



Economic policy uncertainty in Europe

Detrimental to capital markets and bank lending

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Uncertainty surrounding economic policies is affecting markets as seldom before. This is closely followed by the financial sector, businesses and even by households. Thanks to advancement in textual analysis, it is now possible to quantify uncertainty trends in economic policies.

Recently, economic policy uncertainty (EPU) in Europe has risen to extraordinarily high levels. EPU can create negative externalities for the economy, as it is negatively correlated with the business cycle. It has the potential to intensify the impact of recessions and to contribute to the build-up of risks during good times.

Financial markets uncertainty and economic policy uncertainty, which usually co-move closely, have decoupled recently. However, the two may remain interconnected in the long run, and their divergence is most likely of temporary nature. They will probably converge again in the coming quarters, either through an increasing financial markets uncertainty or a declining EPU.

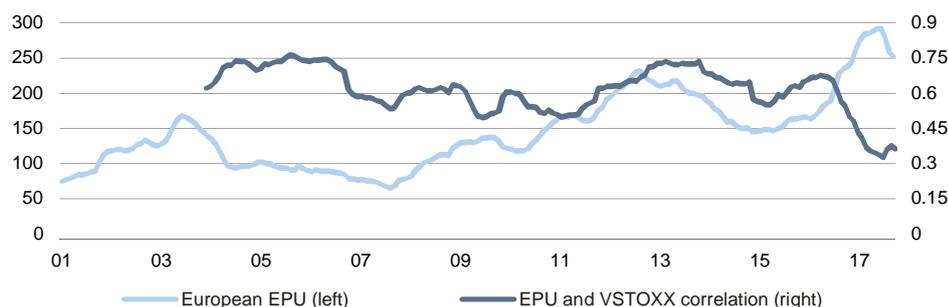
High levels of EPU tend to be transmitted to firms' borrowing costs, i.e. result in higher corporate bond spreads.

Significant cross-country EPU transmissions are observable within the EU, with a peak around the Brexit vote. UK EPU is transmitted to Germany and France in particular, to a lesser extent to Spain and to the least extent to Italy. Economic policy coordination and convergence after Brexit are thus necessary among the remaining EU states to effectively reduce financial stability risks.

Banks could turn out to be a central channel through which EPU is transmitted to the real economy. Higher levels of EPU result in subdued bank lending to non-financial corporations and households. This effect is particularly pronounced in Spain and Italy, as well as when it comes to lending to SMEs. Considering the pivotal role of SMEs in employment and value added, spillovers from elevated EPU to SME lending can dampen the pace of recovery in Europe.

Financial market uncertainty and economic policy uncertainty decouple

Index value (left)*, correlation coefficient (right)**



*smoothed by using a 12-month moving average with all the weights equal to 1/12.

**60-month moving correlation between monthly changes in VSTOXX and EPU.



Introduction

Macroeconomic indicators such as GDP growth, inflation and unemployment rates have long been in the spotlight of investors, as negative news in these areas can lead to downward risks in financial markets. Recently, with macroeconomic uncertainty still being in focus, policymakers' decisions on economic policies have taken centre stage as well. Their statements and actions with regard to fiscal policies, as well as structural and regulatory reforms, are affecting financial markets as seldom before. As a result, uncertainties surrounding these policies have received growing attention. In Europe, for example, decisions on financial regulatory measures, structural reforms and fiscal consolidation are important market-moving events. Moreover, the period of broad economic policy consensus in Europe took a hit with the Brexit referendum. In addition, increased domestic political risks due to elections in the largest euro area countries have raised concerns about future economic policies.¹ Taking potential negative spillovers from policy uncertainty to the rest of the economy into account,² these uncertainties are being followed closely by the financial sector, businesses and even by households.

Against this backdrop, we take a closer look at European economic policy uncertainty in this paper. We start with its measurement and trends in recent years. After that, we focus on the link and a potential decoupling of economic policy uncertainty and financial markets uncertainty. We continue with economic policy uncertainty transmissions between major European countries. Finally, we discuss potential spillovers from economic policy uncertainty to bank lending. In doing so, we focus on lending to non-financial corporations, differentiating between large corporations and SMEs.

