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The Economic Effects of a Merger of Deutsche Börse and London Stock Exchange:

Part 1: Contribution to Financing the Economy

Study for Deutsche Börse AG

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Executive Summary

Economic prosperity and growth depend on the efficient allocation of savings and investment. Integrated and highly liquid financial markets provide access to a variety of financial instruments for the corporate sector and enable efficient risk diversification for investors and savers. Liquid and stable financial markets are needed in order to achieve an efficient price discovery for stocks, bonds, foreign exchange as well as for derivative contracts. In this study, we analyse the proposed merger of Deutsche Börse Group and London Stock Exchange Group in light of its contribution to improve these prerequisites for economic prosperity and growth.

The EU has traditionally a bank-based financial system in which capital market activity, like stock and bond issuance, concentrates on its largest corporations. During the global financial crisis and the banking and sovereign debt crisis in the Eurozone even very profitable companies suffered from a restrictive access to finance when their banks got into distress, while companies which had access to capital markets were less affected by the crises. A crisis lesson was that companies funding will improve through a better access to capital markets in addition to the financial intermediation through banks. Deeper and more liquid capital markets will provide companies with a larger pool of financing options. The primary market for listed stocks is an important source of capital for financing long-term investment projects. The proposed merger will increase the liquidity of the market and thereby attract investors. Investments become less risky for investors when liquidity is high because liquidity ensures that orders can always be executed at attractive and undistorted prices. Moreover, a larger and more liquid stock market with access to UK's financial capital will be beneficial for German companies through an easier access to a larger international investor base.

A second consequence of the financial crisis was that European capital markets became fragmented along national borders. Cross-border bank lending and investment broke down. The European Commission's action plan for a Capital Markets Union is a step in the right direction. Reviving financial market integration, fostering cross-border investment and cross-border asset holdings is urgently needed. A merger of Deutsche Börse Group and London Stock Exchange Group would be beneficial to EU companies and to this political project because it would provide the EU with a large and highly liquid financial market infrastructure, which covers different countries. The merger would help to integrate and consolidate the nationally fragmented system of exchanges, clearing systems and securities depositories. The consolidated system would foster the price discovery process towards more informational efficiency, it would increase liquidity and thereby attract international investors. Increasing the investor base would be beneficial for the EU because it would increase cross-border asset holdings and thereby foster risk-sharing in case of country-specific shocks.

The UK households hold financial assets in the amount of 193 percent of the UK's GDP in pension funds and insurance contracts, while UK financial companies hold assets summing up to 1.400 percent of the UK's GDP. German companies will benefit from the proposed merger through a better access to UK's financial capital. German savers might also benefit from a merger between Frankfurt and London by having access to a large, diversified and liquid stock market. Although German savers preferred investing in highly liquid bank deposits in the past, they could improve their savings decisions in the current low interest rate environment by holding a higher fraction of their wealth in form of a well-diversified stock portfolio which yields a higher expected return compared to deposits, while also being highly liquid.

Zusammenfassung

Um Wohlstand und Wirtschaftswachstum zu erhalten, müssen Ersparnisse und Investitionen effizient zusammenfinden. Hierzu sind integrierte und hoch liquide Finanzmärkte vonnöten, die Unternehmen den Zugang zu Finanzinstrumenten und Investoren und Sparern eine effiziente Diversifikation ermöglichen. Liquide und stabile Finanzmärkte führen zu einer effizienten Preisfindung von Aktien, Anleihen, Devisen und Derivaten. Dieser Studie untersucht, inwieweit die vorgeschlagene Fusion der Deutschen Börse Group mit der London Stock Exchange Group zu einer Verbesserung der Bedingungen für Wohlstand und Wirtschaftswachstum beiträgt.

