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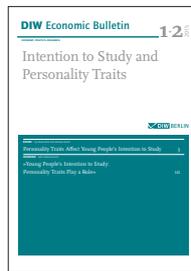
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## NEXT ISSUE OF DIW ECONOMIC BULLETIN

# Local loop unbundling

# Paying by the hour: the least appealing option for clients of lawyers

By Jo Seldeslachts

In this study, we analyze a client's choice of contract in auctions where Dutch law firms compete for cases. The distinguishing feature is that lawyers may submit bids with any fee arrangement they wish. We find robust evidence that bids offering hourly rates are less attractive to clients. Our findings tentatively contradict lawyers' often-made argument that hourly rates are in a client's best interest.

Hourly fees for legal services are popular in many countries, and several explanations are offered for the widespread use of this fee structure.<sup>1</sup> The most commonly used argument is that a service provider who works on an hourly rate basis is more motivated to invest sufficient time in a case. As Rhode puts it, “[M]ost lawyers will prefer to leave no stone unturned, provided, of course, they can charge by the stone.”<sup>2</sup> A fixed fee, on the other hand, is thought to make service providers cut corners.

An hourly fee, however, may also incentivize the service provider to work more hours than are necessary. Clients cannot properly judge the time that contributes to a positive outcome: they often do not know exactly which services they need, nor do they know how much they should be paying for them.<sup>3</sup> Market intransparencies make matters worse: detailed price information is hard to obtain, and different law firms' offers are difficult to compare. Lawyers can exploit these informational advantages.

Furthermore, there are often institutional barriers to entry, which limits competitive pressure from potential entrants (the right to proceed in a court is mostly reserved to lawyers admitted to the bar association). This gives law firms market power, which in turn allows them to dictate fee structures and opt for hourly fees – and compared to other fee structures, hourly fees may lead only to a more expensive bill and not necessarily to better services. In that perspective, an hourly fee is more in the interest of the lawyer than in the interest of the client.

The question is whether the hourly fee structure is the standard arrangement because the client wants it or because it allows lawyers to exert market power. Up until

<sup>1</sup> See Kritzer, H. M. (2009): Fee Regimes and the Cost of Civil Justice. *Civil Justice Quarterly*, 28, 344–366.

<sup>2</sup> Rhode, D. L. (1985): Ethical Perspectives on Legal Practice. *Stanford Law Review*, 37, 589–635.

<sup>3</sup> Dulleck, U. and R. Kerschbamer (2006): On Doctors, Mechanics, and Computer Specialists: The Economics of Credence Goods. *Journal of Economic Literature*, 44, 5–42.

Table 1

**Types of bids**

Types of bids present	# Auctions	Total # bids			Winning # bids		
		Fixed	Mixed	Hourly	Fixed	Mixed	Hourly
Fixed, Mixed & Hourly	15	22	25	26	3	9	3
Fixed & Mixed	2	2	2	-	1	1	-
Fixed & Hourly	7	9	-	12	7	-	0
Mixed & Hourly	17	-	27	48	-	14	3
Fixed	6	14	-	-	6	-	-
Mixed	2	-	4	-	-	2	-
Hourly	2	-	-	5	-	-	2
Total	51	47	58	91	17	26	8

Auctions grouped by types of bids present. # Auctions represents the number of auctions in each group. Total # bids represents the number of bids per bid type that were offered in each group. Winning # bids represents the number of bids per bid type that won in each group.

Source: XS2Justice (XS2J); own calculations.

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now, what clients want has not yet been empirically investigated. Since clients usually do not necessarily choose from among different fee structures, information about their selection behavior is hard to come by.

**Calling for bids through XS2Justice**

The data used here are from auctions organized by XS2Justice (XS2J), a franchise network of legal service providers that assists consumers and small/medium-sized companies in all sorts of relatively standard disputes. The auctions are a secondary activity of XS2J. As XS2J professionals are not members of the Dutch Bar Association,<sup>4</sup> which comprises lawyers qualified as advocates, they normally cannot represent their clients in court. In situations where XS2J cannot take on a case, or when the client explicitly requests a lawyer, the case is put up for auction. Most of the cases on which bidding is invited concern the disputes typically found among consumers and small/medium-sized businesses: labor disputes, family law cases, consumer disputes, and contract disputes between businesses. The bidders in the XS2J auctions are small law firms across the country, and the typical law firm bidding in the auctions has one or two offices with about 15 lawyers in total.

XS2J provides a concise summary of each case and typically invites three to five different law firms to submit a bid. Lawyers are free to submit a bid with the fee structure of their choice. Bidders do not know whom they are

competing against, nor do they know how many other bidders there are. Once all bids have come in, an XS2J lawyer discusses them with the client. Apart from the fee structure and rate, the lawyer's degree of experience is disclosed, as is the location of the lawyer's office. The client then chooses from among the bids.

**Lawyers prefer hourly fees**

The data set contains all calls for bids that were organized by XS2J in the period between November 2004 and December 2008. A total of 374 bids were submitted in 95 calls. However, not all data can be used to analyze clients' choices: for instance, calls in which only one bid was submitted or in which the client did not accept any of the bids are not considered in this analysis. Performance-based bids are also omitted, as each of these bids is specified in a different way and therefore difficult to compare with the other fee structures. (This only applies to a small number of bids [eight], probably due to the questionable legal status of "no cure no pay" in the Netherlands.) All in all, this leaves the sample being analyzed with 196 bids in 51 cases.

