader. The anticipation of the EC conditions may have allowed banks to coordinate towards a less competitive price leadership equilibrium than the barometric equilibrium. How this theoretically fits into the price leadership model of chapter two is studied in the following chapter.

[187] E.g. in the empirical report of Mulder & Lengton non-aggressive pricing strategies appear to significantly influence mortgage interest rates.

5. State-aided price leadership

In this chapter, the model of barometric price leadership developed in chapter two is expanded and adapted to show how price leadership conditions could have changed the price setting behaviour in the Dutch mortgage market to collusion and so induced the sudden shift in interest rate margins. This collusive type of price leadership is referred to as a means to strategically coordinate on prices. [188] As secret inter-company meetings in 'smoke-filled rooms' are prohibited under antitrust laws, it allows firms to use sequential price announcements to achieve a collusive outcome. No communication is necessary, as the leader announces its price and the followers consequently match this price.

The model developed in this section answers the question how a competitive price setting can change into a collusive price setting by changing the equilibrium from a barometric price leadership position into collusive price leadership. A key role is played by the anticipation of the PLBs. Overall, the model attempts to provide an explanation for the sudden increase in mortgage interest rate margins in the period mid-2009 until end-2010. To be able to do this, the model takes into account the developments in the period 2007-2010 and investigates the effect of an exogenously appointed price leader by the European Commission.

5.1. Collusive price leadership

While the literature on collusion in a simultaneous price setting is extensive, few models cover the question how price leadership can serve as an effective means in eliminating price competition. This section continues the analysis started in Chapter two and explains how price leadership can facilitate collusion in an oligopolistic industry by allowing firms to sequentially make strategic choices. As Markham (1951) already argues, collusive price leadership can occur in lieu of overt collusion, in other words, as overt collusion violates competition law, firms may use sequential price announcements as a way to coordinate prices. Numerous cartel cases have been documented in which price leadership played a role, for example in the Vitamins cartel, in which the European Commission stated the following:

[188] As described by Markham, 1951.

"The parties normally agreed that one producer should first 'announce' the increase, either in a trade journal or in direct communication with major customers. Once the price increase was announced by one cartel member, the others would generally follow suit." [189]

The decision of the European Commission did not only facilitate the Dutch banks to act in such a way, it even imposed them to do so at the end of 2009. In order to develop a theoretical model that shows how collusive behaviour can arise in the banking industry, we use the foundations of the barometric price leadership model developed in section 2.4.2.

In chapter two, price leadership existed due to asymmetry in information. Followers did however have the incentive to undercut the leader's price instead of match it, as this would yield higher profits. This incentive is even stronger, the more homogenous the products become. However, if the firms could perfectly coordinate their behaviour and share profits, they would set the monopoly price and share monopoly profits π^M. This section shows that with repeated interaction it is possible to sustain such a collusive outcome by threatening to revert to the non-cooperative barometric leader-follower outcome.[190]

The punishment occurs in the form of a price war and, in the end, returning to the non-cooperative, barometric equilibrium. In a price leadership setting in which the informed firm sets its price, the uninformed firms always have an incentive to undercut this price. To maintain a stable equilibrium, the leader must therefore credibly employ a punishment strategy that restrains the followers from undercutting the price charged by the leader. We therefore show that, provided that the uninformed firm has not cheated in previous periods, the informed firm announces its price at the start of each period and the uninformed firm subsequently matches this price. If the follower ever deviates from this price, a price war ensues in which the players return to the barometric equilibrium.

[189] Mouraviev & Rey, 2011. p.1

[190] Here we deviate from the model of Rotemberg & Saloner (1990) who assume that the punishment strategy is turning back to the simultaneous move game. As we showed in Chapter 2, however, this can never be a stable equilibrium, as the followers will always wait for the leader to set its price. It is therefore not credible for the leader to set a simultaneous price p_1^{sim}, as the follower will undercut him. He will therefore opt to set a higher price, the barometric price p_1^{seq} in equilibrium. See proposition 8 for further explanation.

5.1.1. Collusive price setting

Suppose that the informed firm is again the leader and knows with certainty that the uninformed firm will match its price p_1 after he has set its price. As $p_1 = p_2$, the informed firm will set the monopoly price, such that he maximizes: $\pi_1 = p_1(a + \varepsilon - b \cdot p_1)$, which gives a price

$$p_1^{coll} = \frac{a + \varepsilon}{2b} \tag{15}$$

and profits of

$$\pi_1^{coll} = \frac{(a + \varepsilon)^2}{4b} \tag{16}$$

If the follower matches this price, his profits can be calculated by simply plugging the price $p_2^{coll} = \frac{a + \varepsilon}{2b}$ into the follower's profit function $\pi_2 = p_2(a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))$, where $p_1 = p_2$, which yields a profit of[191]

$$\pi_2^{coll} = \frac{(a + \varepsilon)^2}{4b} - \frac{(a + \varepsilon)\varepsilon}{b} \tag{17}$$

So if $\varepsilon = 0$, profits for both leader and follower are the same. In equilibrium, however, leader and follower will only coordinate on prices, if it increases their individual pay off. The expected one-period payoff from colluding should therefore be higher than the expected one-period payoff from the non-cooperative, barometric equilibrium. This leads us to the following propositions.

Proposition 4 *$p_i^{coll} > p_i^{seq}$; in a CPE[192] prices of both leader and follower are higher than in a PLE.*

Proof. Collusion is in principle prohibited by law, because it detoriates competition and increases prices for consumers. Prices tend to be higher in a collusive equilibrium, as firms are able to coordinate on the price and will set the (near) monopoly price. The monopoly price allows firms to extract as much profits from the market as possible.[193] In the above

[191] See appendix 1.6. for the exact derivation.
[192] Collusive price equilibrium.
[193] Assuming that firms are not able to price discriminate between consumers.

model both leader and follower will charge the same price $p_i^{coll} = \frac{a+\varepsilon}{2b}$ in a CPE. Lemma 1 of chapter two showed that in equilibrium $p_2^F < p_1^L$; e.g. the follower undercuts the leader. To show that $p_i^{coll} > p_i^{seq}$ holds true, we therefore only have to compare the price of the leader as in equation (11) with the collusive price in equation (15). To be able to compare prices with prices in the barometric equilibrium, we again assume $\varepsilon = 0$ without affecting the qualitative results, such that $P_1^{coll} = \frac{a}{2b}$. As proven in appendix 1.7, this price is always larger than $p_1^L = \frac{a(b+2d)}{2(b+d)^2 - d^2}$ in equilibrium. Therefore, the uniform collusive price in a CPE will always be higher than the price charged by the leader as well as the price charged by the follower in a PLE. ■

Proposition 5 $\pi_1^{coll} > \pi_1^L$*; in a CPE the leader earns strictly higher profits than in a PLE.*

Proof. Firms coordinate on prices and challenge the risk of being caught, because the expected profits in a CPE are generally higher than the profits in a PLE. Proposition 2 of chapter two showed that in equilibrium, the profits of the leader in a PLE are strictly lower than the profits under simultaneous price setting, because the follower undercuts the leader. The leader, therefore, has much to win from collusion, as it allows him to charge a higher price, without the risk of being undercut by the follower. To show that collusion yields the leader higher profits, we therefore compare the collusive profits with the barometric profits of the leader, given by equation (14). To be able to compare profits, we again assume $\varepsilon = 0$,without changing the qualitative results, such that the leader's profits in PLE are equal to $\pi_1^L = \frac{\left(2a(b+2d)\right)\left(a(2b^2+d^2+4bd)\right)}{\left(2(2(b+d)^2-d^2)\right)^2}$. In equilibrium this is always smaller than the collusive profits $\pi_1^{coll} = \frac{a^2}{4b}$, such that the leader earns strictly higher profits in a CPE than in a PLE.[194] ■

[194] See appendix 1.8. for the proof.

Proposition 6 *When d is large,* $\pi_2^{coll} > \pi_2^{F}$ *; in a CPE the follower earns strictly higher profits than in a PLE, when products are sufficiently homogeneous.*

Proof. In contrast to the barometric equilibrium, the leader and follower charge the same price in the collusive equilibrium. The follower, first undercutting the leader, therefore loses part of his market share to the leader. However, the price charged is higher than in the PLE. This is especially true when products become sufficiently homogeneous, because barometric prices then tend to the competitive level (and margins to zero) as proven by Proposition 1. The effect on profits of both forces is ambiguous. Proposition 2 of chapter two showed that in equilibrium, $\pi_2^{F} > \pi_2^{sim}$ holds true, such that firm 2 strictly prefers to follow. We compare π_2^{coll} with π_2^{F} to show that collusive profits for the follower will be higher if *d* is sufficiently large. Profits for the follower, in case of collusion, are given by equation (17) and, assuming $\varepsilon = 0$, are equal to $\pi_2^{coll} = \frac{a^2}{4b}$. Follower profits in the PLE are given by equation (13) and are equal to $\pi_2^{F} = \left(\frac{(a(2b+3d))(a(2b^2+5d^2+5bd))}{(2(2(b+d)^2-d^2))^2} \right)$. Comparing these profits by multiplying the nominators with the denominators of each function, yields us the following inequality $\pi_2^{coll} = 4a^2d^4 > 20a^2b^2d^2 + 28a^2bd^3 = \pi_2^{F}$.[195]

This holds true for $d^2 > 5b^2 + 7bd$, so when *d* becomes sufficiently large. Therefore, the follower's expected profits from collusion are strictly higher than the barometric as well as the simultaneous profits, when products become sufficiently homogeneous.■

The above series of propositions show that in a collusive equilibrium, the leader as well as the follower is better off than in a PLE when products become homogeneous. Considering the Dutch mortgage market, products are assumed to be considerably homogeneous, as explained in chapter two. We therefore assume *d* to be sufficiently large. Nevertheless, the uninformed firm has an incentive to deviate. First, because follower's profits are decreasing in ε and second, because the follower prefers to undercut the informed firm's price.[196] Deviation from the collusive price yields the follower higher

[195] See Appendix 1.9. for the proof.
[196] Rotemberg & Saloner, 1990.

expected one period profits, because undercutting the leader enables him to serve a larger share of the market. This brings us to the following proposition.

Proposition 7 *$p_2^{dev} < p_1^{coll}$ and $\pi_2^{dev} > \pi_2^{coll}$; in equilibrium, the follower has an incentive to deviate by undercutting the leader and earn higher one-period profits.*

Proof. Suppose the leader sticks to the collusive equilibrium and sets its price equal to equation (15). The follower, observing price p_1, can infer demand *a* exactly from p_1, following the reasoning developed in chapter two. For simplicity, we again assume $\varepsilon = 0$ and rewrite *a* as a function of p_1, which yields

$$a = 2b \cdot p_1^{coll} \tag{18}$$

The follower wants to maximize one-period profits $\pi_2 = p_2(a - b \cdot p_2 + d(p_1 - p_2))$. Substituting for *a* and p_1 and maximizing, leaves us with the best response of the uninformed firm

$$p_2^{dev} = \frac{a(2b+d)}{2b(2b+2d)} \tag{19}$$

Plugging this value into the profit function of the follower yields a one-period profit of

$$\pi_2^{dev} = \frac{(2ab^2 + 3abd + ad^2)(2ab + ad)}{2b(2b+2d)} \tag{20}$$

It can easily be demonstrated that $p_2^{dev} < p_1^{coll}$, as $(2ab + ad)(2b) < (4b^2 + 4bd)a$, such that the uninformed firm undercuts the collusive price of the leader. In equilibrium, this price setting behavior yields larger one-period profits than matching the price of the leader, as it enables the follower to reap a larger share of the market. Profits from deviation as in equation (20) are therefore always larger than the one-period profits from collusion given by equation (17).[197] As a result, the follower has an incentive to undercut the leader and earn one-period higher profits. ■

The follower, however, knows that any deviation from the collusive equilibrium price will be followed by reverting forever to the sequential barometric outcome in the next periods. Whenever the leader observes the follower setting a different price from the

[197] See Appendix 1.10 for the exact proof.

collusive price, the leader will respond by setting its price equal to the barometric leadership price as in equation (11) in the following period. In contrast to the reasoning of Rotemberg & Saloner (1990) we argue that this is the only credible punishment strategy of the leader.

Proposition 8 *In equilibrium, the leader will set the barometric price p_1^L in the next periods, if the follower ever deviates from the collusive price p_2^{coll}.*

Proof. Suppose the follower has deviated from the collusive equilibrium and has set p_2^{dev}. The leader, wishing to punish the follower, wants to revert to the non-cooperative equilibrium. In theory, the best outcome for the leader would be the simultaneous equilibrium, in which he earns higher profits than in the barometric equilibrium, as proven by proposition 3. Suppose the leader employs a punishment strategy in which he sets price $p_1^{sim} = \frac{\tilde{a}}{2b+d} + \frac{a-\tilde{a}+\varepsilon}{2b+2d}$, as in equation (5), whenever the follower deviates from the collusive equilibrium. The follower, knowing that the leader possesses better market information, will wait for the leader to set its price. This allows the follower to infer *a* from p_1 and undercut the leader's price, which yields him a higher profit than setting prices simultaneously, as showed by Proposition 2. The leader, however, understands this strategy of the follower and will set a higher price $p_1^L = \frac{a(b+2d)}{2(b+d)^2 - d^2}$, his best response when firm 2 is following. Knowing that firm 2 will always wait to set its price, the leader prefers price p_1^L (his best response) over p_1^{sim}. Returning to the barometric equilibrium is therefore the only credible punishment strategy.[198] ■

In equilibrium, the follower only prefers to comply with the collusive equilibrium if his expected long-term payoff from collusion is larger than his expected pay-off from deviation. On the contrary, deviation on the side of the leader from setting the collusive price immediately triggers the uninformed firm to undercut the leader if the leader sets a price above cost level or otherwise price at costs. The leader can therefore never gain by deviating, because he would immediately lose a large part of his market share to his competitor. The

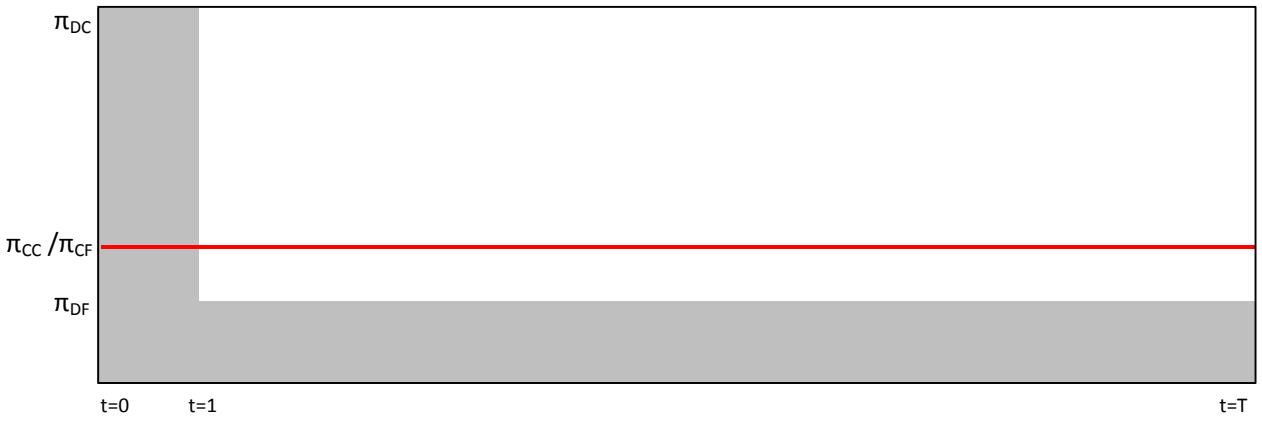
[198] The punishment strategy of Rotemberg & Saloner (1990) in which the players return to the simultaneous equilibrium is therefore not credible.

leader always prefers to comply with the collusive equilibrium. This feature of price leadership widens the scope for collusion, as it reduces the incentives to deviate to only the follower's side. The fact that the leader has no incentive to deviate increases the set of sustainable collusive equilibria.[199]

5.1.2. A stable collusive equilibrium

While leaders cannot gain from deviating, followers, on the other hand cannot gain from deviating if and only if the current and expected future profits from cooperation are larger than the one-period quick win and lower future profits from deviation. This is graphically illustrated in figure 5.1. Followers can only gain from deviating if the grey area, the profit when deviating, is larger than the area under the red line, e.g. the share of profits when cooperating. To compute the critical threshold for a collusive outcome to be sustainable, we have to calculate four different profits for the uninformed firm. First, we have to calculate future expected profits from not deviating as given by equation (17), which we label π_{CF}. Second, we compute future expected profits π_{DF} if the uninformed firm deviates. This is equal to the expected future profits from the barometric equilibrium outcome. Third, we derive profits from cooperation in the current period π_{CC}, which is equal to equation (17), conditional on the announcement of the price of firm 1. Finally we calculate current profits from deviating in this period π_{DC}, as given by equation (20).[200] We compare these profits to assess the sustainability of collusion as T goes to infinity.

Figure 5.1. – Profits from cooperating (red line) and deviating (grey area) in a collusive setting



[199] Mouraviev & Rey, 2011
[200] Rotemberg & Saloner, 1990.

To prevent the follower from deviating and for the collusive outcome to hold the following inequality must be satisfied:

$$\pi_{CC} + \frac{\delta\pi_{CF}}{1-\delta} \geq \pi_{DC} + \frac{\delta\pi_{DF}}{1-\delta} \tag{21}$$

with δ being the discount factor. To show that there exists a critical discount factor, let us turn to each of the profit functions separately. To be able to compare collusive profits with deviation profits, we again assume $\varepsilon = 0$. This allows us to evaluate barometric profits, without changing the qualitative results.

As mentioned above, π_{CF} is equal to the unconditional expectation of equation (17), which is equal to $\pi_{CF} = E\left[\frac{(a+\varepsilon)^2}{4b} - \frac{(a+\varepsilon)\varepsilon}{b}\right] = E\left[\frac{a^2 - 3\varepsilon^2 - 2a\varepsilon}{4b}\right]$. Assuming $\varepsilon = 0$ as before, this gives us an expected profit of

$$\pi_{CF} = E\left[\frac{a^2}{4b}\right] \tag{22}$$

When the uninformed firm deviates, the equilibrium will return to the barometric price leadership equilibrium. In this setting, the informed firm charges a lower price than the leader and, as proved in chapter two, prices will be set according to equation (11) and (12). The future expected one-period profits for the uninformed firm if he decides to deviate are equal to equation (13), which gives

$$\pi_{DF} = E\left(\frac{\left(a(2b+3d)\right)\left(a(2b^2+5d^2+5bd)\right)}{\left(2(2(b+d)^2-d^2)\right)^2}\right) \tag{23}$$

The one-period current profits from collusion are given by equation (17) conditional on the price announcement of firm 1. Given $\varepsilon = 0$, this yields us with the one-period profit function

$$\pi_{CC} = \frac{a^2}{4b} \tag{24}$$

The one-period current profits from deviating are calculated under proposition 7 and equal to equation (20), which gives

$$\pi_{DC} = \frac{(2ab^2+3abd+ad^2)(2ab+ad)}{2b(2b+2d)} \tag{25}$$

Plugging these values into inequality (21) implies an equation for the critical discount factor δ^*:

$$\frac{a^2}{4b} + \frac{\delta E\left[\frac{a^2}{4b}\right]}{(1-\delta)} \geq \frac{(2ab^2 + 3abd + ad^2)(2ab + ad)}{2b(2b+2d)} + \frac{\delta E\left(\frac{(a(2b+3d))\left(a(2b^2+5d^2+5bd)\right)}{\left(2(2(b+d)^2 - d^2)\right)^2}\right)}{(1-\delta)} \quad (26)$$

The discount factor δ^* is the reverse function of the interest rate *r,* such that the lower the critical discount factor is, the more important future profits become and the more easily collusion is sustained. For collusion to be sustainable δ^* should be at least between 0 and 1.

Proposition 9 *There exists a critical delta,* $0 \leq \delta^* \leq 1$*; for which inequality (26) holds, such that collusion is sustainable.*

Proof. Let us examine in more detail equation (21). Proposition 7 has proven that in equilibrium $\pi_{DC} > \pi_{CC}$. This provides the follower an incentive to deviate. However, proposition 6 has shown that $\pi_{CF} > \pi_{DF}$, such that after the first period of deviation, the follower earns lower expected profits than under a collusive equilibrium. Rewriting equation (21) gives us $\pi_{CC} - \delta\pi_{CC} + \delta\pi_{CF} \geq \pi_{DC} - \delta\pi_{DC} + \delta\pi_{DF}$. Firms decide to collude or not before the first period of sales has taken place, so it is sensible to compare *ex ante* expected profits. In equilibrium, the expected value of π_{CC} is equal to the expected value of π_{CF}, such that the terms cancel out and leave us with $\pi_{CC} \geq \pi_{DC} - \delta\pi_{DC} + \delta\pi_{DF}$. Now suppose δ is equal to 1. As in expectation $\pi_{CC} > \pi_{DF}$, this inequality will always hold, because π_{DC} and $\delta\pi_{DC}$ cancel out when $\delta = 1$. If δ is larger than 1, $\pi_{DC} - \delta\pi_{DC}$ becomes negative and again, as $\pi_{CC} > \pi_{DF}$ and $\pi_{DC} > \pi_{DF}$, the inequality always holds. As a result, there must exist a critical delta between 0 and 1 for which inequality (26) holds, given that *a*, *b* and *d* are larger than zero. ■

The existence of a critical delta enables firms to reach a collusive equilibrium in which both leader and follower set a higher (uniform) price and earn higher profits than under a barometric setting. In principle, the leader will always be better off, because the follower

matches its price instead of undercut it. The follower is better off as well, because a higher equilibrium price is charged than in a barometric equilibrium, e.g. $p_2^{coll} > p_2^{seq}$. The leader, however, has much more to gain from collusion than the follower, because the follower loses market share at the benefits of the leader when matching the leader's price. The follower earns only marginally higher profits compared to the barometric situation, such that the critical delta is quite high and the collusive equilibrium is not particularly stable. In order to accomplish a shift from a non-cooperative to a cooperative situation and reach a sustainable equilibrium, something should therefore have triggered the followers to commit to the leader's price level and have made the equilibrium more stable.