Measuring economic policy uncertainty

In economics literature, uncertainty refers to agents such as consumers and firms being unable to foresee the outcome of future events. Its presence and level are central in several areas of economics, including decision, game and portfolio theory. A high degree of uncertainty affects decision-making and potentially depresses firms' investment choice or households' consumption.³ To date, different measures have been proposed to proxy uncertainty in macroeconomic indicators and financial markets, such as the VIX index to gauge volatility in asset prices, or the range of macroeconomic forecasts by professional forecasters. Currently, many of these conventional uncertainty measures are at historically low levels. Besides more "traditional" uncertainty indicators, the future path of economic policies is essential to economic agents' decision-making, too. With crucial measures by policymakers and central banks during and after the financial crisis, economic policies are under ever-growing scrutiny. As a result, a better understanding and a reliable estimation of economic policy uncertainty (EPU) has become particularly relevant in recent years.

In short, EPU can be defined as economic agents being unable to foresee the outcomes of fiscal, regulatory, monetary and trade policies. To give an example, ambiguity surrounding fiscal integration within the EU – which some member countries are in favour of, while others strongly oppose it – creates significant unpredictability. Since fiscal integration has a decisive influence on taxation –

Textual analysis

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Textual analysis is a tool to describe the tone of a document such as a newspaper article, annual report or IPO prospectus. In doing so, it uses some selected words as indicators of a specific tone. It therefore requires a dictionary that assigns words into sentiment categories such as positive, negative, optimist and pessimist, or certain and uncertain etc. Using the dictionary, the total number of a particular group of words in a document is calculated. This total is usually normalised with the total number of words in the document or is netted with the number of words with the opposite tone to create a final tone indicator.

For example, an article which includes an overwhelming number of words such as "happy", "cheerful" or "joyful" etc. has a positive tone or sentiment. On the other hand, an article which includes many words like "unhappy", "sad" or "depressed" has a negative tone or sentiment.

Source: Deutsche Bank Research

¹ See Böttcher and Wruuck (2017).

² See Baker, Bloom and Davis (2016), and Julio, Balta, Ruscher and Fernández (2013), and Julio and Yook (2012), who point to a negative relationship between EPU, economic recovery and growth.

³ See Laffont (1989).



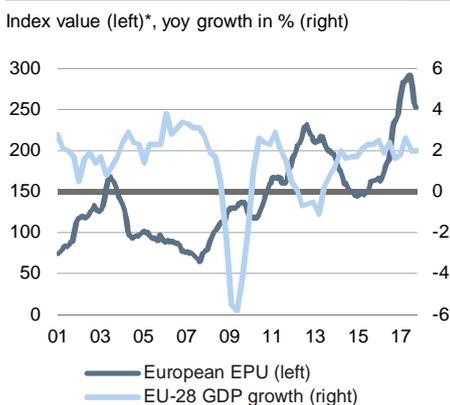
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and thereby the cost of production, demand, and even firms' competitive advantage – European firms might postpone their investment and hiring decisions to see the outcome of the discussions first. This wait-and-see approach, however, may detrimentally affect the real economy and sustainable recovery in Europe. Even though it is easy to define cornerstones of EPU conceptually, EPU is inherently unobservable, and its estimation is not straightforward. In recent years, though, there have been significant steps forward in EPU measurement with the advancement of textual analysis (see box 1 for a short explanation).

Using textual analysis, Baker, Bloom and Davis (2016) (hereafter BBD) have developed an index to proxy movements in policy-related economic uncertainty over time. In doing so, the BBD index uses articles from major newspapers.^{4,5} In an article, BBD scans for three groups of words related to 1) economy, 2) uncertainty and 3) economic policy. There should be at least one word from each group in the article for the article to be counted as an indicator of policy-related economic uncertainty. For example, if an article includes words from the first group such as output, production, etc. and from the second group such as uncertain, unclear, etc. but fails to include words from the third group such as spending, deficit, regulation, budget, tax, policy, etc., then it is not counted as an indicator of EPU. To construct the index value, BBD counts the number of articles which pertain all three groups of words. The frequency of words that belong to each of the three groups is not relevant for the index computation. This number of articles is scaled by the total number of articles in the same newspaper to get a normalised final index. Several robustness checks and alternative and unrelated measures of EPU yielding similar results to BBD⁶ have bolstered the confidence that this newspaper-based measure accurately captures EPU. This being said, some shortcomings remain, which we will point out throughout our analysis.