More than half of all bids in these XS2J auctions offer fee structures that differ from the standard hourly rate used in everyday practice (Table 1). Nearly one quarter of the bids (47) involved a fixed fee, while 58 bids offered a fixed fee up to a specific number of hours with an hourly rate for the hours exceeding this limit. We refer to this type of bid as "mixed."

Table 1 also gives an indication of the success of the different types of bids. Despite the fact that nearly half of all bids involved an hourly fee, the client opted for such a bid in only eight of the 51 auctions. This should of course be viewed in the context of what other kinds of bids were also available to the client in question. There were 15 auctions where all three types of fee structures were available. Although more hourly rate bids were tendered (26) in these calls than were fixed fee bids (22) or mixed bids (25), clients chose a lawyer offering an hourly fee in just three of these calls. The same pattern is discernible for the other available fee structure/winning bid combinations. This hints at hourly fees being less popular than other fee structures.

The client, however, not only looks at the fee structure, but also at the price level of the bid. In an auction involving bids with different fee types, it is usually impossible to make an *ex ante* classification according to the *ex post* costs. It is possible, however, to compare bids of the same type. For instance, a client can say that an hourly fee of 200 euros is "higher" than an hourly fee of 150 euros. A mixed bid of 2,000 euros for up to 11 hours with an hourly fee of 190 euros for every hour thereafter is

<sup>4</sup> [https://en.wikipedia.org/wiki/Bar\\_association](https://en.wikipedia.org/wiki/Bar_association)

also “higher” than a mixed bid of 1,600 euros for up to 10 hours with an hourly fee of 170 euros for every hour thereafter. In our analysis, we use the variable “higher” to distinguish such seemingly unattractive bids from other bids. This is a dummy that is equal to 1 if and only if another bid has been submitted that turns out to be cheaper for each number of hours in cases where bids can be compared.

Table 2 shows the average rates for each type of bid. The average hourly fee is 178 euros. The lowest hourly fee, 100 euros, is virtually equal to the hourly fee (99 euros) set by law for subsidized legal assistance at the time of the auctions examined in this study. The average fixed fee is 2,000 euros. The fixed component of mixed bids averaged 2,179 euros. The average hourly fee for hours exceeding the preset limit in mixed bids was 154 euros; the preset hourly limit averaged 16 hours.

## Regression analyses

To support our finding that hourly fees are less attractive to clients, we performed a series of regression analyses using information that the clients had about the lawyers in addition to the fee structure. This information included the lawyers’ professional experience and the distance between the client’s home address and the lawyer’s office.

Table 3 shows the estimation results of three different specifications in which the dependent variable is a dummy indicating whether or not the bid has been selected by the client. The main explanatory variables are the dummies characterizing the fee structure: here, “fixed” or “mixed.” The “hourly” category has been omitted here, and the “fixed” and “mixed” coefficients thus must be interpreted in relation to hourly rates. The dummy “higher” in the specifications (2) and (3) indicates that there is at least one bid in the call which gives *ex ante* a higher bill than in other comparable bids.<sup>5</sup> Experience and distance are measured against the highest value in the auction. The models are estimated using a conditional logit model.<sup>6</sup> This estimation method automatically checks for differences in the number of bids per auction, as well as for case-specific features that are not observable. The standard errors are clustered by call.

The coefficients in the table are exponentiated so that the values can be interpreted in terms of odds ratios. The odds ratio is the relation between the probability that the bid wins and the probability that the bid does not

<sup>5</sup> For details, see Felsö, F., Onderstal, S., Seldeslachts, J. (2014): What Clients Want: Choices Between Lawyers Offerings, Tinbergen Institute Discussion Papers, 2014(020).

<sup>6</sup> For a detailed description, see, for example, Hosmer Jr., D. W., Lemeshow, S. (2000): Applied Logistic Regression.

Table 2

## Height of bid according to bid type

In euros

	N	Fee			
		Mean	Sd	Min	Max
Hourly fee	98	178	30	100	268
Fixed fee	51	2,000	1,364	150	6,360
Mixed fee	62				
Fixed fee part		2,179	1,040	275	5,500
Hourly fee part		154	30	100	239

Source: XS2Justice (XS2J); own calculations.

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win. For example, if an hourly fee bid wins one bidding round in three calls, the odds ratio is  $1/3$  divided by  $2/3$ , or one to two. Table 3’s coefficients indicate, for both fee types, by what factor the odds ratio of a fee type increases in relation to an hourly fee. A fixed fee has a coefficient of more than 3 in column (3), and thus appears to be far more attractive to the client than does an hourly fee. A mixed fee structure is in fact even more appealing, with an odds ratio of nearly eight: a mixed bid increases the odds ratio from one-to-two to eight-to-two.

The results show that the results—that clients prefer fixed fees and mixed fees to hourly fees—remain unchanged

Table 3

## Winning Bids

Main results

	(1)	(2)	(3)
Fixed	4.370***	3.157**	3.499**
Mixed	7.794***	7.512***	7.762***
Higher		0.232***	0.171***
Experience			2.929*
Distance			0.419
Observations	196	196	196
Auction hit rate	0.804	0.765	0.706
Log likelihood	-50.59	-44.65	-42.26
$\chi^2$	15.41	20.06	21.83

The dependent variable represents whether a bid has won or lost. We use the conditional logit estimator with auction fixed effects. Coefficients are reported in terms of odd ratios. Robust standard errors, clustered over the auction are reported in parentheses. \*  $p < 0,10$ , \*\*  $p < 0,05$ , \*\*\*  $p < 0,01$ .

Source: XS2Justice (XS2J); own calculations.