5.2. Announced State aid conditions to trigger a shift

The difficulty of reaching a collusive outcome in the model developed above is a result of the fact that the follower has a lot less to gain from collusion than the leader. Under normal industry circumstances, the critical delta is quite high, such that in general the actual delta lies below the critical delta and no collusive equilibrium is attained. Charging a uniform price under collusion, implies that the market is divided equally between the two players. Consequently, the follower relinquishes market share in favor of the leader. If the follower deviates, the game returns to the barometric equilibrium, in which the price level is even though lower, but the follower's market share is higher than in the collusive equilibrium. The reason why the follower has less to lose from a return to the barometric setting, and in this way impede the shift towards a collusive equilibrium, can therefore be found in the 'undercutting behavior' of the follower. Under normal industry circumstances in the years prior to the financial crisis, it would have therefore been hard for the Dutch banks to reach such a collusive equilibrium.

5.2.1. Price leadership conditions

In the spring of 2009, however, something changed in the price setting behavior of the banks. Around this time, banks knew with reasonable certainty that the price leadership measures were going to be implemented in the near future. The price leadership conditions

imposed to three of the large banks by the European Commission would make aggressive pricing impossible. ABN Amro, ING and AEGON would in the future no longer be able to undercut the leader. In essence, by prohibiting follower banks to undercut the leader, the European Commission prohibited the competitive price leadership model by which the market had been characterized in prior years. Around the spring of 2009, aid recipient banks became aware of the fact that they would no longer be allowed to perform the market conduct of undercutting Rabobank. This changed the expected future profits for both leader and followers. Follower banks could still decide to deviate and earn one-period deviation profits; however, returning to the non-cooperative situation would now hit them much more severely. In our theoretical model, banks would previously return to the barometric equilibrium, in which followers' punishment profits π_{DF} were still reasonably high, because followers could gain market share at the expense of the leader. The price leadership conditions of the European Commission, however, prevented the followers from gaining market share, by prohibiting them to charge a lower price. In this way, the EC price leadership conditions decreased the punishment profits from deviating for the follower such that $\pi_{DF\,new}$ became smaller than π_{DF}.

Incorporating the price leadership conditions of the European Commission in our model would imply that the followers would no longer be able to charge the barometric price ${p_2}^F$, as in equation (12). Instead, followers would have to set their future expected price equal to the price of the leader ${p_1}^L$, as in equation (11). Given the expected profit function of the follower $E\pi_2 = E\{p_2 \cdot (a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))\}$, charging an identical price as the leader, yields the follower with expected future profits from deviating equal to

$$\pi_{DFnew} = E\left[\frac{\left(a(b+2d)\right)\left(a(b^2+d^2+2bd)\right)}{\left((2(b+d)^2-d^2)\right)^2}\right] \tag{27}$$

It can easily be demonstrated that these new expected profits from deviating would always be smaller than the prior expected barometric profits π_{DF} in equation (23), as shown in appendix 1.11.[201]

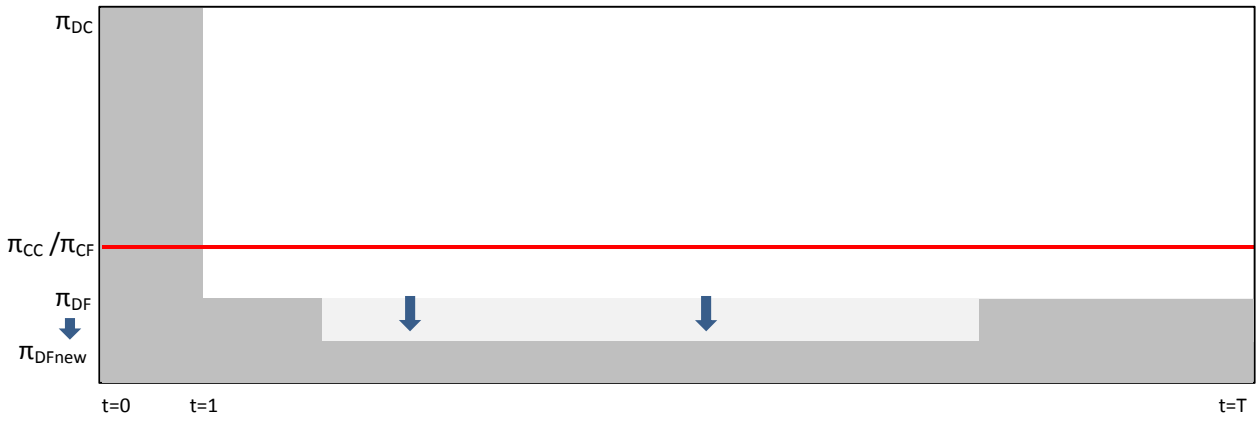
The change in the expected future profits for the follower would in this way decrease the critical delta for which collusion would be stable, such that the set of stable collusive

[201] See Appendix 1.11. for the exact derivation

equilibria increased. This could explain the sudden shift towards a collusive price leadership equilibrium. Let us again examine equation (21) , $\pi_{CC} + \frac{\delta\pi_{CF}}{1-\delta} \geq \pi_{DC} + \frac{\delta\pi_{DF}}{1-\delta}$. Due to the price leadership conditions, the future expected profit for the followers from deviation (after punishment) changes to $\pi_{DF\,new}$, such that the equation changes to $\pi_{CC} + \frac{\delta\pi_{CF}}{1-\delta} \geq \pi_{DC} + \frac{\delta\pi_{DFnew}}{1-\delta}$. As $\pi_{DFnew} < \pi_{DF}$ it is easy to verify that equation (21) holds for a larger set of deltas. As the expected future profit of deviation decreases, the critical delta thus becomes lower. Furthermore, the expected value of π_{DFnew} is always smaller than π_2^{coll} , as shown in appendix 1.12, such that Proposition 6 holds for any value of *d*, not only when *d* is large. Even though a more thorough analysis of the model would be needed, the price leadership conditions in this way could have increased the set of stable collusive equilibria.

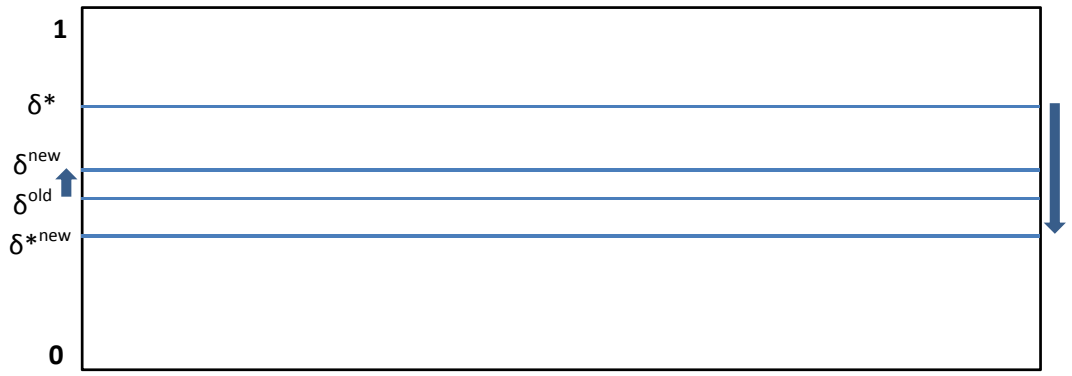
The above implies that, due to the price leadership conditions, the expected future profits from deviation, after punishment by the leader, decreased. This is depicted in figure 5.2. The figure shows that expected profits π_{DF} decrease to π_{DFnew} at the moment the price leadership conditions are implemented and stay at this lower level until the price leadership conditions are removed (at least three years or until State aid has been paid back). The expectations of the lower future interest rate and the short time frame until the implementation of the PLBs therefore lowered expected total profits from deviation and decreased the critical delta for which collusion is stable.

Figure 5.2. – Profits from cooperating (red line) and deviating (grey area) in a collusive setting after PLB



Knowing that the price leadership bans were going to be imposed in the near future, therefore, could have decreased the *expected* profits from deviation for the follower banks. As a result the critical delta decreased, as graphically illustrated in figure 5.3. The old critical delta δ^* laid, as shown in proposition 9, between 0 and 1. However, this delta was considerably high, such that the actual delta did not exceed the critical delta and the shift towards a stable collusive equlibrium could not be reached. The anticipation of the price leadership conditions, however, changed the critical delta in such a way, that the actual delta came to lie above the critical delta. Furthermore, due to the decreasing EURIBOR rate, the actual delta increased, such that the space of delta's for which collusion is stable drastically increased compared to the situation before the price leadership bans.

Figure 5.3. – Development of the (critical) delta after PLB



In this way, the price leadership ban of the European Commission could have served as a trigger for the follower banks to create a stable collusive equilibrium. In essence, deviating had become more expensive, and, from November onwards, even impossible, such that the banks could shift to a cooperative equilibrium that would make them all better off.

5.2.2. Additional reasons to follow the collusive leader

As shown by Proposition 6, it was profitable for the followers to shift to the new price leadership equilibrium. For Rabobank, however, this shift in which its rivals were not allowed to undercut its price anymore was even more advantageous. Rabobank, that, in modern banking industry, was no longer able to gain a larger share of the market in its position as a leader, would probably welcome the PLB conditions. Both under the cooperative as well as

under the non-cooperative equilibrium, Rabobank would be better off, as followers would no longer be able to reap market share at his expense. Anticipating on the potential outcome, this might therefore have been the reason that the bank started a strong lobby in Brussels, as mentioned in chapter four. Given that Rabobank had a lot to gain from the conditions of the European Commission, could also explain the efforts of Rabobank to keep its head above the water and not become a recipient of State aid itself.[202] Applying for State aid would eliminate Rabobank's profitable position in the future and impair the stability of the collusive equilibrium.

Apart from this, as explained before, aid recipient banks allegedly did not want to attract the attention of the European Commission during the negotiation process from end-2008 until end-2009 by pricing aggressively. Banks most likely were aware of the fact that the price leadership bans could divert the attention of further divestment requirements or other harmful measures. Furthermore, banks possibly foresaw the favourable equilibrium shift and associated increase in profits. This might explain why followers welcomed the conditions without much resistance, even though the price leadership bans would take over a large part of individual freedom.

ING, in effect, did appeal against the price leadership bans in January 2010, but this appeal was part of a larger petition against the entire package of support arrangements of the European Commission.[203] It would have been difficult for ING to keep the latter out of the appeal, without raising suspicious questions. The appeal was specifically focused on the way the Commission had calculated the amount of State aid ING received, not on price leadership measures, which allegedly were a side issue. Measures, furthermore, that ING at first instance fairly easily accepted and of which the bank in 2009 declared 'to expect no negative impact on its business'.[204] ING affirmed at a later stage that the bank did dislike the price leadership commitments. However, this was after the shift to the new equilibrium had taken place and was settled; so was probably not aimed at its effect on prices, but at the fact that the ban eliminated all freedom in pricing on the side of ING. At first instance, however, none of the banks seemed to have the desire to counter the EC measures.

[202] See inter alia: Rabobank wil echt geen Staatssteun (30 January, 2009), Het Financieel Dagblad
[203] On 28 January 2010 ING appealed against decision T-29/10 and T-33/10 of the European Commission
[204] Source: ING komt kredietafspraak na (15 December, 2009), via nu.nl.

The fact that aid recipient banks preferred a "background" position during the negotiations with the European Commission around the beginning of 2009 caused that not only the price leadership conditions, but even the State aid negotiations themselves weakened the follower's incentive to deviate and undercut the leader. This made the collusive equilibrium even more sustainable. As it was in the interest of all banks to shift to a collusive equilibrium, the EC conditions could therefore, without any need to communicate, coordinate a shift from a competitive to a collusive equilibrium.

5.2.3. Supporting market circumstances

The price leadership bans of the European Commission increased the stability of a collusive equilibrium by lowering the future expected profits from deviation (after punishment) for the follower. The theory of industrial organization also predicts that collusive conduct, overtly or tacitly, is more likely to occur when a number of industry factors are met. It is therefore important to study not only the conditions of the European Commission, but also other changes in the industry in the period 2007 until 2009. According to D'Aspremont (1983), industries should be characterized by certain specific features for collusion to be expected.

First of all, the number of firms operating in the industry should be small and each firm must be sufficiently large. In a situation of barometric price leadership, on the contrary, there must exist a significant competitive fringe. In the years prior to the financial crisis, the Dutch mortgage market was characterized by a substantial competitive fringe. These firms, however, gradually left the market in the period 2007-2009 as explained in chapter three, such that collusion became more easily sustainable as less competitive pressure was experienced.

Furthermore, for collusion to hold, entry to the market should be difficult and restricted. While entry was considered rather easy in earlier years, the financial crisis highly impeded the possibilities to entry, not only in the mortgage market, but overall in banking, as funding sources were drying up. On top of that, demand was gradually decreasing and banks were more concerned with keeping their heads above the water, than expanding into new business areas. This allowed banks to raise prices, without the fear of attracting new players into the market.

Besides the decrease in competitive pressure, buyer power diminished as well in the period of financial distress. The credit crisis and subsequent economic recession led to a drastic drop in housing prices and housing demand. The demand for mortgages mainly comprised the renewal of mortgages, instead of the foreclosure of new mortgages. Compared to the elasticity of an average mortgage portfolio, the elasticity of renewed mortgages is considerably small, because people are already saddled with the loan. These consumers generally have no choice in taking a mortgage or not. In other words, those people who took on a mortgage during the period 2007-2009, in general *had* to do so, such that demand became increasingly inelastic.[205] Banks may therefore have been able to increase prices without losing a significant share of the market. The increasingly inelastic demand, as a result, enabled collusion to become more easily sustainable.

D'Aspremont (1983) furthermore argues that individual cost curves should be sufficiently similar, such that all firms like to produce at the given collusive price. While we assumed in our model that marginal costs are identical, this obviously does not reflect reality. Even though we have no detailed information of individual cost curves, we can at least assume that the cost of the State aid recipient banks decreased due to the State aid.[206] The leading bank, Rabobank, did not receive aid and therefore faced higher (base) funding cost. It is the latter firm that decides in our model which price is to be set in the collusive equilibrium. Given the fact that recipient followers face lower cost curves due to State aid, these followers always want to produce at the given collusive price set by Rabobank. In this way, the change in cost curves due to the received State aid contributed to a stable collusive price setting. Apart from cost curves, the large decrease in funding costs around mid-2008 also facilitated banks to increase their margins. As costs were rapidly decreasing, banks did not have to *increase* their prices to double their margin, but instead could keep prices at the same level. This would have attracted less of the attention of consumers, than when prices would have doubled – whereas margins effectively did double.

Finally, for collusion to be sustainable, products should be sufficiently homogeneous, according to D'Aspremont (1983). We can argue that in recent years, mortgages did become increasingly good substitutes of one another, as a growing amount of mortgages is sold as

[205] From discussions with prof. dr. A. Boot.
[206] In the end, this served as the motivation for the European Commission to impose PLBs, out of fear that recipient banks would use the lower interest cost to set predatory prices.

NHG mortgages, which have to comply with specific standards. In 2004 the share of NHG mortgages was 18 per cent of all newly registered mortgages, while the amount increased to almost 60 per cent in 2010.[207] This made mortgages more comparable and homogeneous products, such that a single price is more easily sustained.

D'Aspremont (1983) furthermore argues that collusion is more easily sustainable when the industry is characterized by a leader-follower structure, as also identified by Mouraviev & Rey (2011). Not only is the incentive to deviate reduced to merely the side of the follower, it also eliminates the need to explicitly communicate on prices. If the leader decides to raise its price and matching this price is in the long-term equilibrium more profitable for followers than deviating, a stable equilibrium can arise. Price leadership, in this way simplifies the shift towards cooperation and makes collusion even more sustainable.

Apart from the (changing) characteristics of the market structure, the banking sector was also characterized by low, decreasing interest rates from the beginning of 2009. Generally, the stability of a cartel increases as the interest rate decreases. A low interest rate implies that future payments are almost equally important as current payments. In our model, this means that the one-period current high profit from deviation receives less weight, while the future, lower barometric profits attain more importance. As a result, a low interest rate makes deviation even less attractive, such that the collusive equilibrium has become increasingly stable. On top of the PLBs, the changing characteristics of the market therefore increased the likelihood of a collusive equilibrium in the Dutch mortgage market.

5.3. Empirical evidence in the Dutch mortgage market

It is now time to compare the theoretical results of our model and the conclusions of the NMa with the empirical evidence in the Dutch mortgage market. As explained in chapter three, mortgage margins started to increase around the spring of 2009. This strong, sudden increase in interest rate margins perfectly fits our model. The shift from the non-cooperative to the cooperative equilibrium should take place at the moment it had become clear to the follower banks that price leadership bans were going to be irreversible, which, as explained in chapter four, was most likely around the spring of 2009. At this moment in time, banks

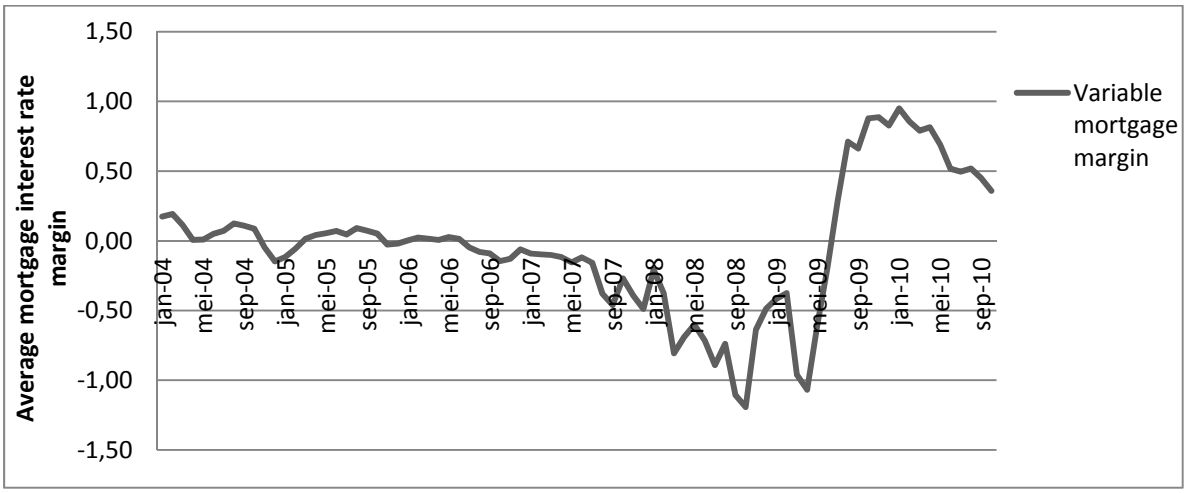
[207] Source: NMa, sector study Hypotheekmarkt (2011), p. 21.

became aware that future deviation profits would decrease, such that collusion had become more easily sustainable. The empirical report of Mulder & Lengton (2011) confirms that price leadership bans could have significantly influenced the mortgage interest rate. Even though the analysis cannot show the direct causality between the price leadership bans and the interest rate, the report at least demonstrates that less aggressive pricing strategies by the followers lead to higher interest rates.

The NMa, however, reasons in its final sector study of May 2011, that the price leadership bans could not have influenced the initial increase in mortgage margins, as the bans were not implemented until November 2009. The NMa does admit that the conditions could, even though, have influenced the mortgage interest rates after the implementation of the measures. Given the fact that the PLB seem to be statistically significant and following the reasoning of the NMa, we would expect a shift in interest rate setting around November 2009. After the date of the implementation of the pricing conditions, we would expect an upsurge in the interest rates.

In figure 5.4. we do, however, not observe an increase in November, but can clearly see a strong, sudden increase in mortgage margins around the spring of 2009.[208] The NMa reasons that the margins started to rise from July 2009, from this graph, however, we can observe that the actual breakpoint with the previous pattern seems to be a few months earlier, around April 2009.[209]

Figure 5.4. – Average variable mortgage interest rate margin (based on mortgage tariff calculation method)



Source: own calculations based on data of the NMa, from figure 3.5.

[208] Information about the data used for figure 5.3. – 5.7. can be found in appendix 8.6.
[209] Appendix 8.6. explains in detail the underlying data for the calculation of this figure.

We tested for a structural break in the data to discover the empirical point in time where the actual break occurred by using basic unit root tests. A structural break test is useful to verify at what point in time something changed in the data. Several econometricians developed unit root tests that allow for a certain kind of structural instability in the data to effectively analyse time series data and structural changes in the data. One of these tests is for example developed in the work of Andrews and Zivot (1992) and allows for a single structural break in the intercept or trend[210]. Such tests are available in Stata, which allow us to examine the empirical structural break in the above data set of figure 5.4. The tests are not conclusive in determining the exact month, but point towards a break in the first half of 2009. Even though further investigation might be needed, this suggests that margins indeed started to increase around the spring of 2009. While the margin seemed to fluctuate around zero before the crisis and declined at the start of the financial crisis, the sudden shift towards a higher margin level in the spring of 2009 seems to indicate an abrupt change in the price setting behaviour of the banks and matches our hypothesis.