Traditionell ist die EU durch ein bank-basiertes Finanzsystem geprägt, bei dem sich die Kapitalmarktaktivität, z.B. die Emission von Aktien und Anleihen, auf die größten Unternehmen beschränkt. Während der globalen Finanzkrise und der Banken- und Staatsschuldenkrisen im Euroraum waren sogar profitable Unternehmen mit einem restriktiven Zugang zu Finanzierung konfrontiert als ihre Banken in Schieflage gerieten, während Unternehmen mit Zugang zu Kapitalmärkten weniger von der Krise betroffen waren. Eine Lehre daraus ist, dass die Unternehmensfinanzierung zusätzlich zur Finanzintermediation durch Banken durch einen verbesserten Kapitalmarktzugang profitieren wird. Tiefere und liquidere Kapitalmärkte werden Unternehmen den Zugang zu einer größeren Auswahl an günstigen Finanzierungsalternativen ermöglichen. So ist der Primärmarkt für börsennotierte Aktien eine wichtige Quelle für Kapital zur Finanzierung langfristiger Investitionsprojekte. Die vorgeschlagene Fusion wird die Tiefe und Liquidität des Aktienmarktes erhöhen und darüber Investoren anziehen. Denn eine hohe Liquidität senkt das Risiko für Investoren, indem sie dazu beiträgt, dass Orders immer zu attraktiven und unverzerrten Kursen ausgeführt werden können. Durch die Verbindung zu London können deutsche Unternehmen Zugang zu einer breiteren Investorenbasis erhalten.

Eine weitere Folge der Finanzkrise war die zunehmende Fragmentierung der europäischen Kapitalmärkte entlang nationaler Grenzen. Die grenzüberschreitende Kreditvergabe und die grenzüberschreitende Investitionen brachen ein. Der Aktionsplan der Europäischen Kommission für eine Kapitalmarktunion ist ein Schritt in die richtige Richtung. Denn die Wiederbelebung der Finanzmarktintegration sowie die Förderung von grenzüberschreitenden Investitionen und Vermögensbeteiligungen werden dringend benötigt. Die Fusion der Deutschen Börse Group mit der London Stock Exchange Group ist förderlich für die Unternehmen und dieses politische Projekt, denn sie würde der EU eine große und hochliquide Finanzmarktinfrastruktur schaffen, die verschiedene Länder umspannt. Dies würde dazu beitragen, das national fragmentiere System von Handel, Clearing und Verwahrung zu integrieren und konsolidieren. Die konsolidierte Einheit würde die Informationseffizienz der Kurse erhöhen und sie würde Investoren anziehen. Für die EU wäre dies vorteilhaft, denn dies würde die grenzüberschreitenden Vermögensbeteiligungen erhöhen, wodurch die Risikoteilung bei länderspezifischen Schocks verbessert würde.

Die britischen Haushalte besitzen Vermögenswerte in Höhe von 193 Prozent des britischen BIP in Pensionsfonds und Versicherungsverträgen, während die britischen Finanzunternehmen über finanzielle Vermögenswerte ich Höhe von 1.400 Prozent des britischen BIP verfügen. Deutsche Unternehmen werden von der vorgeschlagenen Fusion durch einen besseren Zugang zu britischem Finanzkapital profitieren. Die deutschen Sparer würden von einer Konsolidierung von Frankfurt und London durch den Zugang zu einem großen, stark diversifizierten und liquiden Aktienmarkt profitieren. Obwohl die deutschen Sparer traditionell hochliquiden Bankeinlagen präferieren, könnten ihre Sparentscheidungen im aktuellen Niedrigzinsumfeld von einer höheren Beteiligung an einem stark diversifizierten Aktienportfolio verbessert werden, da dieses eine höhere Rendite erwirtschaften und trotzdem sehr liquide sein würde.

1 Introduction

Economic prosperity and growth depend on the efficient matching of savings and investment. A prerequisite for this are integrated and highly liquid financial markets which provide access to a variety of financial instruments for the corporate sector and enable efficient risk diversification for investors and savers. Liquid and stable financial markets are needed in order to achieve an efficient price discovery for stocks, bonds, foreign exchange as well as for derivative contracts.