All-time high economic policy uncertainty in Europe

EPU surging to all-time highs in Europe 2



*smoothed by using a 12-month moving average with all the weights equal to 1/12.

Sources: PolicyUncertainty.com, Deutsche Bank Research

Recently, conventional uncertainty indicators have fallen to all-time lows, and economic recovery has gained pace in Europe. Despite the economic news delivering mostly positive surprises to market participants, the Brexit referendum and rising populism in some countries create significant uncertainties about future economic policies in Europe. To illustrate these, chart 2 presents the evolution of the smoothed European EPU index from 2001 onwards. In the early years of the millennium, on the back of weak or even negative GDP growth, the BBD uncertainty index rose. Yet the upward trend in EPU reversed around 2004, when economic policy reached a period of broad consensus. With the outbreak of the financial crisis, the index jumped. With the intensification of the euro area debt crisis in the second half of 2011, the uncertainty index saw a further huge upswing, surpassing the highs of the global financial crisis. Despite the rollback between 2012 and 2014, the run-up to the Brexit referendum and its outcome triggered another surge and led to a new all-time high, with an index value almost 5 times higher than in 2007. The extraordinarily high level of EPU is probably among the most significant concerns of businesses, households and even central banks, and has important implications.

Before delving deeper into the implications, it is important to discuss some caveats in the measurement of the EPU index which may have pushed it up

⁴ In the US, for example, BBD scans USA Today, Miami Herald, Chicago Tribune, The Washington Post, Los Angeles Times, The Boston Globe, San Francisco Chronicle, The Dallas Morning News, The New York Times and The Wall Street Journal. For the European index, BBD scans ten European newspapers.

⁵ See online appendix of Baker, Bloom and Davis (2016).

⁶ See Hassan et al (2016).



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recently. For the European EPU index, BBD weights EU countries equally and does not distinguish between local and international policy uncertainty. Put differently, German newspapers writing about Brexit and associated economic uncertainty in the UK is counted towards an increasing EPU in Germany and contributes to the European index. International news coverage in local newspapers probably inflates index values during major events such as Brexit. Another caveat is the representativeness of the newspapers taken for the index construction. BBD uses two major newspapers from each country which usually have a specific economics and finance focus (and as such tend to be more internationally oriented). During episodes of economic uncertainty, this may magnify the surge in EPU, too.

Despite some shortcomings, and despite uncertainty surrounding the Brexit referendum most likely being somewhat exaggerated, it is observable that the European EPU index has a negative correlation with business cycles (see chart 2 above). EPU tends to rise during economic downturns and to recede during good times. If there is cyclicity in EPU, it has the potential to intensify the negative impact of recessions and probably leads to a build-up of risks during good times. In this vein, the extraordinarily high current levels of European EPU should be monitored with care, considering likely negative externalities to other parts of the economy. Policymakers should act decisively during Brexit negotiations and avoid prolonging and generating further policy-induced uncertainty.

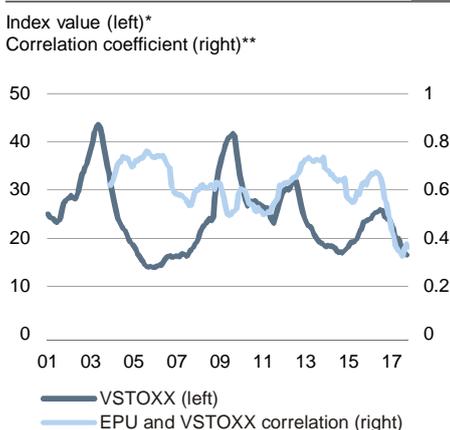
Financial market uncertainty and economic policy uncertainty decouple