Furthermore, following the reasoning of the NMa, at the moment the price leadership conditions were implemented, we would expect a break in the price setting behaviour of individual banks in which followers shift their price above the price of the leader. According to the NMa, we would expect such a shift in November 2009, as follower banks are no longer allowed to undercut the leader's price. Especially, because before the measures, non-aided banks complained that the State supported banks were using State aid to gain market share at the expense of the non-aided banks by setting lower prices.[211]

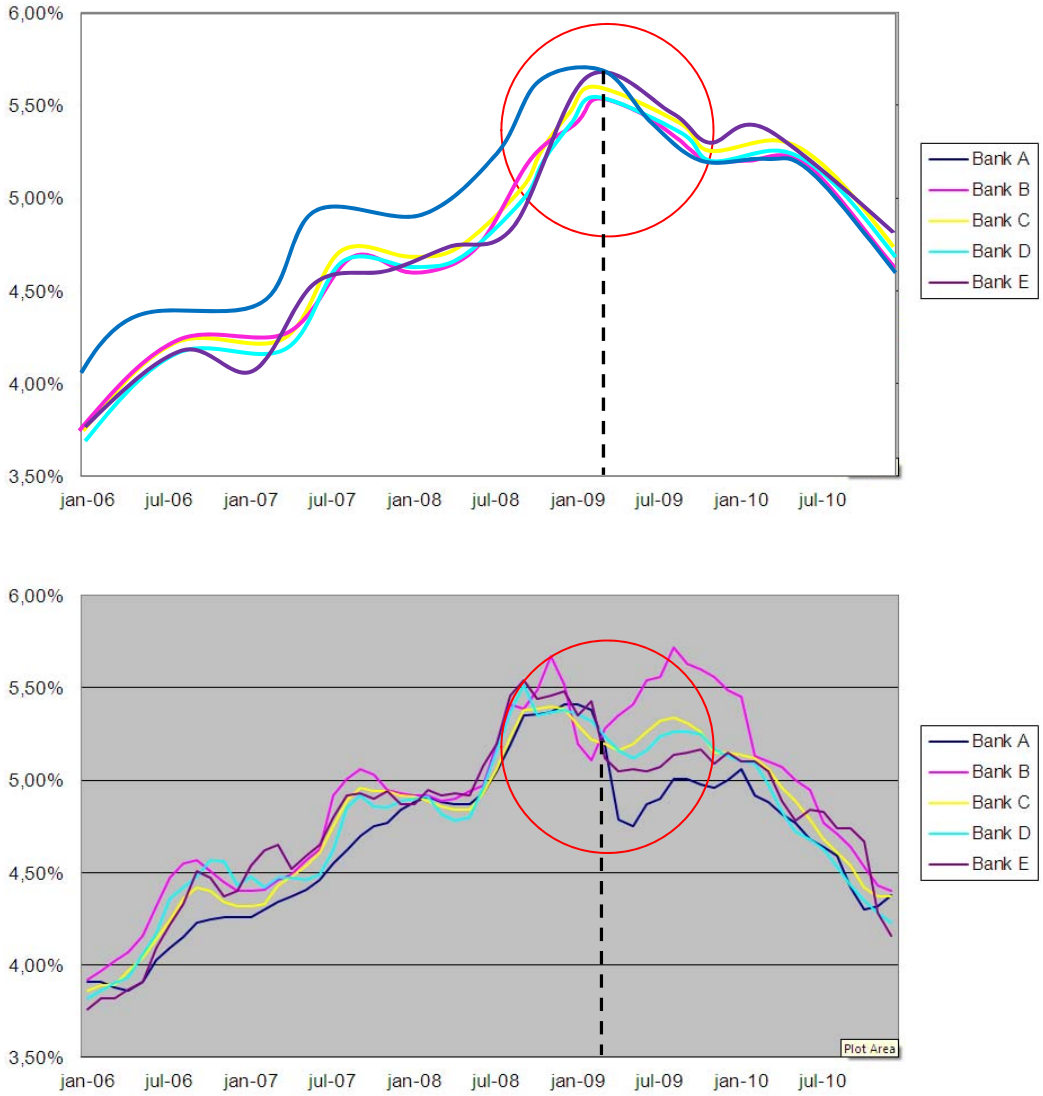
However, as proven by Proposition 4, under a collusive equilibrium, the price-setting behaviour of the followers would change in a similar way. The model of chapter two on barometric price leadership has shown us that prior to the crisis, prices were set around the competitive level. In a collusive equilibrium, however, followers would match the price of the leader, instead of undercut it. Following the hypothesis developed in this thesis, we would therefore expect a similar break in the individual bank's pricing pattern a few months earlier, around the spring of 2009. In theory, we would therefore expect a price pattern as

[210] Baum, 2001
[211] See articles in Appendix 8.2.

depicted by figure 5.5a., which shows a break with the barometric price leadership around the spring of 2009.

Looking at figure 5.5b. it becomes clear that the actual break with the original price setting behaviour occurs around March/April 2009.[212] It is at this point in time that we see a substantial change in individual pricing behaviour of the five largest Dutch mortgage providers. Until the spring of 2009 prices seem to follow a similar trend and are close to or slightly undercut the price of bank A, as following a barometric leader. However, around March/April 2009 banks clearly start to set prices above bank A and no longer undercut.

Figure 5.5. – Shift from collusive to barometric equilibrium as expected by the model (a) and the actual tariffs (b) (based on the actual tariffs of NHG-mortgages 10-year fixed of 5 largest Dutch banks)



Source: NMa, sector study Hypotheekmarkt, 2011, p. 28.

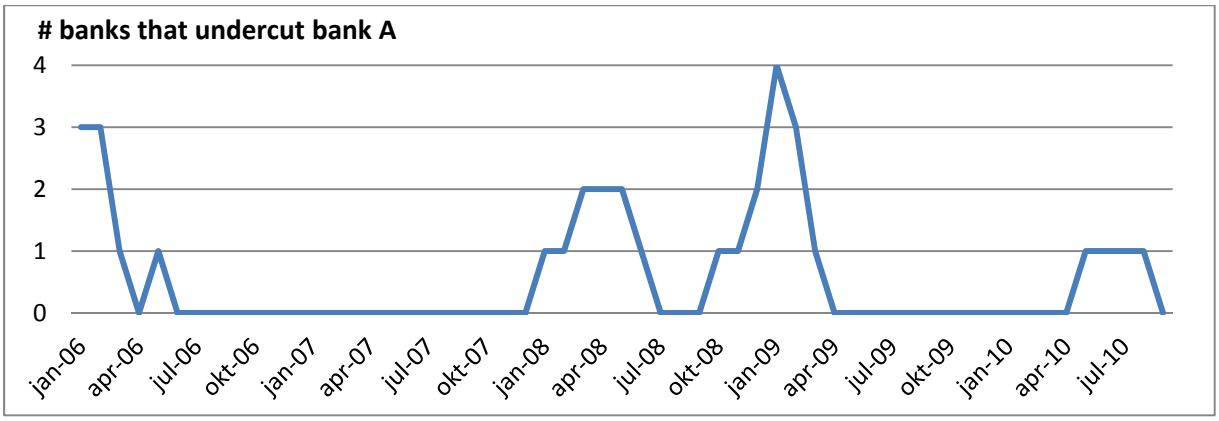
[212] Appendix 8.6. explains in detail the underlying data for the calculation of this figure.

Most plausibly, bank A is the Rabobank, the only large bank that was legally allowed to set the lowest interest rates from November 2009 onwards. Furthermore, figure 4.6. from the empirical study of Mulder & Lengton (2011) on the undercutting pattern of the individual banks support our hypothesis about the identity of bank A. We tried to empirically identify which of the five banks acted as price leader, by performing a couple of Granger causality tests. A Granger test is a statistical hypothesis test that determines whether a time series can predict another time series. When the hypothesis that the time series of bank A does not to Granger-cause the time series of the other individual banks can be rejected, this gives an indication for bank A being the price leader. We performed such tests for all banks with respect to bank A, but the results appeared inconclusive. For most of the banks we could reject the hypothesis that bank A not Granger-caused the time series of the other banks, but as no clear pattern could be identified, we cannot rely on the results. For a more detailed analysis we would therefore need additional information on the identity of the individual banks; information that is, due to confidentially issues, not available. Based on the existing information, we can however, reasonably assume that Bank A must be Rabobank, the industry leader.

Figure 5.6. provides a more straightforward interpretation of the price setting behaviour of the individual banks and shows on a monthly basis the number of banks that set their price below the Rabobank. It appears that before the crisis banks regularly did set their price above bank A. However, figure 5.7., which depicts the sum of the squared differences between the rates of bank A and the other banks, shows that differences were small and prices tended to be close to each other.[213] The fact that banks not strictly undercut bank A can be explained by differences and uncertainty in marginal costs, as also described in chapter two. However, during the crisis, the tendency to set prices slightly above bank A rapidly weakened and after the receipt of State aid around October 2008, banks regularly did undercut bank A, possibly as an effect of the received aid.

[213] Appendix 8.6. explains in detail the underlying data for the calculation of these figures.

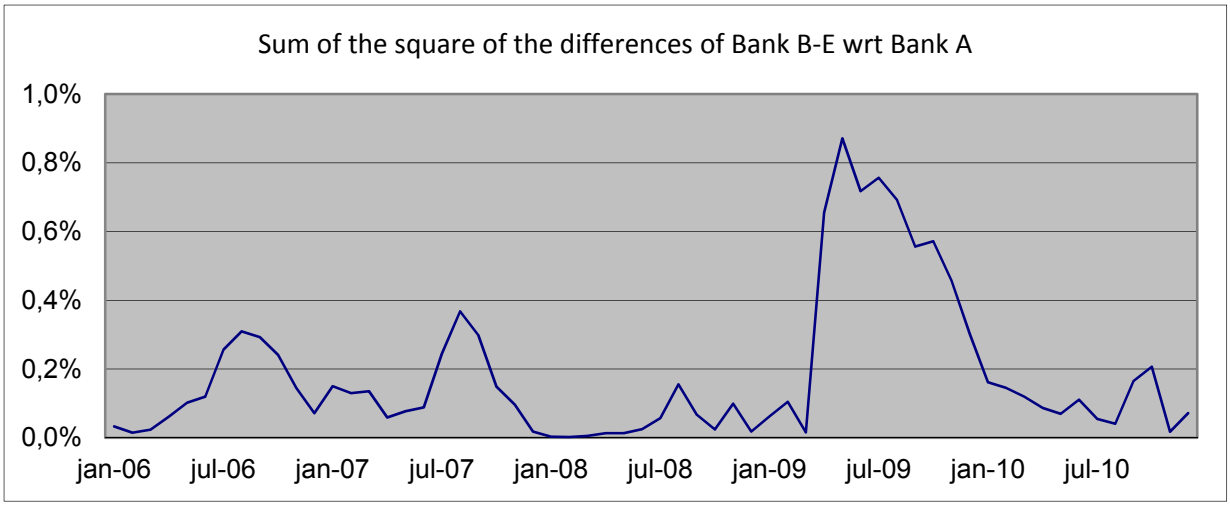
Figure 5.6. – Number of banks that undercut bank A (based on the actual tariffs of NHG-mortgages 10-year fixed of 5 largest Dutch banks)



Source: own calculation based on data from NMa, figure 5.4.

This behaviour, however, suddenly stops around April 2009, from which moment on bank A is no longer undercut by any of the banks and followers start to set prices considerably above the price of bank A. The shift in price setting is clearly depicted in figure 5.7. and again empirically tested for by unit root tests in Stata. These tests point towards a structural break around April 2009 and seem to be more exact about the timing than the tests on mortgage margin. The breakpoint matches with the indicated structural break in the mortgage margin around the first half of 2009. This empirical evidence therefore indicates that something changed in the price setting behaviour of the individual banks around the spring of 2009 and supports our hypothesis of a shift from a non-cooperative towards a cooperative equilibrium around this time.

Figure 5.7. – Difference in the rate of bank B-E with respect to bank A, measured by the sum of the squared differences between bank B-E and bank A



Source: own calculation based on data from NMa, figure 5.4.

Apart from a change in pricing behaviour, our hypothesis would furthermore imply that (especially) the leader would earn considerably higher profits after the spring of 2009. Even though specific data for their mortgage branch is not available, Rabobank did earn substantial higher profits in the first six months of 2010, compared to the same period in 2009.[214] The internally produced graph of the Rabobank from figure 3.7. also indicated that profits margins have gone up. Furthermore, analyses of data from the CBS by FD-editor Elisa Hermanides also indicate that banks saw their profits increase by almost 50 per cent in 2009. According to the CBS, the increase is mainly caused by the higher margins on Dutch mortgages.[215] The empirical evidence, therefore, seems to support the conclusions of our theoretical model.

The fact that the prices of the different banks are not identical from April 2009 onwards and do not exactly match with the model is a result of the strong assumptions in our model, as also explained in chapter two. In reality, banks do not face identical marginal cost curves and, especially during the crisis, the transparency of these costs might not have been as straightforward as we assumed in our model. Banks that received State aid, faced major uncertainties with respect to their future interest rate costs and could therefore have chosen to set a higher interest rate than the Rabobank. Furthermore, the financial institutions in reality differ in efficiency level, such that demand curves are not identical.

Apart from the sudden change in price setting behaviour of the individual banks around April 2009, figure 5.5. – 5.7. also indicate a normalization of this behaviour towards mid-2010. From April 2009 onwards, banks started to set their price considerably above bank A, but from the beginning of 2010 prices tended to be closer to each other, even though bank A was still hardly undercut. A possible explanation of this convergence of the interest rates could be that towards mid-2010 the financial markets somewhat stabilized and banks' future expectations regained solid ground as all banks received final authorization on their restructuring plans from the Commission. This could have given banks more certainty about future costs and risks, such that it was no longer necessary to price above Rabobank, but set prices equal to the price leader, as predicted by our model.

[214] Profits increased with almost 26 per cent. Source: Rabobank boekt fors hogere winsten (25 August, 2010), NRC.
[215] Hypotheek duur voor klant (2010, 6 August), Het Financieele Dagblad, see appendix 8.2.

Another possible explanation of the decrease in followers' interest rates could be the reduced pressure and fear for far-reaching measures from the European Commission that previously prevented followers from pricing aggressively. The fact that final decisions had been approved, possibly removed the incentive to remain 'out of the spotlights'. This allowed follower banks to set prices closer to the level of Rabobank. The still high mortgage margins in the beginning of 2010, as suggested by figure 3.6. – 3.8., also indicate that banks still complied with the collusive equilibrium.

The decrease in interest rate margins as argued by the NMa towards the end of 2010 could indicate the end of such coordinated behaviour. The termination of coordination could either be caused by the arisen commotion around the high Dutch margin and the subsequent NMa investigation (an effect already suggested by VEH) or due to changing market circumstances such as renewed possibilities to entry as suggested by the NMa. Nevertheless, it is far from clear whether the margins indeed went back to levels that were common before the crisis and according to several sources, including Rabobank's own calculated interest rate as in figure 3.7., margins are still relatively high. This suggests that coordinated behaviour might still be going on. Further research, including more recent data, would be necessary to examine the alleged decrease in mortgage margins in more detail.

Nevertheless, the general results of our model seem to apply to the actual data: around the spring of 2009 we see a clear breaking point with the original price setting behaviour. From that point onwards followers set their prices above the price of the leader, instead of undercut it. This is remarkable, because banks were only forced to do so from November 2009, after the implementation of the first price leadership bans. This supports our hypothesis that the *expectations* of the EC price leadership conditions shifted the equilibrium from a non-cooperative to a cooperative equilibrium. This shift forced followers to set their price equal to or above the price of the leader and raised the average level of Dutch mortgage interest rates.

5.4. Conclusion

In this chapter we showed that apart from barometric and dominant price leadership, one other type of price leadership exists: collusive price leadership. Our barometric model from chapter two is expanded and adjusted to explain a shift from non-cooperative to cooperative

behaviour. The model shows that under normal circumstances, the critical delta for which collusion is stable, was quite high. In the years prior to the financial crisis it had therefore been hard for banks to shift to such an equilibrium, even though it would have made all players better off. However, the anticipation of the price leadership conditions of the European Commission changed expected future profits from deviation after punishment around the spring of 2009. As banks most likely around this time became aware of the fact that the behavioural measures were going to be implemented in the near future, expected profits from deviation changed, such that the critical delta decreased and the collusive equilibrium became stable. Other changing market circumstances, such as a decrease in the number of players, increased entry barriers and less buyer power, furthermore supported a shift towards a cooperative equilibrium.

Empirical evidence seems to support the hypothesis that the anticipation of the EC conditions facilitated a shift towards a collusive price leadership equilibrium. After November 2009 this collusive equilibrium became extremely stable, as two of the three largest banks were not allowed *by law* to deviate from the equilibrium. In this sense, the conditions of the European Commission could have enabled the Dutch mortgage providers to strategically raise their prices.

6. Conclusion

The financial crisis, starting in 2007 with subprime mortgages, draw the attention to, and changed the structure of, the financial sector dramatically. In the middle of this financial turmoil, in the summer of 2009, the Dutch mortgage market came into disrepute. Mortgage interest rate margins seemed to be unusually high since mid-2009 in historical perspective as well as compared to other European countries. In this thesis, we have examined this sudden increase in interest rate margins on the Dutch mortgage market. We have evaluated the market, as well as the published sector study of the NMa (2011), and provided an alternative explanation for the increase in margins. In particular, we have examined the effect of the behavioural price conditions of the European Commission on several large banks after they received State aid. We have done so on the basis of a literature review, sources of the European Commission, VEH and NMa, interviews, newspaper articles, a theoretical model and descriptive statistics. This chapter presents the main conclusions of this thesis and provides suggestions for further research as well as recommendations for future competition policy.

6.1 . Main findings

The literature review starts with an examination of the competitive structure of the Dutch mortgage market before the developments of the financial crisis by analyzing theoretical and empirical evidence. Historically, the Dutch banking sector has been highly concentrated. The three main players, Rabobank, ING and ABN Amro-Fortis, together have comprised almost 70 per cent of the market. Evaluating empirical evidence of competition in banking, and in the Dutch mortgage market in particular, we cannot reject the hypothesis that prices had been set competitively before 2007. Furthermore, according to the DNB, the Dutch market had historically been characterized by competitive price leadership of one of the banks, generally assumed to be Rabobank. These market conditions of competitive price leadership seem best to fit the theory of barometric price leadership as proposed by Stigler (1947).

We therefore developed a theoretical model of barometric price leadership based on Cooper (1996) and Rotemberg & Saloner (1990) in which one of the firms decides to invest in superior market information. This firm subsequently becomes the endogenous leader, while the other firms wait and deduce the information from the leader's price. As over time, price adjustment has become sufficiently fast, all players prefer to follow. The position of the leader is, however, determined by historical institutional features. After the leader has set its price, the followers undercut the leader, such that in equilibrium, prices are set around the competitive level.

During the financial crisis, however, the banking sector underwent drastic changes. Several players left the market due to bankruptcy or became less active; others were bailed out by the State. Entry to the market became more difficult and funding costs were increasing as the security market was drying up. Furthermore, two of the three main Dutch players received State aid and were consequently subjected to price leadership bans, under which they were not allowed to set interest rates lower than their lowest (three) priced competitor(s). In this same period, mortgage margins started to rise above the original competitive level and almost doubled compared to the base funding cost (Swap-rate).

The NMa thoroughly analysed these developments in an extensive sector study of the mortgage market in the beginning of 2011 and came to the conclusion that the increased margin was the consequence of a temporal increase in unilateral market power. No further measures were deemed necessary, as margins would have gone 'back to normal' after competition had been restored. We have thoroughly evaluated the NMa report and concluded that neither the arguments are sufficient to explain the sudden rise in margins, nor does the economic reasoning to reach this conclusion seems convincing. Apart from that, there is inconclusive evidence that the mortgage margins have gone back to levels that were common before the crisis and seem to be still relatively high compared to other European countries. The NMa dismisses the price leadership ban of the European Commission as a potential explanation, despite evidence to the contrary found by the Chief Economist team. We therefore examined the period October 2008 until November 2009 in further detail.

Studying this period, it has become clear that nearly all large Dutch banks, except Rabobank, received considerable amounts of State aid from the Dutch government. Consequently, the aid-recipient banks were from November 2009 onwards subjected to price leadership bans by the European Commission to prevent distortions to competition.

However, studying the process of consultation and discussions towards the development of these measures, it has become clear that already around the spring of 2009, banks could have known with reasonable certainty that price leadership measures were inevitable in the near future. Evidently, prohibiting banks from undercutting the price leader has the potential to strongly weaken competition in a market where this behavior caused competitive prices to arise in the first place.

In the last chapter of this thesis, we have therefore adjusted the barometric price leadership model of chapter one and incorporated the anticipation of this price leadership ban. The model studies how an anticipation effect could have facilitated a shift towards a collusive price equilibrium. We have found that if products are sufficiently homogenous, both leader and followers are better off in a collusive price leadership equilibrium than in a barometric equilibrium. Prices as well as profits are higher for all players in the market. Though, as followers are able to undercut the leader in the barometric situation and reap market share, the extra profit for the followers is small, such that the critical delta is high and the equilibrium is difficult to attain.

In anticipation of the price leadership ban, however, banks became aware that they would no longer be allowed to undercut Rabobank in the near future, which could have decreased expected future profits from deviating after punishment by the leader. As a result, the critical delta of the collusive equilibrium decreased, such that the equilibrium became stable and after November 2009 was complete as followers were *by law* prohibited to deviate through the EC conditions. In this way, the anticipation of the price leadership bans sufficed to establish a shift from a barometric to a collusive price leadership equilibrium in the spring of 2009.