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when we control for the height of the bid and the characteristics of the lawyer that are observable by the client: clients prefer fixed and mixed fees to hourly fees. The size of the effects also remains roughly the same.

Table 3 shows estimated coefficients of the variable “higher” in the order of 0.2. This means that a higher bid decreases the odds ratio by approximately a factor of five. Not unexpectedly, high fee rates are unattractive to clients; on the other hand, the lawyer’s professional experience is appreciated. The physical distance between the client’s home address and the lawyer’s office has no significant effect on the client’s choice.

The results of a conditional logit estimator, however, are only valid if the choice between two fee structures is independent of a third (irrelevant) alternative. In other words, the odds ratio with a fixed fee in relation to an hourly fee should not change depending on whether the client’s choice set also contains a mixed fee bid. A series of generalized Hausman tests in which one of the bid-type dummies is left out each time shows that this assumption holds true for the data. The assumption of independence of irrelevant alternatives is not dismissed and the results of the conditional logit estimation method are therefore valid.

In principle, the specification presented in column (3) of Table 3 includes all information that a client has about the lawyer. Nevertheless, it would be instructive to examine whether the lawyers’ bidding experience has any indirect effect on the probability ratio. A series of estimates with alternative specifications shows that this is not the case. Bidding experience does not appear to play a part: the number of auction participations or previously won bids, or whether a lawyer is bidding for the first time, do not appear to have a significant effect on winning.<sup>7</sup>

It also shows that lawyers with more experience in XS2J auctions do not change their bidding behavior. Quite the opposite: it seems that the characteristics of each individual case are primarily what induce lawyers to bid with a particular fee structure. This lack of strategic bidding behavior on the part of lawyers enables us to focus exclusively on the client’s choice.

It cannot be ruled out that the case characteristics also play a part in the client’s choice. Clients may find hourly fees more attractive in cases that are more important to them – for example, if the dispute involves emotional matters, such as family issues or disputes between

Table 4

### Ex-post level of satisfaction

	Fixed	Mixed	Hourly	Total
Not satisfied	1			1
Acceptable	1	2	1	4
(Very) Satisfied	6	9	4	19

Source: Author-conducted telephone survey on client satisfaction.

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neighbors, and/or large sums of money. The extent to which this element comes into play can be inferred by including interaction terms between case characteristics and the dummies that characterize the bid. The coefficients of those interaction terms appear to be insignificant, whereas the other results remain unchanged to a large extent.<sup>8</sup> This means that clients are no less averse to hourly fees even in these more financially or emotionally important cases.

Another possibility is that the kind of client determines the preferences: is the client a natural person or a company? Clients with more financial means (such as companies) probably attach greater importance to the lawyer’s efforts, and may therefore be more willing to pay an hourly fee. This, however, turns out not to be the case: business clients do not tend to opt for hourly fees either.

### Fixed fees do not make for laziness

Those who defend hourly rates claim that the risk of a fixed fee is that the lawyer might not put all of their effort into getting a good result. A comparison of client satisfaction between clients who chose an hourly fee and those with who went with other fee structures is therefore instructive. All clients in the sample were contacted by phone in the spring of 2011 and asked whether they were satisfied with the lawyer they had chosen through XS2J. All clients who could still be reached using the contact details they had provided at the time of the XS2J auctions were willing to give information about their client satisfaction.

Most clients who hired a lawyer through the XS2J auctions were either (very) satisfied or found the service they received acceptable, that is, satisfactory (Table 4). Clients who paid hourly rates were not significantly more satis-

<sup>7</sup> For details see Felsö, F., Onderstal, S., Seldeslachts, J. (2014): What Clients Want: Choices Between Lawyers Offerings, Tinbergen Institute Discussion Papers, 2014(020).

<sup>8</sup> For details, see Felsö, F., Onderstal, S., Seldeslachts, J. (2014): What Clients Want: Choices Between Lawyers Offerings, Tinbergen Institute Discussion Papers, 2014(020).

fied than were clients who opted for a fixed fee or mixed fee bid. Therefore the traditional argument that hourly fees lead to a better service does not hold here.

### No race to the bottom

The results of the client satisfaction survey do not give the impression that price competition leads to poor service quality. It should be noted that the usual quality guarantees such as qualification requirements and professional rules apply to the legal profession, irrespective of whether XS2J organizes the auction or the client approaches the lawyer directly. It is also quite possible that XS2J plays a complementary role in this respect by barring law firms with a poor reputation from bidding. XS2J has substantially more information about the quality of lawyers than does the average client, and has every interest in making sure no mistakes are made. After all, organizing auctions is just a secondary activity in the

services of XS2J, which has its reputation as a legal service provider to uphold.

### Conclusion

The XS2J auctions in which lawyers competed directly with each other yielded many bids with fee structures that differed from the standard hourly fee structure. These auctions thus offer a unique opportunity to investigate clients' preferences, and our analysis indicates that the hourly rate is the least popular option. Our results are therefore in line with the idea that market power enables lawyers to offer hourly fees for legal services, and inconsistent with lawyers' often-stated reasoning that hourly rates are in a client's best interest.

Our findings suggest that holding auctions in which lawyers bid on cases may benefit clients, as it forces lawyers to compete with each other directly.