As already discussed, market participants may take a wait-and-see approach during episodes of elevated EPU, which may affect asset prices, market liquidity, etc. It is therefore reasonable to look at the transmission from all-time high policy uncertainty to financial markets. Insights can be gained from the co-movement of EPU and a benchmark index for European financial market uncertainty. The VSTOXX index, which is the implied volatility of options written on the Euro STOXX 50 Index (Europe’s leading blue-chip index for the euro area), reflects market expectations of near-term uncertainty and serves as a good proxy (see chart 3). The VSTOXX and EPU seem to co-move closely until 2016, with similar direction and pace of evolution. Since late 2016, however, there has been a decoupling, with financial markets uncertainty declining to all-time lows, but EPU moving to all-time highs. Chart 3 also presents the correlation of the VSTOXX and European EPU indices. Instead of taking a point estimate, we utilise moving correlations to show potential changes in co-movement structure over time. Our estimates indicate that the correlation of the two evolved in a range of 50% to 80% until 2016. In 2017, though, there was a significant disconnection, with correlation down to 40%.

Benign global economic conditions and rock-bottom benchmark rates may partly explain low financial markets volatility in recent years. Indeed, the largest economies in the world are all growing relatively strongly. At the same time, both factors do not necessarily lead to a low EPU. It is also important to note that the VSTOXX measures the implied volatility of options with one month to expiry and does not place particular weight on long-term risks. By contrast, EPU mostly captures the longer-term concerns of economic agents. In this respect, EPU and the VSTOXX can deviate in the short run. What is more, low financial volatility may suggest that markets are overly optimistic about the short-term outlook and are underestimating the risks, including economic policy-related ones.

Insights on whether EPU and the VSTOXX usually co-move – despite some divergence in the short run – can be gained from an econometric framework that

Decoupling from financial markets uncertainty **3**



*smoothed by using a 12-month moving average with all the weights equal to 1/12
**60-month moving correlation between monthly changes in VSTOXX and EPU

Sources: PolicyUncertainty.com, Bloomberg, Deutsche Bank Research



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tests if there is a long-run relation between the two. To do so, we perform an Engle-Granger test for cointegration. Dependent variables are the monthly changes of the smoothed VSTOXX and European EPU index from 2001 to Q3-2017. Our estimation results are statistically significant at conventional levels and indicate that economic policy uncertainty and financial markets uncertainty are interconnected in the long run. There is no indication that the link between the two has broken down structurally, and it seems that the recent divergence is only of temporary nature. The uncertainty indicators will probably converge again in the coming quarters. Therefore, it would not be surprising to observe either increasing financial markets uncertainty or declining EPU.

Economic policy uncertainty and borrowing cost nexus

In addition to potentially impacting the equity market, uncertainty about future economic and monetary policy actions may affect bond markets. On this front, potential transmissions to financing conditions via higher corporate bond spreads are of particular importance in terms of real economy implications.⁷ During episodes of high EPU, for example, market lenders may demand a higher uncertainty premium for corporate bond investments and yields may rise.

To illustrate the link between bond markets and EPU, we focus on how changes in European IG non-financial bond yields relate to changes in EPU (chart 4). We take the spread to benchmark bond yields to focus on net increases in market rates. A positive relation between changes in EPU and changes in corporate bond yields seems evident at first glance; i.e. an increase in EPU goes hand in hand with an increase in bond yields. If we take EPU as the single explanatory variable,⁸ changes in EPU explain 33% of the variation in corporate bond returns. This being said, there may be factors affecting EPU and bond yields simultaneously, such as business cycle effects, which make it difficult to quantify the magnitude of the transmission. For example, a recession that leads to increases in both policy uncertainty and bond yields may exacerbate the positive relation, if not controlled. What is more, reverse causality, such as growing EPU pushing corporate bond yields higher and at the same time higher yields causing more uncertainty and being reflected in the news, is another concern. Controlling for a set of economic conditions, financial and macro factors, academic literature provides evidence that EPU positively correlates with bond risk premia.⁹ These findings also indicate that negative externality from EPU to bond markets is economically significant and especially visible for longer maturity bonds. All in all, high levels of EPU probably result in a higher risk premium for bonds, with causality running from EPU to bond markets.

The UK is a net exporter of economic policy uncertainty

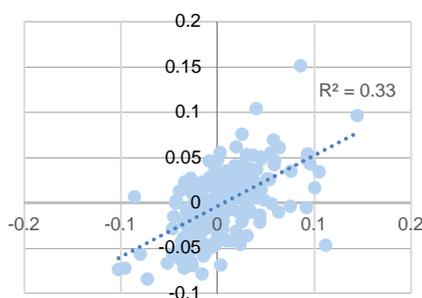
Evidently, policymaking in Europe is highly interconnected on the backdrop of economic and monetary cooperation between EU member states. Uncertainty surrounding economic policies in individual countries can therefore foster contagion. Despite the large number of actors, though, transmissions are most likely from larger EU countries to other member states.