This theoretical model seems to fit the price developments in the Dutch mortgage market around mid-2009. The model not only predicts a sudden increase in mortgage margins around the spring of 2009, but also stipulates that followers start to set their price equal to or above the price of the leader around this same period. The price leadership ban of the European Commission can therefore, at least partly, explain the suddenly high Dutch mortgage interest rate margins around mid-2009. The EC measures, designed to prevent distortions to competition, in this way had not become the cure, but the disease to a competitive environment itself.

6.2. Suggestions for further research

A theoretical model is always a simplified version of reality captured in formulas and equations, which enables us to analyse specific situations or processes. It is therefore a helpful tool, but can never completely mirror reality. In the developed models of barometric and collusive price leadership we therefore make use of several simplifying assumptions, to prevent that the model becomes extremely cumbersome. In this section, we analyse the effect of relaxing some of these assumptions and argue that even though some further research might be needed, this would not change the general qualitative results.

The assumption that marginal costs *c* are constant and equal across all firms, simplifies our analysis by taking prices net of marginal cost. This makes the extensive and complex calculations of, especially, the barometric price leadership situation more tractable. Rotemberg & Saloner (1990) make this simplifying assumption for their barometric model as well. Evidently, however, this assumption does not reflect reality. Although differences in marginal cost are supposedly not very large, marginal cost will differ across firms and, especially, over time. For further research, it would therefore be interesting to develop a model that incorporates marginal costs and allows them to fluctuate across players. This would change the exact price level of each competitor, such that prices of followers will not be identical. Nevertheless, the general results of our model would only be affected if cost differences are very large, such that followers are not able to supply at the equilibrium price level. It is reasonable to assume that such large cost differences are non-existent in the Dutch mortgage market. Cost differences over time, furthermore, do not alter our qualitative results, as we are left with a model of *margins*. The model predicts an increase in margins around mid-2009 given that costs are constant, a result that would only be strengthened when taking into account that costs were decreasing. This furthermore explains why prices did not rise, but only margins increased. The large decrease in the base rate for mortgages sufficed to attain the desired increase in margins, against the established interest rate.

Another area of further research would be the expansion of our model to one of multiple players. A basic oligopoly model of four equally sized firms could be considered: the three large banks and a combined competitive fringe. In such a model, the price leader still is the first one to set its price, while the other players wait and play a subsequent

simultaneous game. As products are substantially homogeneous, the price of the followers will undercut the price of the leader and will be close to the competitive level. The larger the number of players in the market, the lower the equilibrium price will be. Coordination towards a collusive equilibrium will evidently be harder as the number of competitors grows, but deviation profits at the same time will be lower as well. The general qualitative result of our model would therefore not change. It would furthermore be interesting to study a setup in which part of the players are not subjected to PLBs, which would allow us to analyze a situation in which sufficient non-aid receiving banks remain to compete with the leader – as in Germany. This could lead to insights in which markets PLBs are more harmful than in others.

In the calculation of profits, we generally assumed that demand was symmetric, e.g. $\varepsilon = 0$, as it simplified the theoretical analysis. In reality, however, demand can also be asymmetric, in which case prices and profits will differ. If ε is positive, demand for firm 2 is weaker than demand for firm 1, such that firm 2 has an even larger incentive to undercut the price of firm 1. However, when ε is negative, demand for firm 2 is stronger and it depends on the magnitude of ε how firm 2 will set its price. Comparing the model with reality, the term ε can be interpreted as an asymmetric disturbance, through which demand for firm 1 increases relatively to firm 2 (when ε is positive). You could think of it as an increase in confidence in one of the banks due to external factors. Given the financial crisis, an increase in confidence was most plausible for bank 1, Rabobank, which was virtually the only Dutch bank that kept its head above the water. We can therefore assume that in reality ε is most probably positive, such that the qualitative results of our model do not change. If we had left ε into the formula, we would have had to work with numerical examples, at expense of the generality of our model. This can however be a basis for further research.

Apart from the theoretical model, it would be interesting to redo several of the analyses performed by the NMa, taking into account the insights from this thesis. An interesting analysis, beyond the scope of this thesis, would be to calculate the increase in HHI on the basis of the installed base of the banks, instead of on newly registered mortgages. Furthermore, it would be interesting to perform a new empirical analysis using the Bresnahan-Lau or the Penzar-Rosse method, instead of the SCP-methodology, to analyse the effect of concentration on competition. To empirically test our hypothesis of the influence of

the price leadership bans it would be useful to carry out a new and more thorough cartel analysis, using several variance tests, studying the period around March/April 2009.

A potential approach to empirically test the hypothesis developed in this thesis versus the increased concentration hypothesis of the NMa could be found in the Lerner index. When elasticities are known, the Lerner index can provide us with an indication of the expected margin in case of monopoly power. Martin (1993) develops an adjusted Lerner index based on the concentration of the market in Cournot competition, measured by the HHI ratio, given by:

$$\frac{p-\bar{c}}{p}=\frac{H}{\varepsilon_{qp}}$$

In which $\bar{c}$ is the industry-average value of marginal cost, H the Herfindahl index and ε_{qp} the price elasticity of demand. Adjusting this formula for a setting of price competition, instead of quantity competition, allows us to estimate the expected margin in case of increases in the HHI. We could compare these estimates with the actual level of the mortgage margins to verify whether the increased HHI indeed could have accounted, and to what extent, for the higher margins. We could test our own hypothesis by predicting what margin is to be expected in case of monopoly power and verify whether this is more consistent with the observed margin in the Dutch mortgage market than the HHI approach. This would give our hypothesis more empirical support. Unfortunately, data on elasticity and the Lerner index are not (yet) available. Whenever such data becomes available, this would be an interesting field of further research.

Another area that needs further in-depth investigation is the test for structural breaks. Additional, more detailed empirical support for the exact timing of the breaks would be desirable to test our hypothesis. Structural break tests as developed by Bai (1994) would allow us to empirical test in the data in which exact month the interest rate margins started to rise. The test could furthermore give evidence for the moment of change in the bank's individual price setting behaviour. This seems to be important as we would expect that interest rate margins starts to rise in the exact same month as in which the follower banks stop to undercut the leader. Due to time constraints it was not possible to incorporate these analyses in this thesis.

Recent developments in the Dutch mortgage market also provide a motivation for further research. From the 1st of January 2012 BNP Paribas left the market for Dutch

mortgages and also SNS recently announced that it would no longer sell mortgages through intermediaries. Further research can determine the effect of these exits on Dutch mortgage prices, to show to what extend concentration does influence mortgage interest rates. An important occasion to test the hypothesis developed in this thesis, would furthermore be the 18th of November 2012, the moment the price leadership conditions for ING expire. According to our model, we would expect a return to the barometric price leadership equilibrium, as the collusive equilibrium loses a lot of its stability when the critical delta increases as a result of higher deviation profits for the follower. It would therefore be interesting to study the effect of the termination of the EC conditions.

Ultimately, the question remains why the NMa discarded the effect of the EC price leadership conditions on Dutch mortgage prices so easily. The NMa did publish a so-called vision document in November 2010 in which the authority states that pricing restraints could lead to higher prices.[216] The NMa herein advocates that the European Commission should actively involve national competition authorities in the State aid procedures. However, the NMa does neither rely, nor come back on this potential detrimental effect in the in-depth sector study of the mortgage market. It would be interesting to study what would have happened if the NMa did come to similar conclusions as we developed in this thesis. Evidently, a difficult case would arise, in which a national competition authority would criticize a decision from the overarching European Commission. An interesting analysis is, whether it is in fact even possible for the NMa to overrule a decision of the European Commission. In the past, it was generally assumed that anti-competitive situations, that arose due to state measures which removed a firm's ability to autonomously compete, did not fall under prohibition by national competition authorities. In legal terms, this is called the 'State action doctrine'.[217]

Recent jurisprudence, such as the CIF case for example, changed the interpretation of this doctrine and currently the NMa can intervene in such cases.[218] However, such an intervention can have fundamental consequences for the reputation of the governmental authority, especially in case it regards the European Commission itself. Therefore, according to Verschuur (2010, p. 223), "it might sometimes be tempting for the NMa to give a low

[216] Nma (2010), Visiedocument Toekomst Financiële Landschap, November.
[217] From: Verschuur, 2010.
[218] See Verschuur (2010), p. 28.

degree of priority to such agreements […]. In this way the NMa avoids a possible confrontation with the government agency concerned". Obviously, this is a purely speculative explanation of why the NMa did not study into more detail the price leadership conditions. Nevertheless, it is an issue that needs more research.

Supposing the NMa would have countered the decision of the European Commission, it would be interesting to study the consequences for both mortgage providers as well as consumers. In March 2012 the French Competition Authority imposed a 385 million euro fine on eleven banks for alleged cartel formation and price fixing. The potential decision of the NMa concerning such fines would be an interesting field of further research.

6.3. Implications for future competition policy

The protection of competition and the preservation of a level playing field between the EU member states have been enshrined in the EU Treaty since the first draft. The financial crisis has put a great pressure on EU competition policy, both in scope and in complexity. The approach developed and pursued in the more than 200 cases, will therefore be guiding for EU competition policy for a long time to come. The principles that formed the guidelines for the measures developed during the financial crisis were the Rescue & Restructuring Guidelines of the 2004 'Community Guidelines on State aid for rescuing and restructuring firms in difficulty' as explained in chapter four. These guidelines were generally aimed at *firms* in difficulty, but as we have concluded before, banks are special. In analyzing competition policy measures, it is therefore important to keep this special role in mind.

The rationale for the large-scale State interventions during the financial crisis is based on the negative externality and 'contagion effect' created in case of a bank collapse. If a significant, systemic bank fails, competitors that are interconnected through an extensive network of interbank lending are harmed as well. In the banking sector, competitors therefore generally do not benefit from the removal of a competitor from the market. For non-bank firms such an externality generally does not exist, such that an intervention merely leads to the protection of a rival that would otherwise have left the market. The rationale to compensate competitors is therefore less straightforward for banks than for 'normal' failing

firms.[219] Measures that not only compensate non-aided firms, but even put aided firms at a competitive disadvantage hence do seem not very applicable for the banking sector.

Alleged internal discussions of the European Commission already questioned the effectiveness of behavioral conditions to encourage competition and this thesis confirmed the presumptions. Not only did the price leadership conditions facilitate a shift towards an anti-competitive, collusive equilibrium; the commotion around the Dutch mortgage margin issue has not contributed to greater confidence and stability in the Dutch financial sector either. For future competition policy it is therefore important to thoroughly analyze the measures developed and imposed during this period of enormous financial distress and question the applicability of each measure before they become the new 'standard'. For behavioural conditions, and especially the price leadership ban, it is important to carefully trade-off the distortions prevented by the measures and the distortions caused by them. According to Beck (2010), 'tying their [banks] hands' by prohibiting banks to independently set their price is unwise, as it creates unintentional side effects by encouraging coordination. This is exactly the side effect we have shown in this thesis.

Even though the price leadership conditions do not seem to have had the intended effect on competition, it is important to keep in mind what would have happened in case no measures would have been put in place to prevent distortions to competition. State aid, especially of the scale and scope as provided during the financial crisis, could have had far-reaching consequences on competition in the short and long run. Especially in the Netherlands, were Rabobank was virtually the only non-aided player left, a lack of effective measures to protect Rabobank could have largely distorted a level-playing field. In a worst case scenario predatory pricing by the State aided banks could have resulted in the exit of Rabobank, even though it seems hard to imagine that such a situation would arise.

In the long run, compensatory measures are necessary to eliminate incentives for moral hazard and accelerate repayment of the aid. Committing firms to undesirable behavioural constraints, prevents firms from taking excessive risk in the expectation of being bailed out anyhow when things go wrong. If governments could freely give aid, the expectations of future State support could already change the behavior of firms before the aid is actually granted. [220] The (in principle) prohibition of State aid and strict EC conditions in

[219] See i.a. Beck et al. (2010)
[220] Spector, (2008)

this way also serve as a commitment device for national governments. Furthermore, the European Commission hoped to accelerate the pace of repayment by the state-supported banks by implementing conditions that suppressed economic freedom. This makes clear that some measures were necessary to protect the competitive environment in the Dutch banking sector.

Notwithstanding that competition authorities do not have first-best solutions at their disposal; behavioural conditions that put aided banks at a competitive disadvantage compared to their rivals can no longer be regarded as second-best. According to Lyons (2011) "there is no justification for measures that suppress competition". For future intervention policy, the European Commission should therefore strongly focus on what problem she is actually aiming to address and design measures that serve this purpose, without creating large distortive externalities. A possible alternative could be strong governance at banks to verify that sustainable prices are charged, instead of imposing explicit price leadership conditions. Another possible alternative are RAROC (Risk-Adjusted Return on Capital) requirements, which impose minimum requirements on a bank's risk-adjusted rate of return. Banks, as an effect, are not able to charge disproportionately low prices, such that cross-subsidization or predatory pricing is impossible. Above all, it has to be strongly kept in mind that, as outlined by Article 101 and 102 of the Treaty, competition is necessary to protect consumers and encourage firms to push down prices and increase quality. Compensating rivals should never be a goal on its own and the creation and preservation of a competitive environment should therefore serve the underlying objective of protecting consumers, not of competitors themselves.

"In economic life, competition is not a goal: it is a means of organizing economic activity to achieve a goal." (George Stigler, 1968, p. 5)

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De Nederlandse Bank – department economic policy & research drs. C. Pattipeilohy

ING – department Corporate Legal mr. L Driessen & drs. W. van Aggelen

NMa – economists dr. B. Overvest & dr. M. Mulder

Rabobank – economist of the Knowledge & Economic Research department drs. L. Treur

Universiteit van Amsterdam – professor dr. A. Boot

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8. Appendices

Appendix 1 – Derivation of mathematical equations

1.1. Derivation of equation 4

Given that the informed firms set their price:

$$p_j = \frac{\tilde{a} + dEp_i}{2b + 2d}. \quad (1)$$

The best the uninformed firms can do is assume that $\varepsilon = 0$ and $a = \tilde{a}$, such that they expect the informed firms to maximize: $\pi_i = p_i \cdot (\tilde{a} - b \cdot p_i + d(p_j - p_i))$, which gives

$$Ep_i = \frac{\tilde{a} + dp_j}{2b + 2d}. \quad (2)$$

We can now plug the value of p_j (1) into this equation (2) which yields:

$$Ep_i = \frac{\tilde{a}}{2b + 2d} + \frac{d\tilde{a} + d^2 Ep_i}{(2b + 2d)^2} = \frac{2\tilde{a}b + 3\tilde{a}d + d^2 Ep_i}{(2b + 2d)^2}$$

$$Ep_i - \frac{d^2 Ep_i}{(2b + 2d)^2} = \frac{2\tilde{a}b + 3\tilde{a}d}{(2b + 2d)^2}$$

$$Ep_i \frac{4b^2 + 4d^2 + 8bd - d^2}{(2b + 2d)^2} = \frac{2\tilde{a}b + 3\tilde{a}d}{(2b + 2d)^2}$$

$$Ep_i = \frac{2\tilde{a}b + 3\tilde{a}d}{4b^2 + 3d^2 + 8bd} = \frac{(2b + 3d)\tilde{a}}{(2b + 3d)(2b + d)} = \frac{\tilde{a}}{2b + d} \quad (3)$$

Plugging this value (3) into equation (1) gives us

$$p_j = \frac{\tilde{a}}{2b + 2d} + \frac{d\tilde{a}}{(2b + 2d)(2b + d)} = \frac{2b\tilde{a} + d\tilde{a} + d\tilde{a}}{(2b + 2d)(2b + d)} = \frac{(2b + 2d)\tilde{a}}{(2b + 2d)(2b + d)} = \frac{\tilde{a}}{2b + d}.$$

1.2. Derivation of equation 10

Proof of the correctness of the integral can be showed by deriving its first derivative, so we take the derivative of $\beta \cdot p_1^{\lambda+1} + a(\lambda + 1)p_1^{\lambda} + k = 0$ with respect to p_1. This gives $\beta(\lambda + 1)p_1^{\lambda} + a(\lambda + 1) \cdot \lambda \cdot p_1^{\lambda-1} + a'(\lambda + 1)p_1^{\lambda} = 0$, dividing by $(\lambda + 1)$ and $p_1^{\lambda-1}$ then yields us with the function $\lambda a(p_1) + \beta p_1 + p_1 a'(p_1) = 0$

1.3. Proof that $\pi_2^F > \pi_2^{sim}$

To show that π_2^F is always larger than π_2^{sim}, we have to equalize the denominator of both formulas. The easiest way to do this is by multiplying the denominators with each other. When denominators are equal, we solely have to compare numerators to show which of the two is larger. We therefore calculate:

$\left[(\tilde{a}(2b+3d))(\tilde{a}(2b^2+5d^2+5bd))\right]*\left[(2b+d)^2\right] > \left[\tilde{a}^2(b+d)\right]*\left[(2(2(b+d)^2-d^2))^2\right]$ which gives:

$16\tilde{a}^2b^5+168\tilde{a}^2b^3d^2+80\tilde{a}^2b^4d+176\tilde{a}^2b^2d^3+85\tilde{a}^2bd^4+15\tilde{a}^2d^2 >$
$16\tilde{a}^2b^5+144\tilde{a}^2b^3d^2+80\tilde{a}^2b^4d+112\tilde{a}^2b^2d^3+36\tilde{a}^2bd^4+4\tilde{a}^2d^2$

Crossing off the double terms leaves us with $24\tilde{a}^2b^3d^2+64\tilde{a}^2b^2d^3+49\tilde{a}^2bd^4+11\tilde{a}^2d^2>0$, which holds if *a*, *b* and *d* are larger than zero.

1.4. Proof that $\pi_2^F > \pi_1^L$

To show that equation 14 is always larger than equation 13 when $a>0$, requires proving that the numerator is always larger, as the denominator is equal in both equations. We therefore have to prove:

$(a(2b+3d))(a(2b^2+5d^2+5bd)) > (2a(b+2d))(a(2b^2+d^2+4bd))$, which gives

$4a^2b^3+10a^2bd^2+10a^2b^2d+6a^2b^2d+15a^2d^3+15a^2bd^2 >$
$4a^2b^3+2a^2bd^2+8a^2b^2d+8a^2b^2d+4a^2d^3+16a^2bd^2$.

Crossing off the double terms leaves us with $25a^2bd^2+15a^2d^3>18a^2bd^2+4a^2d^3$, which is always true if *a*, *b* and *d* are larger than zero.

1.5. Proof that $\pi_1^{sim} > \pi_1^L$

To show that π_1^{sim} is always larger than π_1^L, we follow the same method as above in appendix 1.4. We calculate:

$\left[\tilde{a}^2(b+d)\right]*\left[(2(2(b+d)^2-d^2))^2\right]^2 > \left[(2\tilde{a}(b+2d))(\tilde{a}(2b^2+d^2+4bd))\right]*\left[(2b+d)^2\right]$

which gives:

$16\tilde{a}^2b^5+144\tilde{a}^2b^3d^2+80\tilde{a}^2b^4d+112\tilde{a}^2b^2d^3+36\tilde{a}^2bd^4+4\tilde{a}^2d^2 >$
$16\tilde{a}^2b^5+140\tilde{a}^2b^3d^2+80\tilde{a}^2b^4d+104\tilde{a}^2b^2d^3+34\tilde{a}^2bd^4+4\tilde{a}^2d^2$

Crossing off the double terms leaves us with $4\tilde{a}^2b^3d^2 + 8\tilde{a}^2b^2d^3 + 2\tilde{a}^2bd^4 > 0$, which holds if *a*, *b* and *d* are larger than zero.

1.6. Derivation of equation 15

Plugging the price $P_2^m = \frac{a+\varepsilon}{2b}$ into the followers profit function

$\pi_2 = p_2(a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))$ gives us $\pi_2 = \frac{a+\varepsilon}{2b}(a - \varepsilon - b \cdot \frac{a+\varepsilon}{2b})$, given that $p_1 = p_2$. We can rewrite to get

$$\pi_2 = \frac{a+\varepsilon}{2b}(a - \varepsilon - \frac{a+\varepsilon}{2}) = \frac{a+\varepsilon}{2b}(\frac{2a - 2\varepsilon - a - \varepsilon}{2}) = \frac{a+\varepsilon}{2b}(\frac{a-3\varepsilon}{2}) = \frac{a+\varepsilon}{2b}(\frac{a+\varepsilon}{2} - \frac{4\varepsilon}{2})$$
$$= \frac{(a+\varepsilon)^2}{4b} - \frac{(a+\varepsilon)\varepsilon}{b}$$

1.7. Proof that $p_1^{coll} > p_1^L$

To show that p_1^{coll} is always larger than p_1^L, we follow the same method as above in appendix 1.4. and 1.5. We therefore calculate:

$[a]*[2(b+d)^2 - d^2] > [2b]*[a(b+2d)]$ which gives:

$2ab^2 + ad^2 + 4abd > 2ab^2 + 4abd$, which holds if *a*, *b* and *d* are larger than zero.

1.8. Proof that $\pi_1^{coll} > \pi_1^L$

To show that π_1^{coll} is always larger than π_1^L, we follow the same method as above in appendix 1.7. We therefore calculate:

$[a^2]*[(2(2(b+d)^2 - d^2))^2] > [4b]*[(2a(b+2d))(a(2b^2 + d^2 + 4bd))]$ which gives:

$16a^2b^4 + 64a^2b^3d + 80a^2b^2d^2 + 32a^2bd^3 + 4d^4 > 16a^2b^4 + 64a^2b^3d + 72a^2b^2d^2 + 16a^2bd^3 =$

$8a^2b^2d^2 + 16a^2bd^3 + 4d^4 > 0$ which holds if *a*, *b* and *d* are larger than zero.