Deutsche Börse Group and London Stock Exchange Group intend a merger of equals. The merged entity would then be the world's biggest exchange operator by revenue and second-largest by market value (Bloomberg, 2016). In this study, we analyse the proposed merger of Deutsche Börse Group and London Stock Exchange Group in light of its contribution to improve these prerequisites for economic prosperity and growth.

Linking the financial centres Frankfurt and London fits well into the European Commission's vision of a European Capital Markets Union which aims at fostering capital market integration and at bringing the European bank-based financial system closer to a market-based financial system similar to the US-model (COM, 2015). The European Central Bank (ECB) defines a financial market as fully integrated if all potential market participants with the same relevant characteristics

- face a single set of rules when they decide to deal with financial instruments,
- have equal access to these financial instruments, and
- are treated equally when they are active in the market.

The ECB has interest in financial integration because financial integration fosters a smooth and balanced transmission of monetary policy through the Euro Area (ECB, 2016).

In the years following the global financial crisis of 2008 and in the wake of the banking and sovereign debt crisis in the Eurozone, EU capital market integration has stopped and reversed in the Eurozone. Companies' located in countries in the EU periphery suffered from the breakdown in cross-border lending and even viable companies experienced restrictive bank lending. The Commission's response to the funding shortage in the EU is to lessen the reliance on bank-finance by completing the EU's financial system with more market-based financing alternatives.

Economic theory describes financial development as an evolution towards a market-based financing system. Boot/Thakor (1997) propose that the financial system in a market economy is mainly bank-based in its infancy and it becomes more market-based when its level of sophistication grows. As companies become bigger and cause only standardized risks, their larger demand for capital can better be satisfied by issuing stocks or bonds to a larger base of financial investors, which describes mainly the US-model of corporate finance. A bank-based system can in principle also satisfy large companies' demand for debt capital, but it needs huge universal banks to provide companies with large-scale and longer term loans, which mainly describes the European financing model. While companies can fare well with a relationship-bank in good times, they face a restricted access to finance when their bank gets into distress. During the financial crisis companies with access to capital markets experienced less funding shortages when banks experienced distress.

Exchanges can contribute to financial integration, they improve the matching of savings and investment and they improve the financing of the economy by the creation of liquidity (Levine, 1991; Bencivenga et al., 1996; Demirgüç-Kunt/Levine, 1996). The need for liquidity arises from the investor's trade-off to delay consumption and to put his or her money into profitable, but illiquid longer term investments, which require a longer term commitment of the investors' savings. By investing into longer term and illiquid investments, the investor faces the risk of being forced to consume earlier, which forces him or her to interrupt the profitable investment at a possible loss (Diamond/Dybvig, 1983). Investors' demand for liquid assets arises from the risk of needing cash immediately and this liquidity preference lowers the investor's commitment to a long-term profitable investment. Exchanges can solve this problem by providing an infrastructure for issuing stocks or bonds in liquid markets (Demirgüç-Kunt/Levine, 1996). These liquid markets enable companies to allocate capital for a longer term in case of bonds or indefinitely in case of stocks, while liquid markets enable investors with a demand for cash to sell their stocks or bonds easily to other investors at attractive and undistorted prices. Thereby exchanges can increase investment because investors are more willing to engage in an investment if they know they can exit easily (Demirgüç-Kunt/Levine, 1996). By offering a liquid market for financial assets, exchanges improve the allocation of capital into its best uses. Through the creation of liquidity, investments become less risky from the investors' point of view. By providing liquidity, exchanges contribute to improving savings and investment and thereby economic growth.

Having global and borderless stock and bond markets is beneficial from an economic point of view. Global exchanges improve economic growth by shifting savings into higher return investments because they enable risk diversification. Because higher return investments are more risky for investors, exchanges help investors to lower their portfolio risk by enabling them to internationally diversify their portfolio and thereby reduce their risk. By enabling risk diversification, exchanges allow investors thereby to shift to higher return investments (Obstfeld, 1994).