Chart 5 presents the BBD index for the largest EU economies separately.¹⁰ For Germany, France and the UK, there are significant overlaps in index trends

Changes in EPU co-move with changes in bond returns

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Changes in EPU: y axis
Changes in bond spreads: x axis

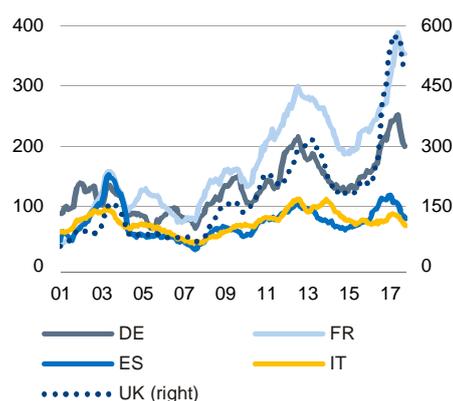


Sources: Bloomberg, PolicyUncertainty.com, Deutsche Bank Research

EPU reaching all-time highs around Brexit

5

Index value*



*smoothed by using a 12-month moving average with all the weights equal to 1/12
We have imputed EPU index values from February to April 2003 in Spain, which were inflated due to outliers.

Sources: PolicyUncertainty.com, Deutsche Bank Research

⁷ See Kostka and van Roye (2017).

⁸ Taking squared bond returns as a proxy of bond market volatility, we fail to observe any systematic relation between EPU and bond market volatility.

⁹ See Leippold and Matthys (2017).

¹⁰ Index values are derived using two newspapers per country: Le Monde and Le Figaro for France, Handelsblatt and Frankfurter Allgemeine Zeitung for Germany, Corriere Della Sera and La Repubblica for Italy, El Mundo and El País for Spain, and The Times of London and Financial

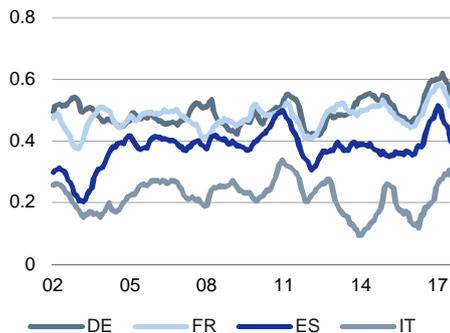


Economic policy uncertainty

EPU transmission strongest around Brexit vote

6

Dynamic conditional correlations of the UK EPU and respective country EPU*



* Estimates from a Multivariate GARCH model. Dependent variables are changes in EPU in %. Model with one ARCH and one GARCH lag and changes in VSTOXX as exogenous variable. Reported values are the 12-month moving averages of dynamic conditional correlations.

Sources: PolicyUncertainty.com, Deutsche Bank Research

throughout the entire observation period. For example, EPU was largely flat across the board before the financial crisis and surged exponentially afterwards. Following a short correction around 2014, EPU reached all-time highs in 2017 following the Brexit referendum. Compared to the more stable economies, EPU in the crisis-hit southern countries of Italy and Spain showed similar trends before the financial crisis. In the run up to the sovereign crisis, there was a slight uptick in EPU in southern countries. It has been very moderate though, which is pretty surprising. In Germany and France, it is difficult to determine whether the surges in EPU in 2016-17 are entirely due to local policy uncertainty or partly due to international news coverage in local newspapers about Brexit, a caveat of BBD index measurement discussed above.