1.9. Proof that $\pi_2^{coll} > \pi_2^F$ when d is large

To show that π_2^{coll} is larger than π_2^F when d becomes sufficiently large, we follow the same method as above in appendix 1.8. We therefore calculate:

$[a^2]*[(2(2(b+d)^2 - d^2))^2] > [4b]*[(a(2b+3d))(a(2b^2 + 5d^2 + 5bd))]$ which gives:

$16a^2b^4 + 80a^2b^2d^2 + 64a^2b^3d + 32a^2bd^3 + 4a^2d^4 >$
$16a^2b^4 + 100a^2b^2d^2 + 64a^2b^3d + 60a^2bd^3$

Simplifying yields $4a^2d^4 > 20a^2b^2d^2 + 28a^2bd^3$, which is true if $d^2 > 5b^2 + 7bd$ such that $\pi_2^{coll} > \pi_2^{F}$ if *d* becomes sufficiently large.

1.10. *Proof that* $\pi_2^{dev} > \pi_2^{coll}$

To show that π_2^{dev} is larger than π_2^{coll}, we follow the same method as above in appendix 1.9. We therefore calculate:

$\left[(2ab^2 + 3abd + ad^2)(2ab + ad)\right] * \left[4b\right] > \left[a^2\right] * \left[2b(2b + 2d)\right]$ which gives:

$16a^2b^4 + 32a^2b^3d + 20a^2b^2d^2 + 4a^2bd^3 > 4a^2b^2 + 4a^2bd$

This is always true if *a*, *b* and *d* are larger than zero.

1.11. Derivation of equation (26)

When both leader and follower set their price equal to $p_1^{L} = \frac{a(b+2d)}{2(b+d)^2 - d^2}$, the expected profit function of the follower $E\pi_2 = E\{p_2 \cdot (a - \varepsilon - b \cdot p_2 + d(p_1 - p_2))\}$ becomes:

$$E\pi_2 = E\left\{\frac{a(b+2d)}{2(b+d)^2 - d^2}\left(a - \varepsilon - \frac{ab(b+2d)}{2(b+d)^2 - d^2}\right)\right\}$$
$$= E\left\{\frac{a(b+2d)}{2(b+d)^2 - d^2}\left(\frac{2ab^2 + ad^2 + 4abd - ab^2 - 2abd}{2(b+d)^2 - d^2}\right)\right\}$$
$$= E\left\{\frac{a(b+2d)}{2(b+d)^2 - d^2}\left(\frac{a(b^2 + d^2 + 2bd)}{2(b+d)^2 - d^2}\right)\right\} = E\left\{\frac{(a(b+2d))(a(b^2 + d^2 + 2bd))}{(2(b+d)^2 - d^2)^2}\right\}$$

To show that this is smaller than follower deviation profits, without price leadership bans, we compare this profit with $\pi_{DF} = E\left(\frac{(a(2b+3d))(a(2b^2 + 5d^2 + 5bd))}{(2(2(b+d)^2 - d^2))^2}\right)$. This gives us $a^2b^3 + 6.25a^2bd^2 + 4a^2b^2d + 3{,}75a^2d^3 > a^2b^3 + 5a^2bd^2 + 4a^2b^2d + 2a^2d^3$, which is always true if *a*, *b* and *d* are larger than zero.

1.12. Proof that $\pi_{DFnew} < \pi_2^{coll}$ for any value of *d*

To proof that $\pi_{DFnew} < \pi_2^{coll}$ holds for any value of *d*, we follow the same method as above in appendix 1.10. We therefore calculate:

$$(4b)\cdot\left(a^2b^3 + 5a^2bd^2 + 4a^2b^2d + 2a^2d^3\right) > \left(4b^2 + 20b^2d^2 + 16b^3d + 8bd^3 + d^4\right)\cdot\left(a^2\right)$$

Which gives:

$$\left(4a^2b^4 + 20a^2b^2d^2 + 16a^2b^3d + 8a^2bd^3 + a^2d^4\right) > \left(4a^2b^4 + 20a^2b^2d^2 + 16a^2b^3d + 8a^2bd^3\right)$$

Which is true for any value of *d*, given that a, b and d are larger than zero.

Appendix 2 – Newspaper Articles

NMa: hypotheekmarges in Nederland hoog

Press release NMa

1 november 2010

De marges van hypotheken in Nederland zijn sinds medio 2009 hoog, zowel vanuit een historisch perspectief als in vergelijking met ons omringende landen. De hoge marges worden voor zowel hypotheken met een variabele rente als voor hypotheken met langere rentevaste periodes waargenomen. Dit zijn de conclusies van de Quick Scan Hypotheekrente van de NMa die vandaag is verschenen. 'Hoge marges kunnen duiden op een gebrek aan marktwerking. Mogelijk zijn er ook nog andere verklaringen. Ik vind het daarom belangrijk, zeker gezien in het licht van de maatschappelijke commotie, dat de NMa dit nader gaat onderzoeken. Een gebrek aan marktwerking kan onnodige hoge tarieven tot gevolg hebben', zegt Pieter Kalbfleisch, voorzitter van de raad van bestuur van de NMa.

Om hypotheken te verstrekken gebruiken banken verschillende financieringsbronnen, zoals spaargeld en leningen op de kapitaalmarkt. In de quick scan houdt de NMa rekening met diverse stijgingen in de kosten van de financiering. Dit geldt bijvoorbeeld voor veranderingen van risicopremies en het gebruik van duurdere financieringsbronnen zoals spaargeld. Afhankelijk van de gebruikte methode voor de kostenberekening, ligt de marge bij de meest gangbare hypotheekvormen na juli 2009 0,3 à 1 procentpunt hoger.

In Nederland hebben zo'n 3,5 miljoen huishoudens een hypotheek op een totaal van bijna vier miljoen eigen woningen. In totaal staat in Nederland voor zo'n EUR 590 miljard hypotheekschuld uit.

De quick scan vormt een onderdeel van een bredere sectorstudie naar de marktwerking op de hypotheekmarkt. De resultaten van de uitgebreidere vervolgstudie zullen naar verwachting in het voorjaar van 2011 worden gepubliceerd. Deze studie wordt uitgevoerd door de Monitor Financiële Sector. Dit is een team binnen de NMa dat economisch onderzoek doet in de financiële sector en in deze sector de marktwerking volgt.

De NMa nodigt banken en andere stakeholders uit om te reageren op de bevindingen van deze quick scan. Reacties kunnen gemaild worden naar onderzoekhypotheken@nmanet.nl.

NVB ziet NMa-onderzoek met vertrouwen tegemoet

Bron: Nederlandse Vereniging van Banken - 01-11-2010

De Nederlandse Mededingingsautoriteit (NMa) heeft geen verdenking jegens de banken en ook geen vermoeden van een prijsafspraak of kunstmatig hoge hypotheekkosten. Dit heeft de NMa inmiddels in een persbericht laten weten. De feiten die in de Quick Scan en het persbericht daarover worden vermeld, zijn al eerder in de discussie genoemd en zullen nog nader worden onderzocht. De Nederlandse Vereniging van Banken (NVB) neemt de uitnodiging van de NMa aan om hierover nader van gedachten te wisselen. De NVB ziet het onderzoek met vertrouwen tegemoet.

De NVB benadrukt het belang van een zuiver onderzoek op basis van juiste feiten en argumenten. Conclusies kunnen pas worden getrokken nadat een volledig onderzoek heeft plaatsgevonden; niet op basis van de Quick Scan. De NMa vergelijkt de markten in verschillende landen. Deze landen hebben in vergelijking met Nederland verschillende markten, producten en culturen. Zo is het in Nederland de gewoonte om een hypotheek af te sluiten voor de volledige waarde van het huis. Daardoor is deze markt veel beter toegankelijk voor starters dan bijvoorbeeld de Duitse markt, waar een gemiddelde starter rond de 40% van de waarde van het huis kan lenen. Voor een goede vergelijking tussen landen is een volledig beeld nodig van de hypotheekmarkt in deze landen. Ook is het raadzaam om te kijken naar de marges op andere bankproducten. Zo verschilt het beschikbare spaargeld en de hoogte van de spaarrente per land. De spaarrente is in Nederland gemiddeld hoger dan in Duitsland.

Tenslotte is het zaak om de omstandigheden die golden in het jaar waarmee de huidige tarieven worden vergeleken, compleet in beeld te brengen en te vergelijken met de huidige omstandigheden. In 2004 was de geldrente laag en was er veel (buitenlands) geld beschikbaar. Na de financiële crisis gelden hogere risico-opslagen bij het aantrekken van kapitaal voor langere termijn, die per land kunnen verschillen.

De NVB is van mening dat de hypotheekmarkt voldoende concurrerend is. Er is een aantal grote spelers en een aantal kleinere spelers actief in deze markt die daarmee niet afwijkt van de markten in andere landen of andere produktmarkten. De hypotheekrente in Nederland is historisch laag en recentelijk zelfs nog verder gedaald. Omdat hypotheken voor langere tijd (in beginsel 30 jaar) worden verstrekt, lenen hypotheekverstrekkers het geld hiervoor zelf ook voor langere tijd in. Banken betalen een premie voor het feit dat dit geld voor langere termijn beschikbaarheid moet zijn. Deze premie is onder invloed van de crisis fors is gestegen. Het lange termijn karakter van hypotheekverstrekking betekent ook dat korte tarieven zoals Euribor- of ECB-rentes maar zeer beperkt invloed hebben op de hoogte van hypotheekrente

ma 01 nov 2010, 05:30

Hoge kosten én hoge rente

Banken verdacht van prijsafspraak

door Natasja de Groot – de Telegraaf

AMSTERDAM - De Nederlandse Mededingsautoriteit (NMa) verdenkt banken van onderlinge afspraken om de hypotheekmarges kunstmatig hoog te houden.

Na een eerste onderzoek, dat vandaag wordt gepresenteerd, heeft de kartelwaakhond voldoende aanknopingspunten gevonden om de banken in ons land het vuur na aan de schenen te leggen.

Volgens de NMa lopen de kosten die de financiële instellingen sinds medio vorig jaar aan de klant rekenen uit de pas bij de ons omringende landen. Ook blijkt dat die marges de afgelopen tijd flink zijn gestegen. Dit is zowel het geval bij hypotheken met een variabele rente als bij hypotheken met een langere rentevaste periode.

"Hoge marges kunnen duiden op een gebrek aan marktwerking. Mogelijk zijn er ook andere verklaringen. Ik vind het daarom belangrijk, zeker in het licht van de maatschappelijke commotie, dat de NMa dit nader gaat onderzoeken. Een gebrek aan marktwerking kan onnodige hoge tarieven tot gevolg hebben", reageert voorzitter Pieter Kalbfleisch.

Het blijkt dat in vergelijking met de periode januari 2004 tot en met juli 2009 de marges op hypotheken met de meest gangbare rentevaste periode (tussen de vijf en tien jaar) het afgelopen anderhalf jaar zijn toegenomen met circa 0,33 tot 0,96 procentpunt.

Hoge kosten en hoge rente

De NMa spreekt van historisch hoge kosten die de banken bij het afsluiten van een hypotheek berekenen. Een vergelijking met de kosten die Duitse, Franse en Belgische hypotheekverstrekkers hanteren, laat verder zien dat die aanzienlijk lager liggen dan in Nederland. Verder is er in ons land ook sprake van een hogere hypotheekrente ten opzichte van de ons omringende landen. De eerste resultaten maken deel uit van een grondig onderzoek naar marktwerking op de hypotheekmarkt. Dit eindrapport komt volgend voorjaar naar buiten.

De Nederlandse hypotheekmarkt is voor zo'n 75 procent in handen van de vier grootste banken. Volgens eerdere berekeningen van het Centraal Bureau voor de Statistiek (CBS) zagen banken dankzij de hogere kosten in 2009 hun verdiensten met 50 procent stijgen tot 24 miljard euro.

De Vereniging Eigen Huis (VEH) eiste daarop een onderzoek. "Ons bezwaar is dat banken wel zelf goedkoop kunnen lenen, dat zij dat voordeel niet doorgeven aan klanten, maar aan zichzelf toekennen", aldus een woordvoerder. Ook de Consumentenbond en politieke partijen vroegen NMa een diepgravend onderzoek in te stellen.

In Nederland hebben zo'n 3,5 miljoen huishoudens een hypotheek op bijna 4 miljoen eigen woningen.

Banken gaan de strijd aan met NMa

Elisa Hermanides en Pieter Lalkens

dinsdag 02 november 2010, 07:28

De hoogte van de hypotheekrente in Nederland belooft de komende weken een felle strijd op te leveren tussen de banken en de Nederlandse Mededingingsautoriteit (NMa).

De banken hebben maandag fel gereageerd op de bevinding van de NMa dat de marge op Nederlandse hypotheken 'historisch hoog' is en ook hoger is in vergelijking met omringende landen.

Boele Staal, voorzitter van de Nederlandse Vereniging van Banken (NVB), zei gisteren dat de NMa in de 'quickscan' naar de hypotheekrente veel te snel conclusies trekt.

Olie op het vuur

NMa-voorzitter Pieter Kalbfleisch gooide gisteren olie op het vuur door te zeggen dat consumenten 'al snel vele honderden miljoenen te veel betalen voor hun hypotheek'. Een uitspraak die de poging van de banken doorkruist het vertrouwen in hen te herstellen.

De toezichthouder heeft het onderzoek verricht na een bericht in Het Financieele Dagblad over de hoge marges die banken behalen op hypotheken. De NMa zei gisteren dat er op dit moment geen vermoeden is dat banken prijsafspraken hebben gemaakt.

Korte metten

De NMa lijkt korte metten te maken met de argumenten die de banken altijd hebben gebruikt om te verklaren waarom de hypotheekrente niet is meegedaald met de lagere marktrente. Volgens de banken zijn hun kosten veel hoger dan op het eerste gezicht lijkt, omdat zij hogere risico-opslagen moeten betalen bij het aantrekken van geld.

De NVB schreef in augustus nog dat investeerders het risico voor banken nog steeds hoog inschatten vanwege het broze herstel na de crisis. Verder noemden de banken ook het hogere risico op wanbetaling als reden om de marge hoog te houden.

Desondanks komt de toezichthouder tot de conclusie dat de marge op hypotheken na augustus 2009 flink is gestegen. De NMa zegt daarbij rekening te hebben gehouden met factoren als verhoogde kredietrisico's en verschuiving naar duurdere financieringsbronnen.

Staatssteun aan banken kan rol spelen in hoge marges

De opmerkingen van Staal gisteren duiden erop dat de banken vooral de onderzoeksmethodiek van de NMa zullen aanvallen. De toezichthouder heeft de banken en andere belanghebbenden uitgenodigd de komende weken te reageren op de quickscan.

Volgens Staal houdt de NMa nog steeds onvoldoende rekening met de risico-opslagen die voor banken gelden. Ook vindt hij de vergelijking met de hypotheekmarges in het buitenland onterecht. 'Daar zitten de hypotheekmarkten heel anders in elkaar.'

Vervolgonderzoek

De NMa kondigde gisteren alvast aan een vervolgonderzoek te doen naar de Nederlandse hypotheekmarkt. Volgens een woordvoerder van de NMa worden in de quickscan feiten op een rij gezet, maar worden hierin geen conclusie getrokken over de oorzaken van de historisch hoge marges.

Een mogelijke oorzaak zou een niet goed werkende markt kunnen zijn. Een woordvoerder van de NMa liet gisteren weten dat de oorzaak gezocht kan worden in de staatssteun die sommige hypotheekaanbieders (ABN Amro, ING, Aegon en SNS Reaal) hebben gekregen. Vanwege de staatssteun werden prijsbeperkingen opgelegd aan ABN Amro en ING.

Maatregelen

Zo geldt voor ABN Amro dat de bank geen prijsleider mag zijn. ING mag vanwege de steun geen lagere prijzen stellen dan de drie concurrenten die hun hypotheken het laagst prijzen. Met deze maatregelen wilde de Europese Commissie voorkomen dat de banken een oneerlijk concurrentievoordeel hebben dankzij de steun. Dit voordeel zou erin bestaan dat banken zich dankzij de staatsinjectie vrij voelen om met prijzen te stunten.

Verder zou een rol kunnen spelen dat een aantal prijsvechters van de markt is verdwenen, waaronder Argenta en GMAC. Banken zouden in hun tarieven ook al rekening kunnen houden met de zwaardere kapitaaleisen in de toekomst.

Het is niet de eerste keer dat de NMa onderzoek doet naar prijsvorming in de financiële markten. Vorig jaar maart bracht de toezichthouder nog een rapport uit over de rente voor rekening-courantkredieten aan het midden- en kleinbedrijf. De NMa deed daarbij aanbevelingen hoe mkb-bedrijven door het vergroten van hun productkennis de druk op banken kunnen vergroten.

NMa gaat een vervolgonderzoek doen naar de oorzaken van de hoge hypotheekmarges

NMa: geen vermoeden van prijsafspraken tussen banken

Press release NMa

1 november 2010

In de pers wordt gesteld dat de NMa vermoedt dat banken prijsafspraken maken. Deze conclusie kan niet worden getrokken op basis de feiten die uit de Quick Scan Hypotheekrente naar voren zijn komen.

De feiten geven wel aanleiding tot nader onderzoek om nog onbeantwoorde vragen over de verhoogde marges bij hypotheken te kunnen verklaren. De banken hebben aan de Quick Scan hun medewerking verleend. Nu de NMa nader onderzoek gaat doen, gaat de NMa ervan uit de banken ook daaraan hun medewerking zullen verlenen.

De Jager wil uitleg over hoge hypotheekmarges

Laatste update: 16 november 2010 21:46 info

DEN HAAG - Minister Jan Kees de Jager van Financiën wil van de banken weten waarom de marges zo hoog zijn die ze cliënten over hun hypotheken rekenen.

Uit een eerste onderzoek van de Nederlandse Mededingingsautoriteit (NMa) blijkt dat de marges het afgelopen jaar hoog zijn, niet alleen historisch, maar ook in vergelijking met buurlanden.

De Jager laat dat weten in antwoord op Kamervragen van VVD, PvdA, CDA en GroenLinks. De NMa gaat nog verder met het onderzoek, maar voor De Jager vormen "de eerste uitkomsten reeds een serieus signaal".

Hij zal daarom "op korte termijn in overleg treden met verschillende partijen om te bezien hoe er opvolging gegeven moet worden aan deze signalen."

CBS

Aanleiding voor de vragen is een artikel in het Financieele Dagblad deze zomer, waarin op grond van CBS-cijfers werd aangetoond dat de Nederlandse banken steeds meer verdienen aan hypotheken.

Uit het NMa-onderzoek blijkt dat de marges op hypotheken de laatste jaren zijn opgelopen.

NMa: 'Hypotheekmarges in Nederland hoog'

maandag 1 november 2010 13:55

De Nederlandse Mededingingsautoriteit (NMa) zegt dat de marges van hypotheken in Nederland sinds medio 2009 hoog zijn. Er is mogelijk sprake van 'een gebrek aan marktwerking', een nieuw onderzoek moet dat uitwijzen.

Het onderzoek van de NMa volgde na berichtgeving van Het Financieele Dagblad begin augustus. Daaruit bleek dat inkomsten van banken vorig jaar als gevolg van de hoge marges op de hypotheekrente met 50% is gestegen.

'De marges van hypotheken in Nederland zijn sinds medio 2009 hoog, zowel vanuit een historisch perspectief als in vergelijking met ons omringende landen', zegt de NMa in de Quick Scan Hypotheekrente die maandag is gepubliceerd.

Hypotheken

De hoge marges gelden zowel voor hypotheken met een variabele rente, als voor hypotheken met een langere, rentevaste periode, aldus de toezichthouder.

Lees de Quick Scan van de NMa

De NMa heeft de ontwikkeling van de hypotheekmarges op basis van drie methoden onderzocht. Afhankelijk van de methode zijn sinds medio 2009 de gemiddelde marges op hypotheken met de meest gangbare rentevaste periode (tussen vijf en tien jaar) toegenomen met 0,33 tot 0,96 procentpunt, in vergelijking met de periode januari 2004 tot en met juli 2009.

'Gebrek aan marktwerking'

'Hoge marges kunnen duiden op een gebrek aan marktwerking. Mogelijk zijn er ook nog andere verklaringen', zegt Pieter Kalbfleisch, voorzitter van de raad van bestuur van de NMa.

'Ik vind het daarom belangrijk, zeker gezien de maatschappelijke commotie, dat de NMa dit nader gaat onderzoeken', zegt Kalbfleisch. 'Een gebrek aan marktwerking kan onnodig hoge tarieven tot gevolg hebben.'

Reactie VEH en Consumentenbond

Vereniging Eigen Huis (VEH) is blij dat de NMa het vermoeden bevestigt dat de hypotheekrentes in Nederland hoger zijn dan in het buitenland. 'De marge op de hypotheekrente is enorm opgelopen', zegt Hans André de la Porte van VEH. 'Het is een enorme schadepost voor de Nederlandse huiseigenaar.' Of er sprake is van prijsafspraken moet nu blijken uit nader onderzoek van de NMa. 'Mocht dat zo zijn, dan volgen er natuurlijk boetes', zegt De la Porte. Maar zelfs het feit dat de NMa nu gaat onderzoeken of er een gebrek aan marktwerking is, zorgt volgens De La Porte al voor een grote morele druk op de banken. 'Wij hopen dat banken daarom nu al de hypotheekrente gaan verlagen.'