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## TEN QUESTIONS TO JO SELDESLACHTS

# »Clients prefer flat fee contracts«

1. Mr. Seldeslachts, you analyzed a client's choice of contract in auctions where Dutch law firms compete for cases. What was the aim of your investigation? **The aim was to look at a completely different environment where lawyers could offer contracts to clients, who were then actually able to choose from among several lawyers and various kinds of contracts.**
2. Why did you choose an auction for your investigation? **It is a very rare type of competitive environment for legal services and we thought it would be very interesting to look deeper into that.**
3. Which type of contract do clients prefer: hourly fees or flat fees? **Clearly, at least as far as the data show, clients prefer to have flat fee contracts or fixed fee contracts as opposed to hourly fee contracts.**
4. How do you explain the finding that clients prefer flat fees? **We really would have liked to have gone deeper into the exact answer to that question, but with the data we have, we cannot really know exactly why. The only thing we can see from the data is that clients do prefer flat fee contracts, and we can hypothesize that perhaps this is because they know what they are getting in terms of monetary value.**
5. Would you say that an hourly fee is in the interest of the lawyer instead of the client? **That is probably too general. With hourly fee contracts, there is the potential risk that the lawyer will work too many hours and charge too much. This is not the case with a flat fee contract. That we can say for sure. The client knows in advance what he or she is getting. We can say that a flat fee contract reduces the risk of potential overpayment.**
6. But how can a client tell if a flat fee is too high? **That's a good question. There is no way. A priori the client has no control, but the environment of the auction lets several lawyers compete against each other. At least that is the assumption we make, and this shows up in our data as well. If there are several lawyers who are competing directly against each other, these flat fee contracts will also be competitive.**
7. Do business clients make different choices from private clients? **Small businesses with relatively small legal cases benefit in the same way from these auctions and this type of contract as do private clients. If the businesses are large, and the cases are large and complex, then of course this type of environment and this type of contract may not be optimal. So essentially, the more complex the case is and the less certain the outcome, the more you might want to go back to a different type of contract.**
8. Hourly fees for legal services are very popular. Is this because clients are normally not in the position to choose from among different types of contracts? **Yes. We have thoroughly researched this problem in the Netherlands. There are very few law firms that offer a different fee structure apart from hourly fees. So the clients are just faced with this type of contract—and on top of that, they are often told that hourly fees are in their best interest.**
9. But again, doesn't that make it very likely that hourly fees are purely for the benefit of the lawyer? **We cannot confirm that one hundred percent, but that is indeed our suspicion. In the Netherlands and virtually all other European countries as well as the USA, the legal service industry is very intransparent and not competitive. I think one can assume that hourly fees are more in the lawyers' favor than in the clients' favor. The argument that lawyers put forward is that with hourly fees, they are not limited by a flat fee and are able to do their best work.**
10. Were clients who opted for flat fee contracts more satisfied with the service they received than were clients who chose hourly fees? **We asked all clients afterwards whether they were satisfied or not. We cannot distinguish whether they were more satisfied with flat fees or with hourly fees, but we know that the level of satisfaction was not very different across different fee structures.**

Interview by Erich Wittenberg

# Brexit decision is likely to reduce growth in the short term

By Ferdinand Fichtner, Christoph Große Steffen, Michael Hachula and Thore Schlaak

The high degree of uncertainty about the United Kingdom's (UK) economic future following the June 23 Brexit referendum is leading to a flight into safe assets, and will most likely worsen financing conditions for British companies. In addition, companies could reduce investment and postpone hiring decisions. This is likely to start dampening economic growth in the UK in the short term, thus reducing the export possibilities for the euro area and Germany. The German automotive industry, which counts the UK as a major export destination, will be the most affected; German producers of wood, paper, and leather goods, as well as those of pharmaceuticals and chemical products, will also feel the impact. Assuming that the Brexit decision reduces British imports by 12.5 percent by the end of next year compared to a Remain-vote scenario, Germany's economic growth in 2017 could be half a percentage point lower than previously expected.

The Brexit vote of June 23 has shaken European policy and led to considerable uncertainty about the future of the European integration process. Immediately following the vote, a marked increase in economic uncertainty became evident not only with regard to the UK's economic prospects, but also with regard to the economic development of Europe on the whole and the rest of world. The increased uncertainty was reflected in the world market price of gold, which rose by more than four percent over the course of June 24.<sup>1</sup> However, the level of uncertainty is well below that which followed the collapse of Lehman Brothers, or that of various critical phases of the debt crisis in the euro area.

## Significantly higher uncertainty in the UK

In the UK, the flight into assets perceived as "safe" has led to increased price volatility on the financial markets; the volatility index of London's FTSE 100 (Figure 1) started increasing in June, indicating significant uncertainty.<sup>2</sup> In the days directly following the Brexit vote, heavy losses were observed in stocks. Particularly hit by the exchange losses were large banks, whose prospects are especially in question since it is unclear to which extent the financial center of London could still profit from the free movement of capital within the EU following the Brexit. By the middle of the following week, however, a significant recovery was observable.

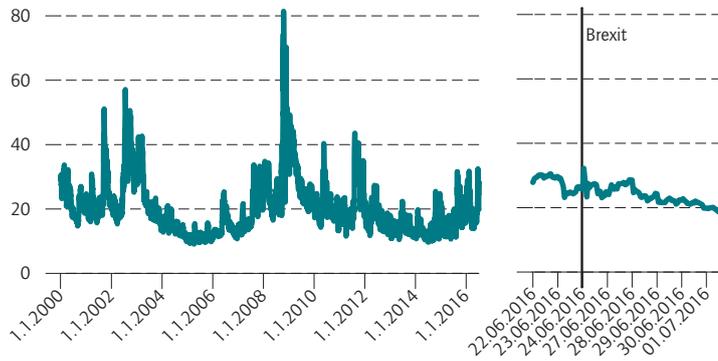
The prices of British government bonds ("gilts"), however, were affected by the flight-to-quality in the short term; indeed, these bonds' yields experienced a decrease. The interest on bonds with a maturity of three months fell by more than six basis points, while bonds with 30-year maturities dropped by nearly 16 basis points. Neverthe-

<sup>1</sup> A rising demand for gold can be seen as a strong indication of increased uncertainty, since investors consider this precious metal a "safe investment." See, for example: Piffer, M. und Podstawski, M. (2016): "Identifying Uncertainty Shocks Using the Price of Gold." DIW Discussion Paper 1549.