Hikes in policy uncertainty in single countries are observed especially around events with unpredictable outcomes. For example, the Brexit decision and major elections in Germany and France created uncertainties about economic policies in 2017. Indeed, some political parties in the latter two countries had promised radical changes on issues such as defence, tax and immigration policies if they were elected, and polls were somewhat unclear about the election outcomes. In addition to this, EPU has been shown to be transmitted from the largest economies of the EU to other EU countries.¹¹ Therefore, it seems likely that the stubbornly high levels of EPU in stable countries are related to the Brexit negotiations.¹² To verify this, we model EPU transmissions from the UK to the largest EU countries, taking both time variation and conditional heterogeneity into account (see chart 6). Our results are based on monthly data and indeed reveal a persistently positive pattern. UK EPU is transmitted to EPU in Germany and France in particular, to a lesser extent to Spain and to the least extent to Italy. For all countries, though, UK EPU transmissions reached a peak around the Brexit vote. In this vein, the UK seems to be a net exporter of policy uncertainty. Taking the potential pro-cyclicality of EPU into account, these transmissions can impede and adversely affect economies and markets. Therefore, economic policy coordination and convergence among the remaining EU states are important to effectively reduce EPU and thereby minimise financial stability risks.

Economic policy uncertainty leads to subdued lending

Due to higher EPU, subdued lending to non-financial corporations and ...

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	Average moving correlation	Reduction in lending in EUR m
DE	-0.06	Not significant
FR	-0.22	-168
IT	-0.30	-1,041
ES	-0.44	-829

Reported values in the middle column are average of moving correlations (60-month window) of monthly loan flows to non-financial corporations and EPU in respective countries. Right column represents response of monthly loan flows to a 10% increase in EPU.

Source: Deutsche Bank Research

Periods of uncertainty usually coincide with heightened counterparty risk for banks. As lending is a medium- to long-term commitment, banks can restrain from lending to non-financial corporations or to households during episodes of elevated EPU. To shed some light on EPU spillovers, table 7 presents the average moving correlation of the monthly EPU index and of bank loan flows to non-financial corporations from 2008 to Q3-2017. We repeat this exercise for the largest euro area countries separately to address cross country heterogeneity.¹³ EPU and corporate loan flows correlate negatively, i.e. increased uncertainty probably lowers bank lending flows. The average correlation coefficient is moderate with 22% in France. It is 30% in Italy and 44% in Spain which indicates that the negative externality from EPU to bank lending is especially high in southern euro area countries. Only in Germany does the co-movement of the two seem almost negligible. To put the negative relation into numbers, we perform a simple empirical analysis as well. We take monthly bank loan flows to non-financial corporations as the dependent variable and EPU as

¹¹ Times for the United Kingdom.

¹² Bernal, Gnabo, Guilmin (2016).

¹³ See Biljanovska, Grigoli, Hengge (2017).

¹⁴ To get a robust correlation estimate, we use 60 months as the moving correlation window. To avoid contamination by outliers in the data, we winsorise the upper and lower 2.5% tails of the bank loan flows.



the single explanatory variable.¹⁴ Our results indicate that higher EPU lowers bank loan flows at statistically significant levels (except in Germany, where the effect is insignificant). A moderate increase (10%) in EPU may translate into a reduction of up to EUR 1 bn in monthly loan flows to non-financial corporations. Our results are in line with the academic literature, which estimates a similar negative relation (for the US), controlling for changes in the real economy and consumer sentiment.¹⁵

To further gauge the negative link between EPU and lending to the private sector, we focus on loan flows to households separately as well (see table 8). Our results point out that EPU by and large negatively correlates with retail loan flows, too (except in Germany). With 24% in Italy, 28% in France and 32% in Spain, the average negative link is evident. That said, the magnitude of correlation is somewhat lower compared to loan flows to non-financial corporations in Italy and Spain. This could be due to the fact that a large part of the lending to households is mortgage lending (around 60% to 75%). Mortgage loans are highly standardised and collateralised. They are thus usually less risky than corporate loans and less affected by uncertainty. In Germany, the average correlation is a small positive, a somewhat surprising observation. We also perform a regression analysis, which points out that a 10% increase in EPU can translate into a reduction of up to EUR 500 m (as in the case of Spain) in monthly bank loan flows to households.

Hence, banks could turn out to be a central channel through which EPU is transmitted to the real economy. EPU's negative spillovers are not only possible via heightened stock market volatility and higher bond spreads, but also through subdued funding of the private sector. Considering the cyclicity dimension, elevated EPU might intensify the impact of recessions via restrained bank lending.