De Consumentenbond benadrukt dat er nu vooral snel vervolgonderzoek wordt gedaan om vast te stellen in hoeverre huiseigenaren door banken benadeeld zijn. 'De marges moeten zo snel mogelijk omlaag', zegt een woordvoerder.

'Geen prijsafspraken'

De Nederlandse Vereniging van Banken (NVB) benadrukt in een reactie dat de NMa de banken op dit moment niet verdenkt van prijsafspraken. De NVB studeert nog op een verklaring voor het feit dat de marges in Nederland hoger zijn dan in het buitenland.

Sectorstudie Hypotheekmarkt

Press release NMa

30 mei 2011

De Nederlandse Mededingingsautoriteit (NMa) heeft in 2011 onderzoek uitgevoerd naar de manier waarop hypotheekverstrekkers met elkaar concurreren op de Nederlandse hypotheekmarkt. De marges op hypotheken waren na de kredietcrisis tijdelijk hoog, maar zijn inmiddels weer gedaald naar vergelijkbare niveaus als voor de kredietcrisis. Deze margedaling ging samen met een toename van de concurrentie.

Gericht onderzoek naar mogelijke onderlinge afstemming heeft geen aanwijzingen opgeleverd voor prijsafspraken tussen hypotheekverstrekkers of andere overtredingen van de Mededingingswet. Hoewel de marges zijn gedaald, is er nog ruimte voor verbetering. Zo blijkt dat verschillende hypotheekverstrekkers consumenten laat informeren over het aflopen van de rentevaste periode. Hierdoor hebben consumenten minder tijd om offertes op te vragen bij andere aanbieders en kunnen zij minder goed onderhandelen over een nieuwe hypotheekrente.

NMa-onderzoek: betaalt de Nederlander nu wel of niet te veel voor zijn hypotheek?

Heleen van Lier − 30/05/11, 11:27

De Vereniging Eigen Huis betreurt het dat de NMa in het vandaag gepubliceerde onderzoek naar de historisch hoge marges op hypotheken in Nederland na de kredietcrisis geen vergelijking heeft gemaakt met rentemarges in de ons omringende landen.

De renteverschillen met het buitenland vormden onder meer aanleiding voor de klacht bij de NMa. De Consumentenbond roept mensen op om hypotheekverstrekkers goed met elkaar te vergelijken. 'Uit ons eigen onderzoek blijkt dat consumenten nog steeds te veel aan hypotheekrente betalen bij de grote banken.'

Dubieus

Volgens economieredacteur Tjerk Gualthérie van Weezel van de Volkskrant is het moeilijk om Nederlandse marges, de opslag op de rente die de banken voor zichzelf rekenen, te vergelijken met de marges die buitenlandse banken aan hun klanten berekenen. 'In bijvoorbeeld Duitsland en Frankrijk worden hypotheken op een andere manier verstrekt. Daar lopen banken veel minder risico. In Duitsland moet je minimaal 30 procent van je hypotheeksom opbrengen. Het risico voor de banken is veel minder groot, dus kunnen die ook minder marge vragen.' Toch blijft het volgens Gualthérie van Weezel dubieus dat zodra de Vereninging Eigen Huis is gaan klagen, de marges omlaag zijn gegaan.

Begin dit jaar zaten de Nederlandse marges volgens de NMa weer op het niveau van vóór de crisis. Uit het onderzoek komt naar voren dat de grote banken, die samen nog steeds het leeuwendeel van de woningfinanciering uitlenen, hogere rentes rekenen dan andere partijen. Rabobank, ING en ABN/Fortis hadden begin dit jaar samen een marktaandeel van 70,4 procent.

Eerlijke prijs

De Nederlandse Vereniging van Banken vindt wel dat Nederlanders een eerlijke prijs voor een hypotheek betalen. 'Het vertrouwen dat de NVB vooraf in de NMa-studie heeft gesteld, is terecht gebleken', zegt de NVB. De NVB staat wel achter de oproep van de NMa dat alle hypotheekverstrekkers hun klanten ruim van tevoren moeten informeren over het aflopen van de rentevasteperiode. 'Veel banken hanteren al ruimere termijnen. Het is aan de afzonderlijke banken om in te gaan op de aspecten van de studie die hun tarieven betreffen. Nederlanders betalen een faire prijs voor een hypotheek.'

De Vereniging Eigen Huis juicht het wel toe dat de NMa de ontwikkelingen op de hypotheekmarkt scherp in de gaten houdt maar zou graag zien dat per kwartaal een rapportage plaatsvindt over de ontwikkelingen van marktverhoudingen en rentemarges. 'Op die manier kan voortdurend druk op de ketel worden gehouden. Indien nodig kunnen de banken dan door de politiek, toezichthouders of consumentenorganisaties ter verantwoording worden geroepen.'

De Consumentenbond vindt ook dat er per kwartaal een rapportage moet plaatsvinden over de ontwikkelingen van marktverhoudingen en rentemarges. Verder vindt de bond dat banken hun klanten ten minste drie maanden van tevoren moeten informeren over het einde van hun rentevasteperiode. 'Wij vinden het van groot belang dat de NMa de hypotheekmarkt blijft onderzoeken om te voorkomen dat banken hun klanten als melkkoe gebruiken.'

ma 30 mei 2011, 07:45

Consumentenorganisaties verbijsterd over uitkomst NMa-onderzoek

door Natasja de Groot
AMSTERDAM

De Consumentenbond en Vereniging Eigen Huis zijn verbijsterd over de uitkomst van het grootschalig onderzoek van de Nederlandse Mededingingsautoriteit (NMa) naar de hypotheekmarkt. De kartelwaakhond concludeert in het onderzoek, dat vanochtend naar buiten is gebracht, dat de hypotheekmarges die banken hun klanten in rekening brengen weer op het oude niveau van voor de kredietcrisis liggen.

De consumentenorganisaties zijn met stomheid geslagen, omdat de NMa in een tussentijdse rapportage in november vorig jaar nog concludeerde dat Nederlandse banken vanuit historisch perspectief en ten opzichte van ons omringende landen aanzienlijk hogere marges hanteren. ,,Deze uitkomst staat haaks op wat de NMa een halfjaar geleden nog stelde. En het is bovendien tegentrijdig met ons eigen onderzoek. Afgelopen maart constateerden wij dat de marges nog altijd oneigenlijk hoog zijn. We willen van de NMa nader horen hoe zij tot deze conclusie zijn gekomen", reageert woordvoerster Vanessa Rompelberg van de Consumentenbond verbouwereerd.

'Markt functioneert goed'

De NMa zegt geen aanwijzingen te hebben dat banken in ons land de hypotheekmarges kunstmatig hoog hebben gehouden en ziet de margeverlaging van de afgelopen tijd als een bewijs dat de hypotheekmarkt goed functioneert. Die aanpassing is volgens de toezichthouder enerzijds het gevolg van meer concurrentie op de hypotheekmarkt.

Onder meer Aegon en Argenta hebben de afgelopen tijd marktaandeel gewonnen ten koste van gevestigde partijen als Rabobank. Anderzijds kan de hele ophef over de hoogte van de hypotheekrente ertoe hebben geleid dat financiële instellingen hun marges hebben verlaagd.

Buitenland

,,Het lijkt wel alsof de banken schrokken dat zij onder vuur kwamen te liggen en vervolgens snel de marges hebben verlaagd. Maar dat wil niet zeggen dat er niets aan de hand is in deze sector. Er zijn inderdaad wat nieuwkomers op de markt, maar of die ook daadwerkelijk zorgen voor prijsdruk zoals de NMa stelt, dat betwijfelen wij.

De hypotheekmarkt wordt nog altijd gedomineerd door de grote Nederlandse banken en de marges zijn nog altijd aan de hoge kant, zeker in vergelijking met het buitenland. En dat verschil komt helemaal niet meer aan bod in dit uitgebreide onderzoek. Waarom betalen wij in Nederland meer dan in het buitenland?", reageert VEH-zegsman Hans André de la Porte verbaasd.

Trouwe klanten

Beide organisaties zeggen wel blij te zijn dat de NMa heeft kunnen vaststellen dat de grote Nederlandse banken hogere hypotheekmarges berekenen dan andere aanbieders én dat vooral bestaande klanten van wie de rentevasteperiode afloopt daar de dupe van zijn.

,,Nederlandse banken hebben een maatschappelijke verantwoordelijkheid en zouden scherpe rentes moeten rekenen, juist aan trouwe klanten. Dit getuigt in elk geval niet van het centraal stellen van het belang van de klant, maar eerder van het centraal stellen van de portemonnee van de bank", aldus André de la Porte.

Shoppen

De NMa heeft vanochtend een klemmend beroep gedaan op banken om voortaan hun klanten drie tot vier maanden van tevoren te informeren over het aflopen van de rentevasteperiode en ze te wijzen op

de mogelijkheid om over te stappen. Volgens cijfers van de Consumentenbond loopt de komende tijd bij 700.000 Nederlanders de rentevasteperiode van de de hypotheek af. ,,We raden iedereen aan om goed rond te shoppen, want er valt veel te besparen", stelt Rompelberg.

Oproep

De Consumentenbond en Vereniging Eigen Huis deden vandaag al in de Telegraaf een oproep aan toezichthouders om het complete rentebeleid onder de loep te nemen. Volgens hen verdienen de Nederlandse banken niet alleen grif geld aan hypotheekmarges, maar ook aan consumptieve kredieten en bedroevend lage spaarrentes.

Nederland garant voor 200 miljard

13-10-2008
Door een onzer redacteuren

Den Haag, 13 okt. Het kabinet houdt 200 miljard beschikbaar als garantie voor interbancaire leningen. Dat heeft premier Ballkenende vanmiddag meegedeeld.

Met deze garantstelling hoopt het kabinet de geldstroom op de geldmarkt weer op gang te brengen. ,,Dit is in het belang van alle burgers'', zei Balkenende.

De meest betrokken ministers en De Nederlandsche Bank hebben dit vanmiddag besloten als vervolg op de uitkomsten van de top in Parijs, gisteren. ,,We hebben een krachtig signaal nodig in deze bijzondere omstandigheden'', zei Balkenende. Andere Europese landen besloten vanmiddag ook voor miljarden aan leningen garant te staan. In Duitsland gaat het om 400 miljard euro en in Frankrijk om 320 miljard euro. Bekend is nu dat er circa 1.000 miljard euro aan garantstelling is aangekondigd. Balkenende verwacht dat dat bedrag nog hoger zal uitvallen als andere Eurolanden zich hierbij aansluiten.

De garantstelling is nodig omdat banken elkaar niet vertrouwen. Daardoor dreigt de geldmarkt op te drogen. Dat zou bedrijven die geld nodig hebben om te investeren ernstig kunnen belemmeren en in financiële problemen brengen. Balkenende zei dat met name voor middellange termijnleningen de geldmarkt al niet meer functioneert. Als de overheid de leningen garandeert betekent dit dat de bank die geld uitleent altijd de zekerheid heeft dat ze het geld terugkrijgt.

Balkenende benadrukte dat alle Eurolanden onder dezelfde voorwaarden garant staan en zelf geld uitlenen. Anders zou er geen enkele concurrentie zijn. Binnen enkele dagen wordt de garantstelling operationeel. De Nederlandse regering besloot vorige week al 20 miljard beschikbaar te houden om direct bij te springen als banken in de problemen komen. Beide maatregelen zijn bestemd voor bedrijven die in beginsel gezond zijn, aldus de premier.

Vandaag en gisteren bleken dat een aantal gemeenten spaargeld miljoenen tegoed hebben van de failliete bank Icesave. Op de vraag of de landelijke overheid eventuele verliezen voor haar rekening neemt zei Balkenende: ,,Wij kunnen niet verantwoordelijk zijn voor leningen van mede-overheden.''

Bos verklaarde voor de NOS-radio dat de garantiemaatregel ,,het sluitstuk van onze benadering'' is. ,,Ik ben er zeker van dat dit gaat werken. De eerste reacties die we hebben gekregen van financiële instellingen zijn hoopgevend.'' Bos zei ook dat de goede ontwikkelingen op de internationale beurzen hem het idee geven dat nu de goede maatregelen zijn genomen.

Staat neemt belang in ING Groep, geen aandelenemissie

vrijdag 17 oktober 2008

Deze avond is bekend gemaakt dat de Nederlandsche Bank en de ING Groep een akkoord hebben over een kapitaalsinjectie van 10 miljard euro. Met deze transactie krijgt de overheid voor 10 miljard aan ING Groep aandelen. Er komt derhalve geen aandelenemissie. De kapitaalsinjectie is bedoeld voor de Tier 1 ratio. Tegenover de Wall Street Journal stelt bestuursvoorzitter Tilmant dat de kapitaalspositie in lijn is met de eerdere doelstellingen. Echter door de verslechterende marktcondities wordt het opportuun gesteld dat extra kapitaalsversterkingen welkom zijn. De Nederlandse regering krijgt 2 stoelen in het bestuur van de ING Groep. Tevens krijgt de Nederlandse Staat vetorechten. Tevens krijgt de Staat inbreng in de beloningsstructuur. Het einddividend van 2008 wordt geschrapt en het management krijgt verder een bonussen meer mee naar huis. Desondanks krijgt de bestuursvoorzitter nog steeds 1 miljoen euro.

Persbericht 19 oktober 2008

Het kernkapitaal van ING wordt door de overheid met EUR 10 mrd versterkt. Het ministerie van Financiën en de Nederlandsche Bank hebben hierover zondag 19 oktober overeenstemming bereikt met ING Groep. ING Groep maakt hiermee gebruik van de faciliteit die de Staat sinds 9 oktober jl biedt aan gezonde en levensvatbare financiële ondernemingen die met onvoorziene externe schokken te kampen hebben. Voor de herkapitalisering van de financiële sector, die internationaal gaande is, heeft de Nederlandse Staat toen per direct EUR 20 mrd beschikbaar gesteld. Met deze kapitaalversterking heeft ING , een gezond en goed geleid bedrijf, een robuust weerstandsvermogen waarmee zij internationaal tot de sterkere banken behoort.

De overheid krijgt voor EUR 10 mrd securities, die grotendeels dezelfde kenmerken hebben als aandelen. Deze securities gelden als kernkapitaal (Core Tier 1 zoals geaccordeerd door DNB). Er vindt geen verwatering van het aandelenkapitaal van huidige aandeelhouders plaats. De overeenkomst met ING Groep voldoet aan de voorwaarden die aan een beroep op de kapitaalverstrekkingsregeling van de Staat zijn verbonden. De overheid draagt 2 leden voor de Raad van Commissarissen voor die een vetorecht krijgen op fundamentele beslissingen die betrekking hebben op substantiële overnames en investeringen waarmee meer dan 25% van het eigen vermogen is gemoeid, op het verhogen of verlagen van het uitstaande kapitaal en op voorstellen aan aandeelhouders om beloningregelingen te veranderen. Bovendien treden deze Commissarissen toe tot de Audit Committee, de Remuneration and Nomination Committee en de Corporate Governance Committee van de Raad van Commissarissen. Over 2008 doen alle leden van de Executive Board van ING Groep afstand van hun bonussen - zowel in contanten als in opties of aandelen. De vertrekvergoeding wordt beperkt tot één vast jaarsalaris. De kosten van de overheid voor de uitvoering van de kapïtaalverstrekking komen geheel voor rekening van ING.

Het rendementspercentage op de securities is 8,5%. Dat wordt alleen uitgekeerd als er ook dividend wordt betaald over het voorgaande jaar. Als het dividend in het betreffende jaar hoger is dan de coupon van 8,5%, wordt deze coupon verhoogd: in het eerste jaar tot 110% van het dividend, in het tweede jaar tot 120% en daarna tot 125%. Deze vormgeving is een prikkel voor ING om afstand te doen van deze overheidsparticipatie zo gauw de aandelenkoers en de dividendontwikkeling daar aanleiding voor geven. Ter beëindiging van deze regeling kan ING ervoor kiezen de securities tegen 150% van de uitgifteprijs contant terug te betalen of na drie jaar omzetten in gewone aandelen. Voor dat laatste is goedkeuring van de AVA vereist.Bij de bepaling van de prijs van de securities is uitgegaan van de slotkoers van het ING-aandeel op donderdag 16 oktober (10 euro). Hiermee wordt de grillige koersontwikkeling van vrijdag 17 oktober buiten beschouwing gelaten.

Ook staatssteun voor Aegon

28 okt 2008 - 09:20

Aegon krijgt € 3 mrd uit het steunfonds voor de financiële sector, dat is ingesteld door de Nederlandse overheid. De voorwaarden voor de kapitaalinjectie zijn bijna identiek aan die van de overeenkomst tussen de overheid en ING. De overheid zal ook twee commissarissen bij Aegon benoemen. Dat maakten het ministerie van Financiën en Aegon dinsdag bekend.

Aegon is de tweede financiële instelling die een beroep doet op het steunfonds dat het ministerie van Financiën heeft ingesteld voor banken en verzekeraars die door de kredietcrisis in problemen zijn geraakt. Eerder kreeg ING € 10 mrd uit het fonds. Ook bij dit concern zette de Nederlandse overheid twee commissarissen neer.

Een voorwaarde voor de injectie aan Aegon is dat het bestuur en de managers daar direct onder dit jaar geen bonussen ontvangen. Eventuele vertrekpremies worden gemaximaliseerd op een jaarsalaris. Diezelfde voorwaarden golden ook bij ING.

8,5% rente

In ruil voor het kapitaal krijgt de Nederlandse staat aandelen in Aegon. Aan de kapitaalinjectie hangt een rente van 8,5%. Aegon kan tot 10 oktober volgend jaar een derde van de aandelen terugkopen tegen de uitgifteprijs van € 4 tot 4,52 per stuk. De resterende aandelen kan de verzekeraar op elk moment terugkopen tegen 150% van de uitgifteprijs.

De transactie verloopt via de Vereniging Aegon. Deze grootste aandeelhouder van de verzekeraar vertegenwoordigt 34% van het stemrecht in het bedrijf. De vereniging heeft als doelstelling het behartigen van de langetermijnbelangen van het concern.

Nettoverlies derde kwartaal

Tegelijkertijd maakte de verzekeraar ook zijn resultaten over het derde kwartaal bekend. Het concern leed een nettoverlies van ongeveer € 350 mln. Het bedrijf heeft onder meer voor € 400 mln aan afschrijvingen moeten doen.

Om zijn kapitaalpositie verder te versterken zal Aegon over 2008 geen slotdividend uitkeren. Eerder dit jaar had het bedrijf al een interimdividend van € 0,30 per aandeel uitgekeerd.

Aegon verstevigt kapitaalpositie

Met de injectie verstevigt Aegon zijn kapitaalpositie. Het bedrijf zei dat het op dit moment een kapitaaloverschot van € 5 mrd heeft. Hierdoor heeft Aegon een solvabiliteitsratio van 160%, in lijn met Europese regels voor verzekeraars. De solvabiliteitsratio is een maat voor de financiële gezondheid van een concern. De einduitslag volgt later.

Aegon-topman Alex Wynaendts gaf dinsdag om 09.30 uur een toelichting op de kapitaalpositie van de verzekeraar.

Staat versterkt kapitaal SNS REAAL met 750 miljoen euro

Donderdag 13 november 2008 om 11:15

Het kapitaal van SNS REAAL NV (hierna: SNS REAAL) wordt door de Staat met 750 miljoen euro versterkt. Het ministerie van Financiën en de Nederlandsche Bank (DNB) hebben hierover woensdag 12 november overeenstemming bereikt met SNS REAAL. Met deze kapitaalversterking blijft SNS REAAL een gezonde en goed geleide bankverzekeraar met een robuuste kapitaalbuffer.

SNS REAAL maakt hierbij gebruik van de faciliteit die de Staat sinds 9 oktober jl. biedt aan gezonde en levensvatbare financiële ondernemingen die met onvoorziene externe schokken te kampen hebben. Voor de herkapitalisatie van de financiële sector, die internationaal gaande is, heeft de Nederlandse Staat 20 miljard euro beschikbaar gesteld.

De Staat wordt voor 750 miljoen euro eigenaar van securities. De securities hebben grotendeels dezelfde kenmerken als aandelen. Deze securities verhogen de solvabiliteit van SNS REAAL (zoals bevestigd door DNB).

De overeenkomst met SNS REAAL voldoet aan de voorwaarden die aan een beroep op kapitaalverstrekking door de Staat zijn verbonden. De Staat draagt twee leden in de Raad van Commissarissen voor, die een goedkeuringsrecht krijgen op belangrijke beslissingen zoals substantiële overnames en investeringen, verhoging of verlaging van het uitstaande kapitaal en veranderingen in het beloningsbeleid. Bovendien treden deze Commissarissen toe tot de Committees van de Raad van Commissarissen. SNS REAAL zal een duurzaam beloningsbeleid ontwikkelen dat aansluit bij nieuwe internationale standaarden. Over 2008 doen de leden van de Raad van Bestuur afstand van hun bonussen. Daarnaast zal, conform de Code Tabaksblat, de vertrekregeling beperkt worden tot één vast jaarsalaris. De kosten van de Staat voor de uitvoering van deze kapitaalverstrekking komen voor rekening van SNS REAAL.

Het rendement op de securities is het hoogste van:

- 8,5 procent of
- 110 procent van het dividend over 2009, 120 procent van het dividend over 2010 en 125 procent van het dividend over de jaren vanaf 2011.

Deze coupon wordt uitgekeerd als er dividend wordt betaald over het voorgaande jaar.