Liquid exchanges are also beneficial because they provide information about companies' performance. By offering a liquid trading infrastructure, stock and bond markets increase investors' incentive to acquire information about firms in order to use this information to make money by trading with a less informed party (Kyle, 1985). Through the trading process, company information is incorporated into security prices (Glosten/Milgrom, 1987). In a liquid market, security prices should fully reflect all available information about the securities' fundamental values, which means that prices are informationally efficient. If investors are able to profit from acquiring information, they will be more likely to research and monitor firms and markets.

Stock markets might also impact economic growth by enhancing corporate control. In a more liquid stock market it would be more effective to tie manager compensation to the company's stock price (Demirgüç-Kunt/Levine, 1996). If the company's stock price rises, managers as well as owners benefit, so that managers have incentives to maximize firm value (Jensen/Murphy, 1990). By improving the matching of managers' and company owners' interests, stock markets can improve resource allocation and thereby economic growth.

The aim of this paper is to analyse how the proposed merger of Deutsche Börse Group and London Stock Exchange Group might help to improve resource allocation in the EU by providing the EU with a large and highly liquid financial market infrastructure. Therefore, we analyse the merger's impact on capital market integration, matching savings and investment as well as on

completing the EU's bank-based financial system with more market-based financing alternatives.

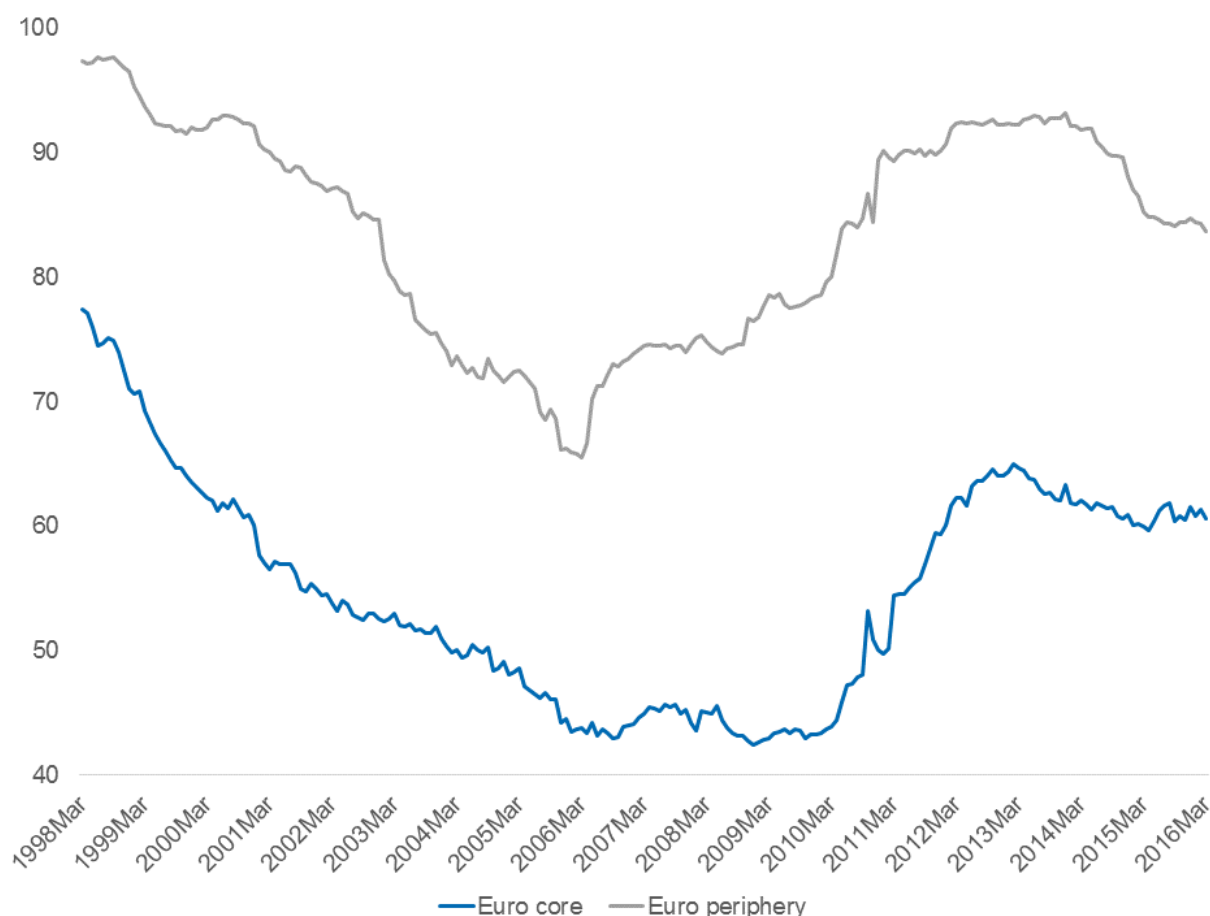
2 Fostering Capital Market Integration

If there are no cross-border frictions, capital will be allocated where it can be used best. Integrated capital markets help investors to diversify their portfolio and thereby reduce the portfolio risk of their investments. In addition to that, cross-border asset ownership improves risk sharing and the diversification of country-specific shocks.

The EU began to foster capital market integration first in 1957 with the Treaty of Rome. Since then a bulk of reforms, e.g. the Listing Particular Directive in 1980 or the introduction of the European Monetary Union with its single currency, followed. Despite of these reforms, financial integration is still incomplete in the EU and it reversed through the banking and sovereign debt crisis in the Eurozone. European capital markets, financial institutions and investors as well are still characterized by a strong home bias.