... to households 8

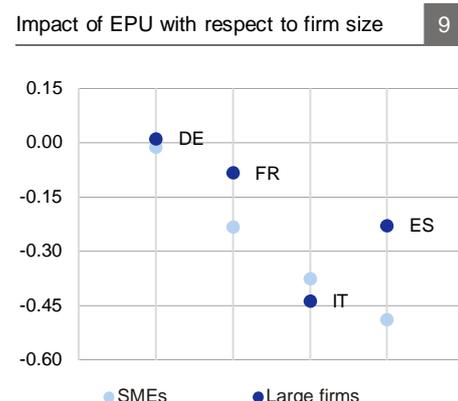
	Average moving correlation	Reduction in lending in EUR m
DE	0.11	298
FR	-0.28	-222
IT	-0.24	-395
ES	-0.32	-532

Reported values in the middle column are average of moving correlations (60-month window) of monthly loan flows to non-financial corporations and EPU in respective countries. Right column represents response of monthly loan flows to a 10% increase in EPU.

Source: Deutsche Bank Research

EPU tends to affect SME lending disproportionately

The transmission of EPU to bank lending could differ with respect to firm size as well. Indeed, when bank lending is constrained, small and medium-sized enterprises (SMEs) tend to be affected more than larger corporations, which are usually less dependent on bank loans.¹⁶ This is partly due to most SMEs not being able to tap capital markets.



Reported values are averages of moving correlations (60-month window) of outstanding amounts of small and large loans and EPU in respective countries between 2003 and Q3-2017.

Source: Deutsche Bank Research

Lack of data limits an analysis of lending to SMEs versus large corporations separately. Yet volumes of small and large loans are available. Small loans (loans with a volume of less than EUR 1 m) are more likely to be to SMEs and can serve as a proxy of SME lending. Our analysis indicates that there is indeed some asymmetry in the impact of EPU. In Spain, the negative correlation of EPU and SME lending is twice as large as the correlation of EPU and lending to large corporations. In France, results are similar. In Italy, both SME and large-cap lending show a high negative correlation with EPU. Independent of firm size, Italian banks have generally been risk averse, especially in recent years, due to extraordinarily high levels of non-performing loans on their balance sheets. Only in Germany, and in line with our previous results, is the link between EPU and corporate lending negligible for both SMEs and large firms.

The greater negative impact of high EPU on SME lending can be linked to demand- or supply-side effects. SMEs may invest less and thereby demand fewer loans during episodes of high EPU. Indeed, large corporations may have a larger international client network, and their investments may be less exposed to local EPU shocks. Alternatively, episodes of high EPU probably coincide with

¹⁴ We use standard errors that are robust to heteroskedasticity.

¹⁵ See Bordo, Duca and Koch (2016) for a detailed analysis.

¹⁶ See OECD (2014).



greater information asymmetries and thus a higher default risk among SMEs, which may constrain banks' loan supply. In any case, considering the pivotal role of SMEs in employment and value added, persistent risk aversion with regard to SME lending in the case of high EPU can harm the real economy significantly and dampen the pace of recovery in Europe.

Closing remarks

Uncertainty surrounding economic policies in Europe has taken centre stage in recent years. Thanks to advancement in textual analysis, it is now possible to quantify trends in economic policy uncertainty. Brexit and its aftermath have led to extreme levels of EPU. Despite the relatively limited EPU transmission to financial markets uncertainty recently, the decoupling between the two will probably not last for long. Simplifying a bit, either Brexit-related policy uncertainty will have to come down over the next years, or the favourable market dynamics may reverse and volatility in financial markets may go up. Meanwhile, there is evidence that an increase in EPU can be harmful for corporate debt markets through higher bond spreads.

Brexit-related EPU in the UK is transmitted to Germany and France in particular, to a lesser extent to Spain and to the least extent to Italy. These transmissions can impede and adversely affect economic recovery in Europe. Therefore, economic policy coordination and convergence among the remaining EU states are important to effectively reduce EPU and thereby minimise financial stability risks. Indeed, elevated EPU has real economy implications beyond capital markets via subdued bank lending to non-financial corporations and households. Even more, these effects are disproportionately pronounced for SMEs. Banks could turn out to be a central loop through which EPU is transmitted to the real economy, especially given the heavy bank dependence of corporate funding in Europe.

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