<sup>2</sup> Bloom, N. (2009): "The Impact of Uncertainty Shocks." *Econometrica* 77(3), pp. 623-685.

Figure 1

**Uncertainty in the course of time**  
FTSE 100 Volatility Index, daily frequency



Source: Datastream.

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In the historic context the uncertainty following the Brexit referendum is not extraordinarily high.

less, government financing costs are expected to rise in the medium term; evidence of this can be found in the prices of credit default swaps (CDS) for gilts, which have sharply increased compared to those of German government bonds (Figure 2). As a result of the referendum, two of the three most important rating agencies have al-

Figure 2

**Prices of Credit Default Swaps for British government bonds (5-year maturity)**  
Spread against German bonds, in basis points



Source: Datastream.

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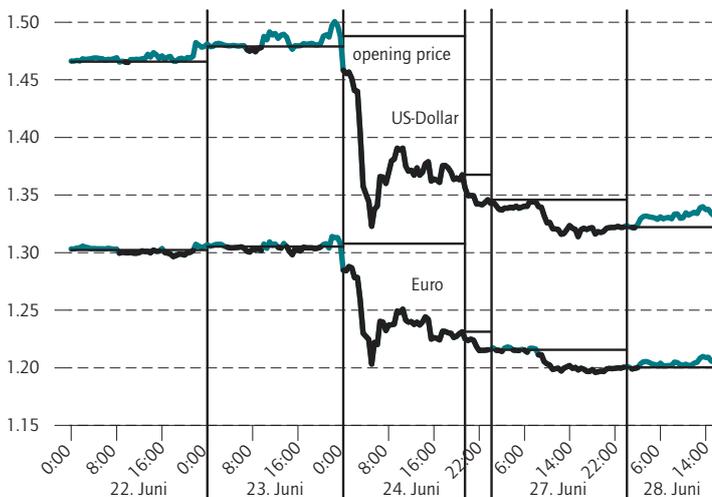
Market expectations imply an increase of sovereign default risk since the Brexit referendum.

ready revoked the top rating from the UK, which should negatively affect financing costs in the medium term.

In addition to the recent flight-to-quality within the UK, there are likely to have been capital outflows from the economy. This is evidenced by the significant depreciation of the British pound, the value of which dropped by 11.2 percent against the US dollar and by 8.2 percent against the euro within two trading days of the vote (Figure 3).<sup>3</sup>

Figure 3

**Exchange rate of British pound vis-à-vis the euro and US-Dollar**



Source: Datastream.

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In the course of two days after the Brexit referendum the British pound depreciated roughly 8 percent vis-à-vis the euro.

**Slower growth in the UK economy**

There are many indications that the increased uncertainty will persist in the longer run and thus have a dampening effect on the UK's economic development. For example, exit negotiations could drag on for several years, and the conditions for future trade, migration, and capital flows between the UK and the EU could remain unresolved for a long time to come.

In this environment, investment and employment are likely to be impacted, since companies prefer to wait before making decisions that are to some degree irreversible.<sup>4</sup> International investors are also likely to hold back

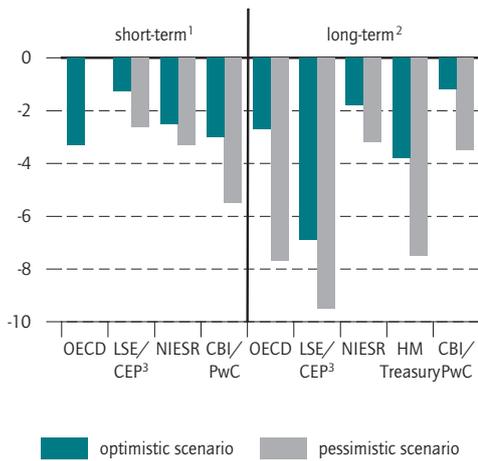
<sup>3</sup> (Net) capital outflows from a nation's economy lead to reduced demand for its currency in the foreign exchange market, which in turns leads to depreciation. See, for example: Krugman, P., Obstfeld, M. (2006): "International Economics: Theory and Policy." 7. Edition, Pearson.

<sup>4</sup> Bachmann, R., Elstner, S., Sims, E.R. (2016): "Uncertainty and Economic Activity: Evidence from Business Survey Data." American Economic Journal: Macroeconomics 5 (2), pp. 217-249; Bachmann, R., Bayer, C. (2013): "'Wait-and-See' Business Cycles?" Journal of Monetary Economics 60 (6), pp. 704-719.

Figure 4

**Impacts of the Brexit on the United Kingdom's gross domestic product**

In percent compared to a scenario without Brexit



1 Time period from 2016 to 2020.  
 2 Time period from 2016 to 2030.  
 3 Model with a static (short term) and a dynamic time horizon (long term).