Figure 2-1: Home Bias in Bank's Balance Sheets

Domestic sovereign debt holdings in percent of total sovereign debt holdings, Euro-periphery: Greece, Ireland, Italy, Portugal, Spain, Euro-Core: Eurozone without Euro-periphery



Sources: European Central Bank, IW Köln

Because of a lack of information, ordinary savers often stick to the simplest forms of financial contracts like sight deposits and savings deposits and thereby give up higher returns on their savings. By holding a well-diversified stock portfolio representing the global stock market, savers could earn higher returns and insure themselves against sector-specific shocks and country-specific shocks. However, direct stock ownership among savers is very low in Germany not only for the lower-wealth households, but also for the higher-wealth households (Demary/Niehues, 2015). The lack of international diversification is commonly referred to as the equity home bias puzzle in international economics (French/Poterba, 1991). Its main reasons are regulatory constraints. Household can, however, reduce the home bias through investing in financial products of financial intermediaries, like banks, investment funds, pension funds and insurance corporations which have an easier access to global markets.

In the EU, this home bias is, however, not only found among ordinary savers, but also among professional investors, like banks. European banks are heavily exposed to their sovereign's debt; and they increased this concentration risk during crisis times (Figure 2-1).

Figure 2-2: Growing Target-Imbalances Indicate Growing Financial Disintegration

In bill. Euro, cross-country standards deviation of target-balances defined as square root of sum of squared country deviations from zero. Hence, zero line indicated no divergence

Sources: European Central Bank, IW Köln

The global financial crisis and the banking and sovereign debt crisis in the Eurozone revealed the weaknesses of bank finance when regulators and supervisor react sluggishly to the crisis. This can be seen from the US, which recovered much faster from the crisis compared to the EU because supervisors and regulators were very eager in recapitalizing banks, e.g. by introducing and executing the Troubled Asset Relief Programme. Moreover, the Federal Reserve Bank's Quantitative Easing (QE) seemed to work much more effective in the market-based US financial system compared to the less effective QE-programs of the ECB's and the Bank of Japan which have to work through an impaired banking system. More integrated and deeper capital markets would not only foster corporate finance and household savings, but it would also improve the conduct of monetary policy in the Eurozone.