De vormgeving van de coupon is een prikkel voor SNS REAAL om afstand te doen van de kapitaalverstrekking zodra de kapitaalpositie en de aandelenkoers dit toelaten.

SNS REAAL kan ervoor kiezen de securities tegen 150 % van de uitgifteprijs contant terug te betalen of na drie jaar om te zetten in gewone aandelen. Ook kan SNS REAAL in het eerste jaar € 250 miljoen contant aflossen tegen specifieke voorwaarden.
De uitgifteprijs van de securities is vastgesteld op 5,25 euro. Hiermee is aangesloten bij de recente beurskoers van het aandeel SNS REAAL.

Stichting Beheer SNS REAAL versterkt het kapitaal van SNS REAAL met 500 miljoen euro. Hiermee bedraagt de totale kapitaalsversterking, afkomstig van zowel de Staat als de Stichting Beheer SNS REAAL, 1.250 miljoen euro.

2,5 miljard steun van Financiën voor ABN Amro

26-06-2009

Door onze financiële redactie

Den Haag, 27 juni. De Nederlandse overheid moet opnieuw een Nederlandse bank te hulp schieten. ABN Amro krijgt 2,5 miljard euro steun om voldoende incasseringsvermogen te houden.

Het is de tweede keer dat de vorig jaar genationaliseerde ABN Amro en Fortis Bank Nederland kapitaal krijgen toegezegd. Eind vorig jaar volgde na de overname van 16,8 miljard in oktober een „technische verhanging" van 6,5 miljard euro.

De jongste hulp waarbij de staat onder meer garant staat voor 34,5 miljard euro woninghypotheken, hangt volgens Bos samen met het ontvlechtings- en integratieproces van de banken. Hij zegt dat ABN Amro als geheel geen kapitaal- of liquiditeitsproblemen heeft. Dat geldt wel voor afzonderlijke onderdelen, zoals de nog onverdeelde activiteiten die in gezamenlijk eigendom zijn van de Nederlandse staat, het Spaanse Banco Santander en de Britse Royal Bank of Scotland. Deze banken (en Fortis) zagen hun overname van ABN Amro mislukken.

Bos schreef gisteren aan de Kamer dat de kapitaalinjectie „voorzien" was en dat bij de overname van Fortis en ABN Amro in oktober al een tekort van 2,2 miljard bekend was. Frans Weekers, Kamerlid voor de VVD, noemt het „ronduit schandalig" dat dit een week voor het zomerreces zo gesteld wordt. „Dat was in ieder geval bij dit Kamerlid niet bekend. We hebben ons als Kamer steeds constructief opgesteld. Dan wil ik ook een eerlijke voorstelling van zaken. Die heeft Bos tot nu toe niet gegeven. Elke keer krijgen we er een stukje slecht nieuws bij."

Volgens Ewout Irrgang (SP) bewijst het tekort bij de nog onverdeelde bankactiviteiten dat „de overheid dus veel te veel heeft betaald" voor ABN Amro.

do 19 nov 2009, 14:00

Bos: extra steun nodig en nuttig

DEN HAAG (AFN) - Extra financiële steun voor het samenvoegen van ABN Amro en Fortis Bank Nederland is nodig en nuttig. Dat stelde minister Wouter Bos (Financiën) donderdag in een toelichting op zijn besluit om nog eens in totaal 4,4 miljard euro te steken in de verdere integratie van de twee banken: 3 miljard cash en daarnaast worden nog eens leningen met een waarde van 1,4 miljard euro omgezet in eigen vermogen.

,,De steun is nodig om de bank zelfstandig te laten zijn en nuttig omdat het de bank in staat stelt zelf zijn geld te verdienen'', zei Bos donderdag. Het is zijn vaste voornemen dat dit de laatste keer is dat hij geld in ABN moet stoppen. ,,Dat heeft de leiding van de bank gehoord.'' Volgens Bos geeft de laatste kapitaalinjectie van 4,4 miljard ,,voldoende marge'' voor onvoorziene ontwikkelingen. ABN-topman Gerrit Zalm hoeft wat hem betreft niet weer om geld aan te kloppen.

Volgens Bos zijn nu de laatste grote barrières weggenomen om de fusiebank ABN Amro in staat te stellen om ,,zelfstandig de weg in te slaan naar een mooie toekomst''. Eerder werd al aan de Europese eis voldaan om het dochterbedrijf HBU van ABN Amro en een aantal zakelijke kantoren te verkopen aan Deutsche Bank.

Resultaat

Volgens Bos is het best mogelijke resultaat bereikt. ,,Dat vindt de bank zelf ook, dat vindt de toezichthouder en dat vindt mevrouw Kroes. Nu de Tweede Kamer nog en dan is het 'volle kracht vooruit' voor het nieuwe ABN Amro.'' Bos gaf in de richting van de Kamer aan dat het ,,onverstandig'' zou zijn om de deal af te wijzen. Alternatieven waren een voor een afgevallen en de deal nu weigeren, betekent een onmiddellijke en hoge boete van EU-commissaris Neelie Kroes. Bovendien mag de geplande integratie van de banken dan niet verder.

Bos zei dat hij best een hogere prijs had willen binnenhalen dan de 700 miljoen euro die hij voor HBU krijgt. Maar onder de huidige omstandigheden is de uitkomst verdedigbaar. Bos verwacht dat ABN Amro niet eerder dan in 2012 helemaal los kan komen van de staatsbemoeienis en weer als een verzelfstandigde bank door het leven kan.

Rabobank klaagt in Brussel over concurrentie

28-08-2009 | Gepubliceerd 17:12
29-08-2009 | Laatst bijgewerkt 09:08

Z24 – Zakelijk nieuws

De Rabobank is "in gesprek met Brussel" over vermeende oneerlijke concurrentie tussen Nederlandse banken door staatssteun. Ook praat de bank met de Ierse overheid over marktverstoring. Dat heeft een woordvoerder van de Rabobank vrijdag 28 augustus gezegd.

Topman Piet Moerland van de Rabobank zei woensdag bij de presentatie van de halfjaarcijfers al dat de bank last heeft van het "ongelijke speelveld" in Nederland.

Beklag
Door de overheid gesteunde concurrenten zouden stunten met de spaarrentes en hiermee klanten lokken. Van Lanschot Bankiers deed hierover begin mei schriftelijk zijn beklag bij de Europese Commissie.

"Wij dienen geen schriftelijke klacht in, maar praten wel met Brussel. We hopen dat de Europese Commissie ingrijpt. De rente wordt hier kunstmatig hoog gehouden. Daar hebben wij last van", aldus de Rabo-zegsman. Ook met het Ierse ministerie van Financiën is contact. De bank bouwt in Ierland zijn activiteiten af, mede wegens vermeende oneerlijke concurrentie.

Prijsdumping
De klachten van financiële instellingen zonder staatssteun over concurrenten die wel geholpen zijn, zwellen aan. In maart klaagde Goudse Verzekeringen over 'prijsdumping' door staatsverzekeraars. Ook Kas Bank deed eerder deze maand zijn beklag over de hoge spaartarieven bij staatsbanken.

"De overheid leent geen geld om leuke dingetjes te kunnen doen", stelt Marc van der Woude, hoogleraar Mededingingsrecht aan de Eramus Universiteit. "Banken die de steun gebruiken om andere bedrijven te kopen, worden onherroepelijk teruggefloten door de Europese Commissie. Ook met dumpprijzen de markt opgaan, mag niet", stelt hij.

Spaarrente
Of de hoge spaarrentes in Nederland ook ongeoorloofd zijn, is lastig vast te stellen, vindt Van der Woude.

"Je zou kunnen kijken hoe de tarieven voor de staatssteun lagen, en dan vergelijken. Maar je zou ook kunnen zeggen dat staatssteun verdwijnt in de algemene middelen van een bank en je niet makkelijk kunt terugvinden wat ze er precies mee doen", aldus de hoogleraar.

za 20 jun 2009, 09:03

Rabobank jaagt concurrentie in gordijnen met uitspraken

door Rien Meijer – de Telegraaf

AMSTERDAM - De stevige uitspraken van de Rabobank over diverse concurrenten vallen niet overal in goede aarde. Donderdag leverde met name Rabo's president-commissaris Lense Koopmans forse kritiek op de "ernstig verstoorde" binnenlandse markt, als gevolg van de staatssteun voor onder meer ABN Amro en ING en de - in de ogen van de Rabobank te hoge - spaarrente van bijvoorbeeld NIBC.

"Wij zijn daar niet blij mee", reageert een woordvoerster van een van de genoemde concurrenten. Volgens haar denken meer banken er zo over en klinkt het - ook binnen het verband van de brancheverenigingNederlandse Vereniging van Banken - de laatste tijd regelmatig dat de Rabobank "een beetje moet dimmen".

De uitspraken die Koopmans en scheidend bestuursvoorzitter Bert Heemskerk deze week tijdens Rabo's jaarvergadering deden, staan niet op zich. Een jaar terug baarde Heemskerk al opzien door onverbloemd te stellen dat diverse buitenlandse banken misbruik maken van het Nederlandse depositogarantiestelsel, dat spaarders beschermt in geval van het faillissement van een bank.

Heemskerk richtte zijn pijlen met name op Icesave. Enkele maanden later, na de nationalisatie van ABN Amro en Fortis Bank Nederland, stelde de Rabo-topman dat "het niet zo kan zijn dat deze banken marktaandeel winnen dat gebaseerd is op staatssteun".

Afgelopen donderdag constateerde president-commissaris Koopmans evenwel dat door de staat gesteunde concurrenten als ABN Amro en ING "met nieuw elan bezig zijn de markt te bewerken". De uitlatingen van de Rabo-top worden niet gewaardeerd bij de concurrentie. Eén van hen zegt: "Rabo moet oppassen voor arrogantie. Zeker in deze tijd is het publiek daar allergisch voor."

Hypotheek duur voor klant

6 augustus 2010, 10:10 uur | FD.nl
Door: Elisa Hermanides

Banken hebben vorig jaar flink verdiend op hypotheken. Banken zagen hun verdiensten in 2009 met 50% stijgen tot €24 mrd, zo blijkt uit een nadere analyse van de cijfers van het Centraal Bureau voor de Statistiek (CBS).

De stijging is vooral te danken aan de hoge marges op hypotheken. De banken geven zelf geen inzicht in de verdiensten van hun hypotheekbedrijf.
Banken berekenden rentedalingen op de financiële markten nauwelijks door aan de consument. Sinds de crisis heeft de Europese Centrale Bank zijn rente flink verlaagd. Ook de interbancaire en de kapitaalmarktrente zijn fors gedaald. 'Daardoor kunnen banken relatief goedkoop geld aantrekken', zegt Senne Janssen van het CBS. De banken lenen het geld vervolgens uit aan hypotheekklanten, die vaak hun rente eerder voor langere tijd hebben vastgezet. Dat levert de banken een hogere marge op. Nieuwe klanten en hypotheekklanten met een variabele rente profiteerden ook nauwelijks van de lage rente.

Hoge marges

In het buitenland geven banken het voordeel wel merendeels door aan hun klanten, zo zegt Piet Eichholtz, hoogleraar Vastgoedfinanciering aan de Universiteit Maastricht. Hij is verontwaardigd dat Nederlandse banken dit nauwelijks doen: 'Het hypotheekbedrijf floreert over de rug van de consument.' De hoge marges zijn volgens Eichholtz te wijten aan de beperkte concurrentie op de Nederlandse hypotheekmarkt. Zo'n 80% van de markt is in handen van de vier grootste banken.
Uit de Nationale Rekeningen, de overzichtsstatistieken van het CBS, blijkt dat de banken een hogere omzet hebben gedraaid bij vrijwel gelijkblijvende kosten: de toegevoegde waarde van de banken aan de Nederlandse economie steeg tot €24 mrd. In 2008 was dit nog €16 mrd. Volgens het CBS is de forse toename vooral toe te schrijven aan de hogere marge op hypotheken.

Bbp

De bijdrage van banken aan het bruto binnenlands product steeg vorig jaar tot 4,2%. In 2008 droeg de bank nog 2,8% bij aan het bbp. Een hogere toegevoegde waarde betekent overigens niet per se dat banken een hogere netto winst behalen, stelt het CBS. Na afschrijvingen, voorzieningen en consolidatie van buitenlandse dochterinstellingen kan het resultaat er minder rooskleurig uitzien.
De Nederlandsche Bank zegt dat de rente op nieuwe hypotheken inderdaad minder snel is gedaald dan in het eurogebied als geheel. 'Dit kan worden teruggevoerd op hogere financieringskosten van Nederlandse banken, vooral door de hogere rentes voor spaarders in Nederland', aldus een woordvoerder
Het CBS zegt dat banken het inkomensverlies door de kosten van hoge spaarrentes ruimschoots hebben goed gemaakt met hogere verdiensten uit hypotheken. Janssen: 'Dat komt doordat het volume van hypotheken veel groter is.'

Spaardersmarkt

Volgens het CBS is de verhouding tussen de hypotheekmarkt en de spaardersmarkt scheef. Janssen: 'De verhouding is ongeveer 5:3.' Dit maakt dat de hogere marges op hypotheken zo'n grote impact hebben op de toegevoegde waarde van banken.
In het verleden was de marge op hypotheken veel lager dan nu, zegt Michel Ligtlee, beleidsadviseur van Vereniging Eigen Huis. 'De marge op hypotheekrentes die tien jaar vast stonden, was ongeveer 1 procentpunt, nu is dat gemiddeld 1,7.' Hij wijt de hoge marges net als Eichholtz aan een tekort aan concurrentie op de hypotheekmarkt . Ook vindt hij het verwonderlijk dat de opbouw van de variabele hypotheekrente sinds de crisis niet meer transparant is. Voorheen bestond de variabele rente uit de korte interbancaire rente plus een vaste opslag. Ligtlee: 'Nu hebben de banken de opbouw ondoorzichtelijk gemaakt.'
De Nederlandse Vereniging van Banken vindt de hypotheekmarkt wel degelijk concurrerend. 'In dit verhaal blijft risico geheel buiten beschouwing. Als de economische context verslechtert, dient risico een hogere prijs te krijgen', aldus een woordvoerder.

Toegevoegde waarde

DNB wijst erop dat de toename van de toegevoegde waarde niet direct iets zegt over de winst van banken. 'DNB gebruikt een bedrijfseconomisch winstbegrip, waarbij ook voorzieningen, vermogenswinsten en

verliezen worden meegenomen', aldus een woordvoerder. Verder zegt de toezichthouder dat de toegevoegde waarde alleen het binnenland betreft, terwijl DNB bij het berekenen van de winstgevendheid van een bank ook over de grens kijkt.

Dat een hogere toegevoegde waarde niet direct leidt tot een hogere netto winst blijkt ook uit de cijfers van grootbanken over 2009. Hogere voorzieningen op risicovolle leningen drukten de winsten.
ABN Amro moest vorig jaar een voorziening van €1,17 mrd treffen op zijn leningen aan bedrijven en particulieren. De bank leed toen een verlies van €117 mln. Een jaar eerder was die voorziening veel lager: €334 mln. Hetzelfde beeld bij ING. Met een voorziening van €2,9 mrd leed het financiële concern in 2009 een verlies van €935 mln. De Rabobank, met 30% marktaandeel de grootste hypotheekbank, wist in 2009 echter nog wel een goede winst te behalen: €2,28 mrd.

VEH

De Vereniging Eigen Huis zegt dat de banken de verdenking van prijsafspraken op zich laden. Dat zegt Bob Maas van de belangenvereniging van huizeneigenaren vrijdag tegen BNR Nieuwsradio. 'Het lijkt er wel op dat er enige gedragsafstemming is. Er zijn veel merken in de markt, maar die zijn alleemaal onderdeel van grote partijen (...) Er is gebrek aan concurrentie.'. Op de vraag of er prijsafspraken gemaakt worden zegt Maas: 'Het woord wil ik niet in de mond nemen, maar ik verdenk de banken er wel van.'

Maas noemt het schandalig dat de banken meer verdienen 'over de rug van de consument'. Hij vindt het ook onbegrijpelijk. 'Voor de woningmarkt is het van belang dat die rente laag is, om de markt op gang te houden. Wat is er beter dan een scherpe rente om dit doel te bereiken? Het is onbegrijpelijk dat banken daarin geen beweging maken.'

8.3. Appendix 3 – Letters of the VEH to the NMa

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BTW nr.: NL0036.83.436.B01

Nederlandse Mededingingsautoriteit
De heer mr. P. Kalbfleisch
Postbus 16326
2500 BH Den Haag

Datum : 12 augustus 2010
Kenmerk : BRF_19429
Contactpersoon : drs. Nico W. Stolwijk en drs. Michel J. Ligtlee
Doorkiesnummer : (033) 450 75 85
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Onderwerp : Verzoek tot nader onderzoek naar hypotheekrente van Nederlandse geldverstrekkers

Geachte heer Kalbfleisch,

Vereniging Eigen Huis constateert dat sinds het najaar van 2008 op de Nederlandse hypotheekmarkt sprake is van een toenemend verschil tussen de hypotheekrentes en de fundingskosten van de banken. Inmiddels is deze marge verdubbeld van circa 1%-punt in oktober 2008 naar circa 2%-punt op dit moment. In de bijlage bij deze brief is de ontwikkeling van de marge voor een rentevaste periode van 10 jaar weergegeven.

Renteverlagingen worden niet (geheel) doorberekend
De dalende fundingkosten zouden volgens Vereniging Eigen Huis in een concurrerende markt doorvertaald worden naar een lagere hypotheekrente voor consumenten. Dit gebeurt in de Nederlandse situatie momenteel niet of onvoldoende. Nu de marge zo is opgelopen heeft de Nederlandse consument minder kunnen profiteren van de daling van de fundingkosten dan consumenten in het buitenland.

Mening deskundigen
Naast Vereniging Eigen Huis zijn ook andere organisaties en instellingen het er over eens dat de oplopende rentemarge niet anders verklaard kan worden door een gebrek aan concurrentie tussen de hypotheekaanbieders. Dit is onder andere de mening van de Consumentenbond, het Centraal Bureau voor de Statistiek (CBS) en professor Eichholtz, hoogleraar Vastgoedfinanciering aan de Universiteit van Maastricht.

vereniging | eigen huis

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ABN-AMRO nr. 55.30.41.010
Handelsregister 40506058
BTW nr.: NL0036.83.436.B01

Gedragsafstemming?
Waarom is er een gebrek aan concurrentie? De hypotheekaanbieders hebben tot op heden - ook bij monde van de voorzitter van de Nederlandse Vereniging van Banken (NVB) - geen overtuigende verklaring gegeven voor de opgelopen rentemarge. Zolang hierover onduidelijkheid bestaat, kan ook een zekere mate van opzet in de vorm van onderlinge gedragsafstemming - aan de kant van de hypotheekaanbieders - niet worden uitgesloten. Consumenten worden hierdoor gedupeerd, omdat zij voor hun hypotheek meer betalen dan nodig is. Ook het bestaande wantrouwen van consumenten jegens geldverstrekkers wordt hierdoor verder versterkt.

Schadelijk voor woningmarkt en economie
Indien er sprake zou zijn van een lagere rente zou dit een stimulans voor de woningmarkt – en daarmee voor de gehele economie - betekenen. Immers huizenkopers zijn dan eerder geneigd om een woning te kopen. Voor de woningmarkt die er momenteel slecht voor staat, is dit een gemiste kans. Ook banken hebben er alle belang bij dat de woningmarkt zo goed mogelijk blijft functioneren.

Onderliggende feiten
De conclusie van Vereniging Eigen Huis dat de hypotheekrente op dit moment te hoog is door een gebrek aan concurrentie, wordt gebaseerd op de volgende feiten:

- In vergelijking met andere, omliggende landen ligt de Nederlandse hypotheekrente over de gehele linie structureel hoger.
- De marge van banken op hypotheekleningen is vanaf eind 2008 gestegen van 1% naar plusminus 2%. Daarna is deze verdubbeling van de marge in stand gebleven.
- In de periode voorafgaand aan de crisis waren er buitenlandse aanbieders actief op de Nederlandse hypotheekmarkt. Door het aanbieden van concurrerende aanbiedingen groeide hun marktaandeel naar ruim 10%. Sinds het begin van de kredietcrisis zijn deze partijen niet meer actief op de Nederlandse markt.
- Na het terugtrekken van de buitenlandse aanbieders is naar schatting circa 80% van de Nederlandse hypotheekmarkt in handen is van 4 grote aanbieders: ABN-AMRO, ING, Rabobank en SNS Reaal. Veel hypotheekmerken behoren tot een van deze financiële instellingen.

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BTW nr.: NL0036.83.436.B01

- Tevens brengen de grote financiële instellingen momenteel het aantal hypotheekmerken terug. Zo heeft bijvoorbeeld SNS Reaal onlangs de merken DBV en Zwitserleven uit de markt gehaald.

Nader onderzoek noodzakelijk
Op grond van het bovenstaande vindt Vereniging Eigen Huis dat er voldoende aanleiding is om nader onderzoek te doen naar de handelswijze van Nederlandse geldverstrekkers ten aanzien van het vaststellen van de hypotheekrentetarieven. De vereniging verzoekt de Nederlandse Mededingingsautoriteit (NMa) om gepaste actie te ondernemen.