Source: OECD (2016): *The economic consequences of Brexit: A taxing decision*. OECD Economic Policy Papers, No. 16; Dhingra, S. et al. (2016): *The consequences of Brexit for UK trade and living standards*. CEP Brexit Analysis No. 2; Baker, J. et al. (2016): *The short-term economic impact of leaving the EU*. National Institute Economic Review, No. 236; Ebell, M., Warren, J. (2016): *The longterm economic impact of leaving the EU*. National Institute Economic Review, No. 236; HM Government (2016): *HM Treasury analysis: the long-term economic impact of EU membership and the alternatives*. Cm9250; PwC (2016): *Leaving the EU: Implications for the UK economy*. report commissioned by CBI.

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The impact of the Brexit on the British economy is expected to be negative.

with investment in the UK at first; this could increase the financing costs for companies, private households, and the government, and also dampen investment and consumption.

All in all, the UK's overall development is expected to be weaker in the coming years than it would have been in a no-Brexit scenario.<sup>5</sup> The literature estimates the short-term decline in British economic output resulting from the Brexit vote to be between 1.3 percent and 5.5 percent (Figure 4).<sup>6</sup>

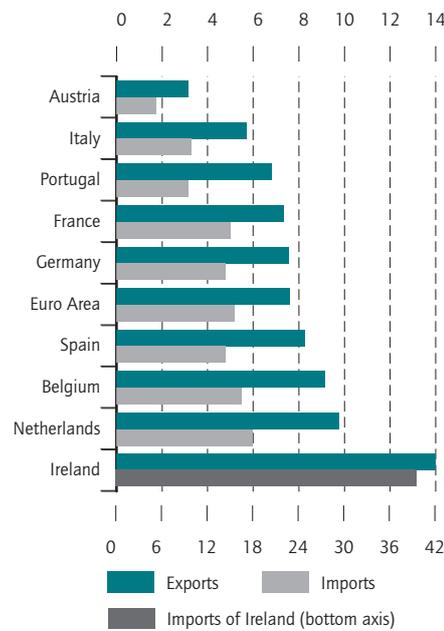
5 See, for example: Baker, J. et al. (2016): "The Short-Term Economic Impact of Leaving the EU." NIESR Review No. 236, May 2016.

6 In most of the studies, the "short-term" decline in GDP refers the period up until 2020.

Figure 5

**Trade relations between different euro area countries and the United Kingdom**

Percentage of total exports/imports of goods, Average 2014/2015



Source: Datastream, calculations of DIW Berlin.

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Some euro area countries are particularly linked to the United Kingdom through trade relations.

**Brexit vote negatively impacts the euro area as well**

A slump in the UK economy is likely to have a direct impact on the economy of the euro area. One important impact channel comprises the direct trade effects resulting from a decrease in the UK's demand for goods and services from the euro area.<sup>7</sup> The recent devaluation of the British pound against the euro should also reinforce the decline in demand related to slower growth, since Europeans goods will become more expensive for Brits.

Altogether, 7 percent of the euro area's total merchandise exports go to the UK, and 5% of the euro area's total merchandise imports originate in the UK. An immediate drop in trade would affect the euro area countries in varying degrees (Figure 5). The UK is Ireland's sec-

7 An overview of other medium- and long-term Brexit impact channels influencing the economy of the euro area and the rest of the EU can be found, for example, in Buiter, W. et al. (2016): "The implications of Brexit for the rest of the EU." Vox.eu.org, March 2016 and Boata, A. et al. (2016): "Brexit: What does it mean for Europe?" Euler Hermes Economic Research, May 2016.

Figure 6

**Stock market losses in different euro area countries immediately after the referendum**

Between 23 June and 24 June in percent



Source: Datastream, calculations of DIW Berlin.

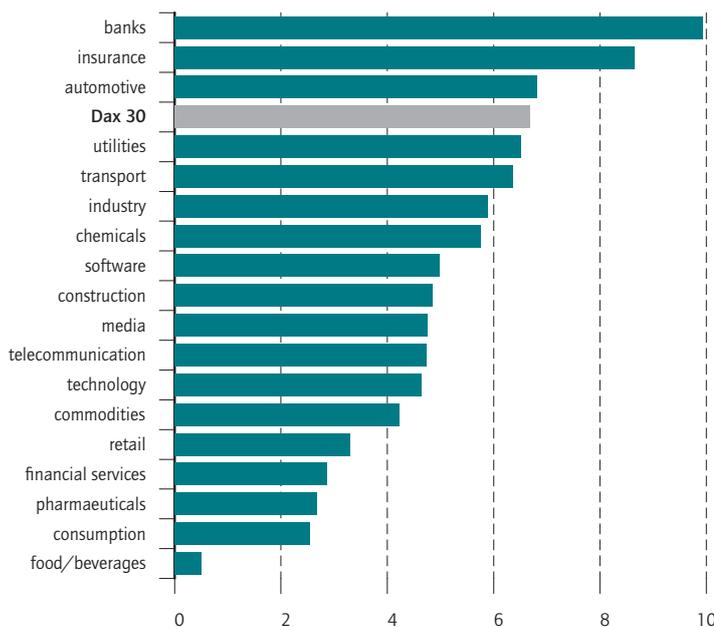
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Stock markets in all euro area countries plummeted immediately after the Brexit referendum.

Figure 7

**Stock exchange losses of the CDax by sector**

Between 23 June and 24 June in percent



Source: Datastream, calculations of DIW Berlin.