The lack of capital market integration in the EU and especially in the Eurozone limits the ability of cross-border financial transactions to mutualize shocks. In the Eurozone capital market integration turned into capital market fragmentation along national borders. The consequence of this fragmentation is that companies funding position depends to a large degree of their home-countries' funding position, a problem that companies, which are able to issue stocks and bonds in global integrated markets, do not have. The lack of capital market integration in the EU can be best seen from the dispersion of the balances of the member countries within the Eurozone's payment system Target. Although this dispersion declined from 2012 to 2014, we can now observe a growing divergence again (figure 2-2).

The growing capital market divergence in the EU gives reasons to worry because it lowers the risk sharing capabilities through cross-border asset holdings, and because it also increases the risk of the emergence of financial bubbles. While the ECB's monetary policy is fostering the recovery of the Eurozone periphery countries, it is clearly too expansionary for Germany and bears the risk of distorting asset prices and fostering financial bubbles.

The European Commission's approach to revive financial market integration by fostering cross-border investment and cross-border asset holdings is a step in the right direction. A merger of Deutsche Börse Group and London Stock Exchange Group would be beneficial to this political project because it would provide the EU with a large and highly liquid financial market infrastructure which covers different countries. The merger would help to consolidate the fragmented system of exchanges, clearing systems and securities depositories. The consolidated system would foster the price discovery process towards less distortion and more informational efficiency, is would increase liquidity and thereby attract investors. Generating a larger investor base would be beneficial for the EU because it would increase cross-border asset holdings which would increase the risk-sharing in case of country-specific shocks.

3 Complementing the Bank-Based Financial System

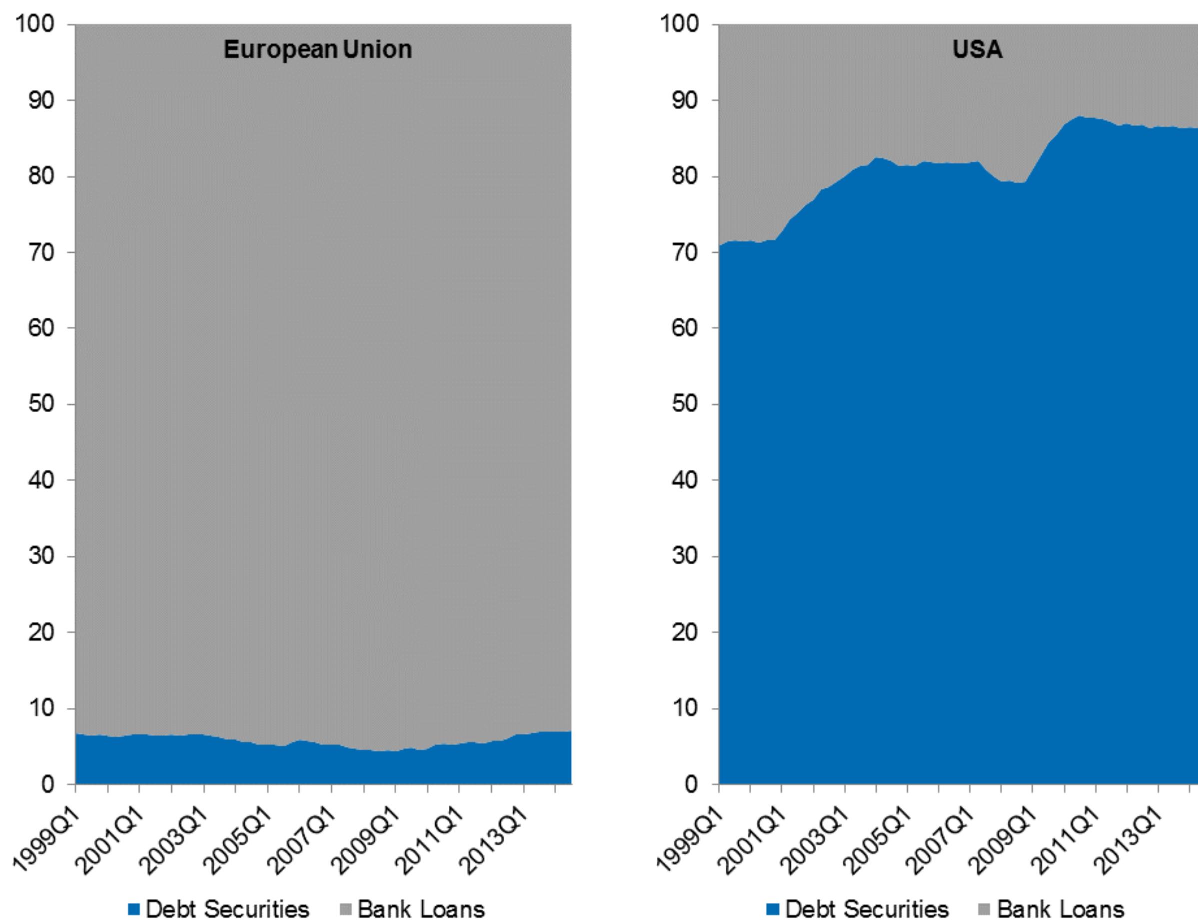
The EU member countries differ to a large extent in the depth of their capital markets. Moreover, the EU as a whole differs from the US in its financing system. While the US financial system is traditionally market-based, the European financial system is traditionally bank-based. Whether a financing system of a country is more bank-based or more market-based also depends on historic origins and financial development. The US, for example, had a separation of commercial banking and investment banking activities since the Glass-Steagall Act of 1933 which was loosened step-by-step until 1991, while bank-separation was re-introduced through the Dodd-Frank-