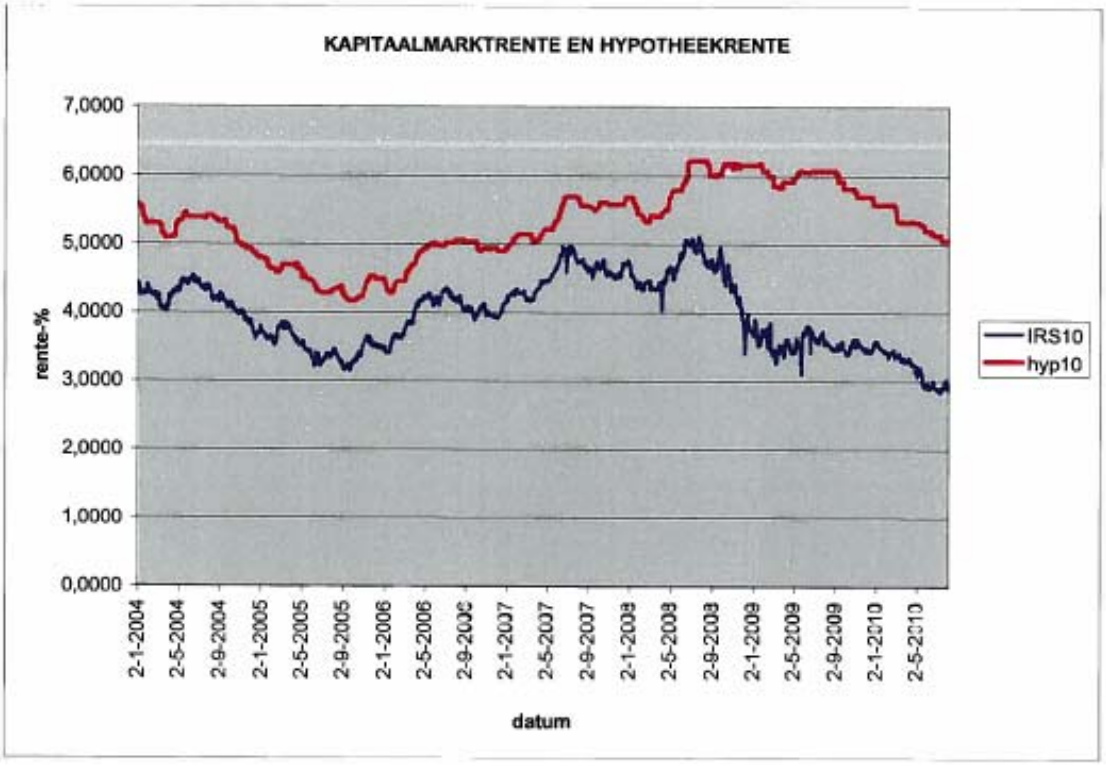
Uiteraard zijn wij bereid een nadere toelichting te geven.

Met vriendelijke groet,
Vereniging Eigen Huis

dr. Rob J. Mulder
directeur Strategie & Belangenbehartiging

Bijlage: Grafiek met de ontwikkeling van de marge voor een rentevaste periode van 10 jaar.

Kopie brief aan:
Minister van Economische Zaken, mevrouw M.J.A. van der Hoeven
Minister van Financiën, drs. J.C. de Jager
Vaste Kamercommissie Economische Zaken, t.a.v. mevrouw M. Francke
Vaste Kamercommissie Financiën, t.a.v. de heer R. Berck
Auotoriteit Financiële Markten, t.a.v. drs. J.F. Hoogervorst
De Nederlandsche Bank, t.a.v. de president de heer dr. A.H.E.M. Wellink


KAPITAALMARKTRENTE EN HYPOTHEEKRENTE
7,0000
6,0000
5,0000
4,0000
3,0000
2,0000
1,0000
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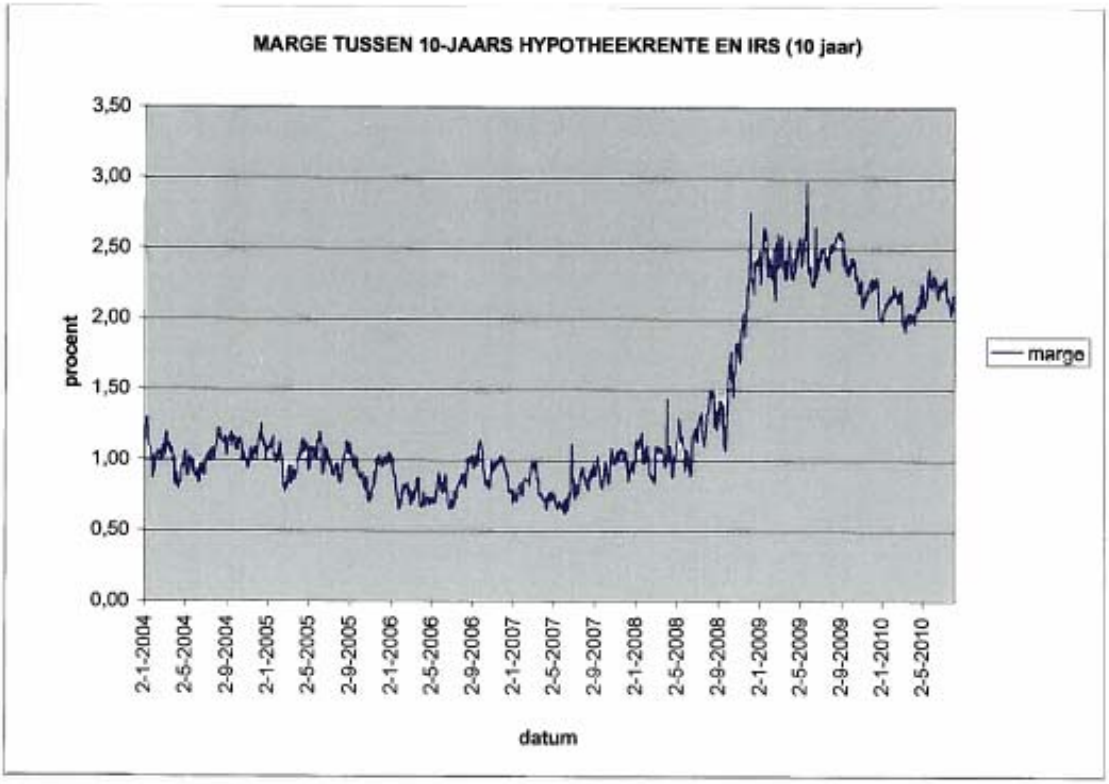
rente-%
2-1-2004
2-5-2004
2-9-2004
2-1-2005
2-5-2005
2-9-2005
2-1-2006
2-5-2006
2-9-2006
2-1-2007
2-5-2007
2-9-2007
2-1-2008
2-5-2008
2-9-2008
2-1-2009
2-5-2009
2-9-2009
2-1-2010
2-5-2010
datum
IRS10
hyp10


MARGE TUSSEN 10-JAARS HYPOTHEEKRENTE EN IRS (10 jaar)
3,50
3,00
2,50
2,00
1,50
1,00
0,50
0,00
procent
2-1-2004
2-5-2004
2-9-2004
2-1-2005
2-5-2005
2-9-2005
2-1-2006
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2-1-2007
2-5-2007
2-9-2007
2-1-2008
2-5-2008
2-9-2008
2-1-2009
2-5-2009
2-9-2009
2-1-2010
2-5-2010
datum
marge

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BTW NL0036.83.436.B01

NMA
T.a.v. Voorzitter Raad van Bestuur
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22 december 2011

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Pagina
1/3

Geachte heer Fonteijn,

Naar aanleiding van het onderzoek naar de hypotheekrentemarge in Nederland, heeft de NMa in de sectorstudie hypotheekmarkt, aangegeven dat de Nederlandse hypotheekmarkt gevoelig is voor mededingingsbeperkend gedrag. Ten tijde van het verschijnen van de sectorstudie (30 mei 2011) waren er twee aanbieders, die de top 3 aanbieders in de markt scherp hielden. Dit waren BNP Paribas (die als prijsvechter al snel 8% van de markt in handen te krijgen) en Aegon. BNP Paribas heeft op 6 december aangekondigd per 1 januari 2012 geen nieuwe hypotheken meer te verstrekken in Nederland. Dit heeft ook grote gevolgen voor aanbieders als Allianz, Reaal, Hypotrust en De Hypotheker, die samen met BNP Paribas een gelabeld product in de markt hebben gezet. Ook Aegon zien wij een lagere positie innemen in de Top 10 hypotheekverstrekkers (zie onderstaand overzicht afkomstig uit de kwartaalcijfers van IG&H).

Top 10 Nederlandse hypotheekmarkt		
Q3 2011	**Q3 2010**	
1. Rabobank	▬	**(1.)**
2. ING Bank	▬	**(2.)**
3. ABN Amro Bank	▬	**(3.)**
4. Obvion	▲	**(9.)**
5. Florius	▲	**(7.)**
6. Aegon	▼	**(4.)**
7. SNS bank	▲	**(10.)**
8. Westland Utrecht	▼	**(6.)**
9. Amstelhuys	▲	**(11.)**
10. Nationale Nederlanden	▼	**(8.)**

Exclusief white labels

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Een andere aanbieder uit de Top 10, de SNS Bank, heeft recent laten weten dat tussenpersonen geen hypotheken meer kunnen verkopen van SNS. Tot nu toe wordt de helft van de hypotheekproducten van de SNS bank verkocht via tussenpersonen. Deze beperking van de hypotheekproductie lijkt te maken te hebben met het kapitaaltekort van de SNS Bank van 159 miljoen euro, waardoor niet voldaan wordt aan de verplichte kapitaalbuffer om de core Tier 1 ratio op 9 procent te brengen. Voor eind juni 2012 moet het tekort door de SNS bank zijn ingelopen.Hierdoor vallen, op een die toch al gevoelig is voor mededingsbeperkend gedrag, twee aanbieders (deels) weg. Daarentegen zijn de Rabobank dochter Obvion en de ABN Amro dochter Florius bezig aan een opmars.

Het wegvallen van een aanbieder als BNP Paribas kan grote gevolgen hebben voor de concurrentie op de Nederlandse hypotheekmarkt. Vooral omdat de ABN Amro en de ING nog beperkt worden als gevolg van de ontvangen steunmaatregelen. Hiermee komt de Rabobank in een comfortabele positie terecht, temeer omdat ook de funding voor het komende jaar al binnen is. Ook ziet de vereniging de hypotheekrentemarge weer oplopen, zie bijlage. Lag deze marge bij het verschijnen van de sectorstudie hypotheken ruim onder de 2 procentpunt, nu is deze alweer opgelopen tot rond de 2,5 procentpunt. Of dit te maken heeft met de afnemende concurrentie of met het toenemende onderlinge wantrouwen kunnen wij niet achterhalen, maar een stijging in deze marge is duidelijk zichtbaar. Vereniging Eigen huis maakt zich dan ook grote zorgen over de beperkte concurrentie op de Nederlandse hypotheekmarkt en wil de NMa vragen om de ontwikkeling op de hypotheekmarkt scherp in de gaten te houden.

Bovendien is met het vertrek van BNP Paribas van de Nederlandse markt de enige aanbieder vertrokken die uit de ban springt in geval van hypotheken met Nationale Hypotheekgarantie (NHG). Na de introductie van de aangepaste Gedragscode Hypothecaire Financieringen op 1 augustus 2011 hebben alle geldverstrekkers, met uitzondering van BNP Paribas, aangegeven de gedragscode ook toe te passen op hypotheken met NHG. Minister De Jager heeft de aanbieders regelmatig de mogelijkheid geboden om in geval van hypotheken met NHG de NHG normen toe te passen. Toch hebben de banken er collectief voor gekozen om de gedragscode ook toe te passen op hypotheken met NHG. Vereniging Eigen Huis heeft dit begin augustus aan de NMa voorgelegd.

De vereniging vraagt de NMa om de hypotheekmarkt scherp in de gaten te houden en nog eens kritisch naar de huidige marge op de hypotheekrente te kijken.

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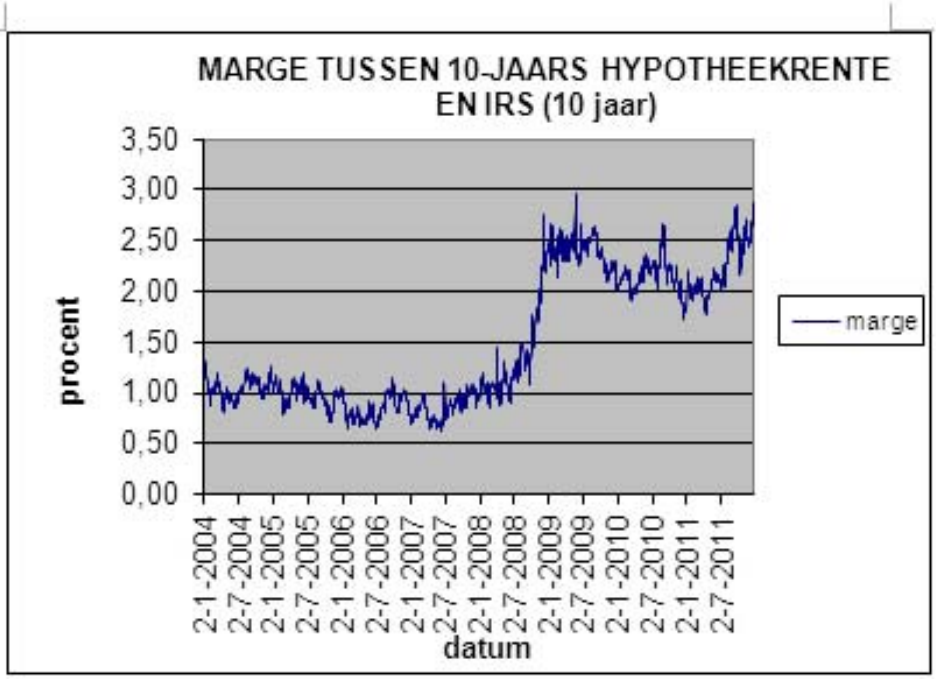
Datum 22 december 2011 Pagina 3/3



Met vriendelijke groet,
Vereniging Eigen Huis

Rob Mulder
Directeur Strategie & Belangenbehartiging

Appendix 4 – ACE Programme 17 & 18 November 2011

Association of Competition Economics ACE

Konkurransetilsynet
Norwegian Competition Authority

UNIVERSITY OF BERGEN

BECCLE
Bergen Center for Competition Law and Economics

NHH 2011 75år

ACE Annual Conference Programme

November 17th and 18th 2011 at NHH in Bergen, Norway

More: http://www.nhh.no/Default.aspx?AreaID=7 and http://www.competitioneconomics.org/home/

Program overview

Thursday 17th November

13:30–14:30	**Registration and Lunch**
14:30–15:00	**Introduction: Dr. Miguel de la Mano**, President ACE
	Welcome: Director General NCA Christine B. Meyer, Chairman
15:00–16:00	**Plenary Session 1**
16:00–16:30	**Coffee Break**
16:30–18:00	**Parallel Sessions (I-III)**
18.00–18.30	**AGM and Best Paper Presentation**
18.40–	**Bus departure from NHH to hotels and Håkonshallen**
19:00–	**Reception and dinner at Håkonshallen**

Friday 18th November

08.30–09.00	**Coffee**
09:00–10:30	**Parallel Sessions (IV-V)**
10:30–10:45	**Coffee Break**
10:45–12:15	**Parallel Sessions (VI-VII)**
12:15–13:00	**Lunch**
13:00–14:30	**Parallel Sessions (IX-X)**
14:30–14:45	**Coffee Break**
14:45–16:15	**Plenary Session 2**
16:15	**End of the ACE 2011 Conference**

Friday 18th November

13:00–14:30 Session 4a: Dutch Mortgage Market Pricing

Chair: Professor Maarten Pieter Schinkel, University of Amsterdam

Speakers :: Dr. Gülbahar Tezel (NMa)
Dr. Marco Haan (University of Groningen)
Chief economist Wim Boonstra (Rabobank)

Central in this session will be an extensive NMa study, published last May, into anomalous patterns in mortgage rates offered to Dutch households in the period June 2009 to December 2010. The sector inquiry (in part available in English at http://www.nma.nl/default.aspx) followed up on informal complaints that the NMa had received of suspected price-coordination amongst the main Dutch mortgage providers - possibly facilitated by non-compete State Aid conditions put by the European Commission to several of the main players. The NMa concluded that there is no ground for suspicion - and pointed instead to increased market concentration as a result of exit. In the ACE session, Gulbahar Tezel (MNa) will present the NMa sector inquiry, which will subsequently be discussed by Marco Haan (University of Groningen) en Wim Boonstra (Chief Economist Rabobank).

Appendix 5 – List of developments in the Dutch mortgage market 2008-2011

Developments in the Dutch mortgage market 2008-2011	**Date**
GMAC leaves the Dutch mortgage market	14 March, 2008
Sparck leaves the Dutch mortgage market	4 June, 2008
ELQ leaves the Dutch mortgage market	15 September, 2008
Nationalization ABN-Fortis	3 October, 2008
1st Banking Communication from the European Commission	13 October, 2008
Dutch State announces support package of 20 billion and 200 billion garantuees	13 October, 2008
Recapitalization ING 10 billion	17 October, 2008
Recapitalization AEGON 3 billion	27 October, 2008
Recapitalization SNS REAAL 750 million	13 November, 2008
Temporal approval ING	13 November, 2008
Temporal approval AEGON	27 November, 2008
Restructuring negotiations ING, AEGON, SNS & ABN-Fortis	Nov. 2008 – Nov. 2009
EC decision Fortis Lux., including PLB	3 December, 2008
2nd Banking Communication from the European Commission	5 December, 2008
Temporal approval SNS Reaal	11 December, 2008
Illiquid asset back-up facility ING 27.7 billion	26 January, 2009
3rd Banking Communication from the European Commission	25 February, 2009
EC expresses desire for PLB to ING in negotiation meeting	24 April, 2009
EC decision Commerzbank, including PLB	7 May, 2009
Competition Policy newsletter EC on Commerzbank case	May, 2009
Dutch mortgage interest rate margins start to rise	*Spring, 2009*
Recapitalization ABN-Fortis 2.5 billion	26 June, 2009
4th Banking Communication from the European Commission	23 July, 2009
Rabobank allegedly lobbies in Brussels for PLB	August, 2009
DSB goes bankrupt	19 October, 2009
Final approval EC for ING, including PLB	18 November, 2009
Capital injection ABN-Fortis 4.4 billion	19 November, 2009
Final approval EC for SNS Reaal	28 January, 2010
Temporal approval ABN-Fortis, commitment to PLB	5 February, 2010
VEH writes letter to NMa	12 August, 2010
Final approval EC for AEGON, including PLB	17 August, 2010
NMa publishes Quick Scan Dutch mortgage market	November, 2010
Final approval EC for ABN-Fortis, including PLB	6 April, 2011

NMa publishes final sector study Dutch mortgage market	30 May, 2011
SNS repays last tranche of state aid	July, 2011
Parliamentary inquiry – Commissie de Wit	November, 2011
ACE Conference Bergen	17&18 November, 2011

Appendix 6 – Information about the used data

For the publication of figures 2.8, 4.4, 5.3, 5.4, 5.5 and 5.6 we used data provided by the NMa. This is the underlying data from figure 2.2. and figure 4.1. of the NMa sector study.

The data we used for figure 2.8 and 5.4 are the raw data provided by the NMa as in figure 4.1. from the NMa sector report (p. 28). The data are based on the average interest rates of the five major Dutch banks in the period January 2004 – December 2010, based on the actual mortgage interest rates tariffs of NHG mortgages with a fixed interest rate period of 10 year. We have no information about the identity of the individual banks.

For figure 5.5. we transformed the data from NMa-figure 4.1. by counting in each month between January 2006 and December 2010 the number of banks that set interest rates lower than the rate of bank A. The data is again based on actual interest rate tariffs of 10-year fixed mortgages of the five major Dutch banks.

For figure 5.6. we again transformed the data from NMa-figure 4.1. by taking the difference between the rate of bank B-E minus the rate of bank A. Subsequently we calculated the sum of the squared differences to attain figure 5.6. This figure indicates the distance from the rates of bank B-E with respect to the rate of bank A.

For figure 4.4. and 5.3. we used the underlying data from NMa-figure 2.2. (p. 13). The raw data we obtained from the NMa consist of:

- The average variable Dutch mortgage interest rate
- The base rate
- The funding costs
- The mortgage specific costs

We calculated the margin by abstracting the base rate, the funding costs and the mortgage specific costs from the average variable interest rate. The different cost sources are determined by the NMa as follows:

The base rate

The base rate depends on the maturity of the mortgage, but is for variable mortgages determined as the 6-month Euribor interest rate.

The funding costs

The funding costs are based on the assumption that the bank completely covers its interest rate risk. This means that the bank aims to match its funding maturity and redemption profile as much as possible with the maturity of the loan, the so-called matched-funding principle. The NMa used a weighted average of secured and unsecured funding sources and saving deposits to calculate the average funding costs. The premium for unsecured funding is determined by the weighted average spread on credit default swaps of Dutch banks. The premium for secured funding is determined by the spread on residential mortgage backed securities (RMBS) and the premium of saving deposits is estimated by the difference between the deposito interest rate and the 6-months Euribor (zero in case the difference is negative).

The mortgage specific costs

The mortgage specific premia consist of premia for specific risks:

- Default risk – the risk that a mortgage holders is not able to repay its debt and the expected loss from execution
- Pipeline risk – the risk that mortgage costs increase during the offer period of a bank, such that the margin becomes negative at the offered rate
- Prepayment risk – the risk that the amount of actual prepayments deviates from estimated prepayments
- Premium for operational cost, such as advertisement cost, IT cost, etc.

The NMa assumed a total mark-up of 0.8 per cent point for the entire period.