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The losses incurred by stocks of the automotive industry, banks, and insurances were particularly high after the Brexit referendum.

ond largest trading partner, and many Irish and British companies are closely linked via production chains and mutual financial investment.<sup>8</sup> The UK has similarly close trade links with Belgium and the Netherlands. Moreover, Dutch companies are strongly represented in the UK via equity and direct investment, and British banks are important lenders in the Dutch economy.<sup>9</sup>

Assuming that the negative impact on the euro area economy will work primarily through trade channels, Ireland, Belgium, and the Netherlands should be most heavily affected by the Brexit in the short-term. However, share prices have fallen sharply in all euro area countries as a direct response to the referendum (Figure 6)—even in places where the UK has a lower weight in total merchandise trade. This indicates that the financial markets are expecting the economic consequences of the Brexit to be negative for the entire euro area. An important channel of transmission will most likely be that the increased political and economic uncertainty worsens financing conditions and exerts negative effects on investment and employment.

The increase in uncertainty is also evidenced by the immediate and varied reactions of government bond yields in euro area countries following the referendum. Yields on bonds with 10-year maturities fell in Germany and France; government bonds in these countries are perceived as safe assets and tend to be in demand in times of heightened uncertainty. On the other hand, bond yields in Spain and Italy increased. All in all, however, the development of the bond yields across the board was significantly lower than it was on the days of important decisions during the euro area debt crisis.

If we divide up the post-Brexit referendum trade losses on the European stock exchanges by sector, we find that companies manufacturing everyday necessities like food or drugs—business investments considered relatively safe even in times of increased uncertainty—have experienced the smallest losses. The losses for banks and other financial service providers, however, were major: there have only been a few trading days in which the share price of some euro area banks plummeted by as much as it did following the Brexit referendum.

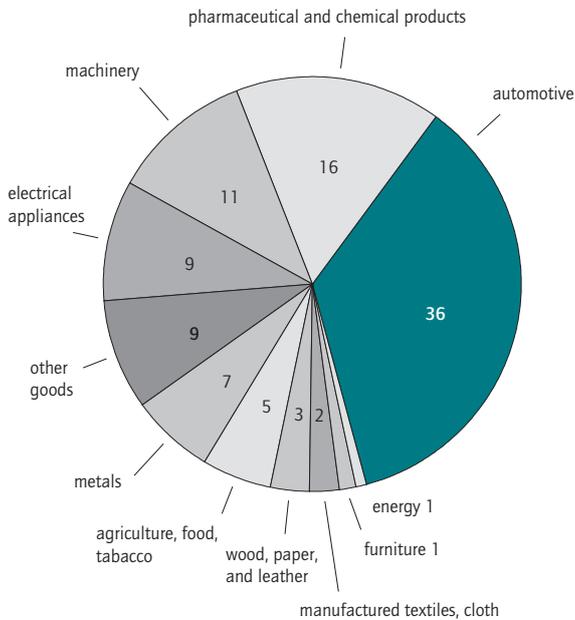
**8** In the medium term, however, Ireland could also benefit from the Brexit: if international companies with outposts in Britain want to relocate their European headquarters to preserve their access to the internal market, Ireland is likely to be a preferred destination.

**9** Beyond trade and financial services, other aspects of the European economy will be affected: the Spanish tourism industry could also start feeling the effects of the Brexit this year, since Brits make up over a quarter of the country's foreign visitors – and due to the devaluation of the pound, these tourists are now likely to spend less money while in Spain. Moreover, as part of the Commonwealth, Cyprus still has close ties with the UK; if the turmoil on the British financial markets continues, this could create problems for Cypriot banks. Details on the economic relationships between each euro country and the UK can be found in Irwin, G. (2015): "BREXIT: the impact on the UK and the EU." Global council analysis, June 2015.

Figure 8

### German exports of goods to the United Kingdom by product groups

Shares in percent



Source: German National Statistical Office, calculations of DIW Berlin.

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A major share of Germany's exports to the United Kingdom is made up of only a few product groups.

Firstly, this is related to the fact that many banks and financial institutions are heavily engaged in London, an important global financial center, and are now likely facing difficult decisions regarding reallocation. Secondly, many European banks' individual economic situations are being strained by low-interest margins in the zero interest rate environment as well as a still-high level of non-performing loans.<sup>10</sup>

All in all, however, European financial markets already started to calm down significantly. While yields in France and Germany continued to decline slightly until the end of June, Spanish and Italian yields already started experiencing a countermovement and are now also on a lower level than they were pre-referendum. Similarly, the trade losses following the Brexit decision were partly reversed on the European stock exchanges by the end of June.

<sup>10</sup> This is especially true for Italian banks, whose shares have experienced strong losses in the wake of the Brexit referendum, and also explains why the stock market losses in Italy are more significant than those in other euro area countries. Also in Spain, where the stock market has also plummeted stongly, bank stocks have a comparatively high weight in the overall index.

### Germany's major industries affected

The immediate effects of the Brexit referendum were clearly noticeable on the German stock market as well: the German share index DAX dropped by nearly seven percent on the trading day following the vote, but already recovered somewhat by the end of June. In particular, the automotive, banking, and insurance sectors recorded high losses (Figure 7): the Brexit would be costly for the automotive sector, which will have to restructure its value chains, while banks and insurance companies are strongly affected by uncertainty in the financial markets.

The share of Germany's UK-bound exports in its total exports has risen steadily over the past five years, from 6.2 percent in 2011 to 7.5 percent in 2015, making the UK the third-largest market for German exporters after the US and France. Automotive, chemical and pharmaceutical exports as well as machinery construction make up roughly 63 percent of Germany's UK-bound exports (Figure 8). The German automotive industry sends 11.6 percent of its total exports to the UK; wood, paper, and leather goods as well as pharmaceuticals and chemical products also have high trade links (Figure 9).

As a consequence of the Brexit, the UK's output growth is likely to decrease; moreover, the British pound has already depreciated against the euro. Given these developments, the UK's import demand is expected to decelerate, which means that an appreciable effect via the trade channel on the German economy could start to materialize. Assuming a 12.5-percent<sup>11</sup> drop in UK import demand by the end of 2017, the growth rates of British imports would be 1.7 percentage points lower in 2016 and 11.9 percentage points lower in 2017 than would be expected if the UK were to remain in the EU. With the UK accounting for 8.0 percent of German goods and services exports<sup>12</sup> and excluding indirect effects—for example, third-country or substitution effects—the previous assumptions would result in a decline in the growth rate of German exports by 0.2 percentage points this year, and by 1.0 percentage points next year (Figure 10). With exports making up 48 percent of the GDP, this will dampen the growth rate of Germany's economic output—in comparison to a no-Brexit situation—by 0.1 percentage points in 2016 and by 0.5 percentage points in 2017.

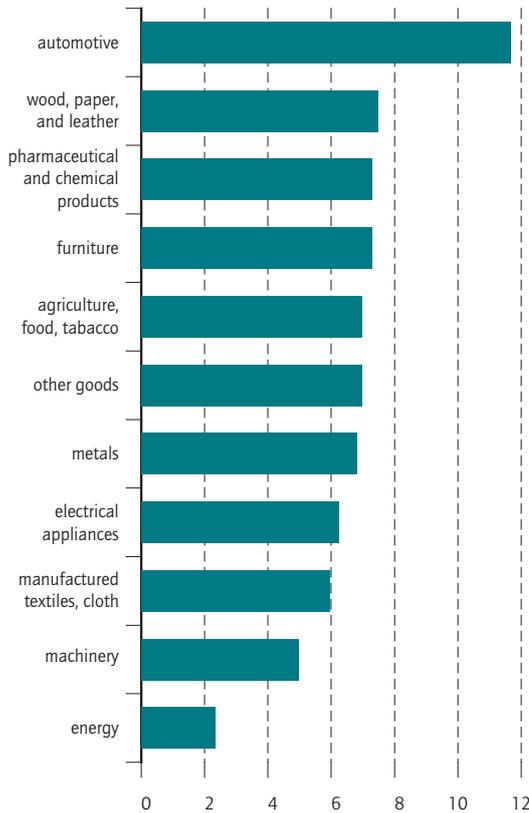
If the UK leaves the European domestic market, trade activity between Germany and the UK will also develop rel-

<sup>11</sup> The calibration is based on Baker, J. et al. (2016): "The short-term economic impact of leaving the EU." National Institute Economic Review 236, May 2016.

<sup>12</sup> Data from the German Foreign Trade Statistics are used to calculate UK's share of 7.5 percent of Germany's total exports of goods. For services exports geographically differentiated data are not available; UK's share of Germany's total service exports is assumed to be 10 percent.

Figure 9

**United Kingdom's share of German exports of goods within product groups**  
 In percent of total exports of respective product group



Source: German National Statistical Office, calculations of DIW Berlin.

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Trade relations between Germany and the United Kingdom are especially high in the automotive industry.

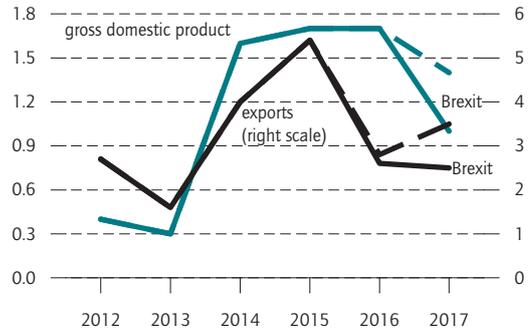
atively weaker in the medium term, since import restrictions such as tariffs, a higher administrative burden for export goods, and the possible introduction of national product standards would lead to additional costs for exporters. In addition, quantitative restrictions on imports could create an additional trade barrier.

**Conclusions**

In the wake of the Brexit referendum, there was a significant increase in the uncertainty surrounding the future economic development of the UK and Europe. On the

Figure 10

**Germany: Gross domestic product and exports**  
 Annual growth rate in percent



Source: Calculations of DIW Berlin.

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The growth rates of the German economy are expected to be lower compared to a scenario with no Brexit.

financial markets, this manifested itself in an increase in prices of "safe-haven" assets such as gold and government bonds, while stock prices in Europe experienced a significant drop in value directly following the referendum. However, the financial markets' reaction was nowhere near as extreme as it was after the collapse of Lehman Brothers, for example, and recoveries were already observed in the days following the Brexit referendum.

Nevertheless, the increased uncertainty is expected to start creating significant economic losses straight away, long before the actual Brexit might take place, as companies will most likely chose to postpone investment and hiring decisions. Moreover, international investors may be reluctant to invest in the UK, leading to a deterioration in financing conditions for businesses, households, and the government. This not only reduces economic growth in the UK itself, but also leads to a reduction in export opportunities for the euro area and Germany, thus negatively impacting on their economic development. Moreover, the Brexit will have additional effects on the economy through prolonged high financial market volatility, foreign direct investment, and prices; these effects, however, are at the moment nearly impossible to quantify. With this in mind, it is in the interest of both continental Europe and the UK to reduce the uncertainty surrounding their economic perspectives as much as possible – particularly when it comes to their future relationship.

## BREXIT DECISION

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