Act of 2009. The separation of bank activities hindered loan financing of large investment projects and made it necessary that companies issue capital market instruments to a wider investor base. While in a market-based financial system investment banks support corporates in the process of issuing equity and debt contracts, financial capital is supplied from a larger investor base including banks, insurance corporations, trusts and pension funds.

The European financing model of large investment projects needed large universal banks which covered commercial and investment banking activities. While 80 percent of corporate debt finance depends on capital markets in the US, in the EU 90 percent of corporate debt finance depends on bank loans. While this ratio is more or less stable over time in the EU, the US tends towards more market-finance through time (figure 3-1).

Figure 3-1: Non-Financial Corporations' Debt Financing Structure

In percent of total debt capital, total debt capital is the sum of debt securities and bank loans



Sources: European Central Bank, Federal Reserve Bank of St. Louis, IW Köln

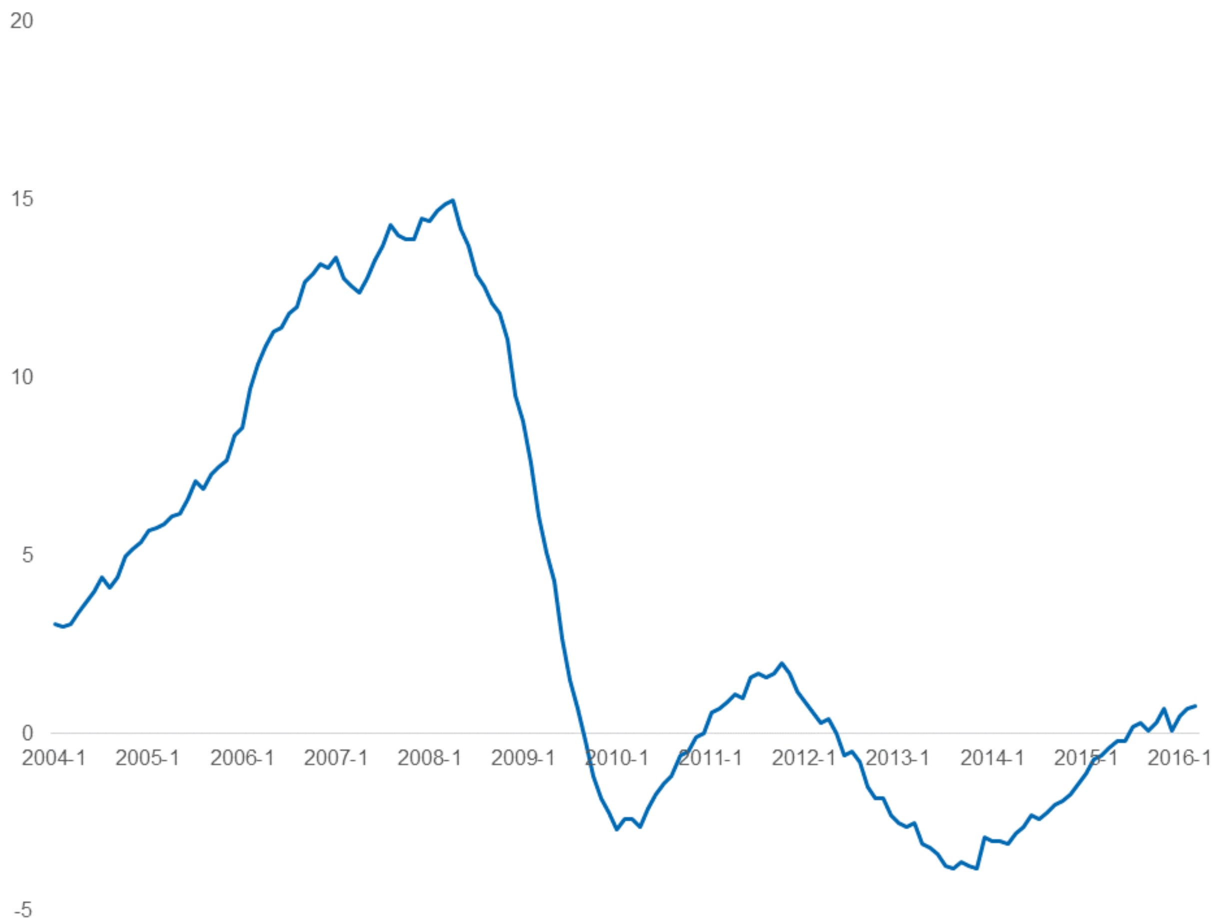
Although European companies rely to a large degree on bank finance, enriching the European finance model by deeper capital markets can be beneficial for companies. This can be deduced from the following crisis lessons:

- Gambetti/Musso (2012) found that the decline in bank lending explains approximately half of the crisis-induced decline in real GDP in the Eurozone and the US.

- Hempell/Sorensen (2010) find that through banks' restricted access to money markets during 2007 and 2009 bank lending to non-financial corporations declined. In addition to that, Demary (2015) finds that the dominant channel through which European banks increased their equity capital ratios was through cutting lending, while they invested heavily in sovereign bonds.
- Chava/Purnandam (2011) come to the conclusion that banks which were hit by the crisis cut their lending more compared to banks which were not hit by the crisis. Bentolila et al. (2013) identify that companies which were customers of distressed banks faced tougher credit restrictions compared to companies which were customers of non-distressed banks.
- Bofondi et al. (2013) find that non-financial corporations which relied mostly on bank credit suffered more from the financial crisis compared to corporations which also had access to alternative financing sources.

Figure 3-2: Loans to Non-Financial Corporations

Eurozone, year-on-year growth rates, in percent



Sources: European Central Bank, IW Köln

The process of deleveraging of banks is still unfinished. Banks in the periphery of the Eurozone are still in a process of balance-sheet-repair and reducing the large amount of non-performing loans is no easy task in times of slow economic growth (Demary, 2015). The process of slow loan growth might endure until the full implementation of the new capital requirements under

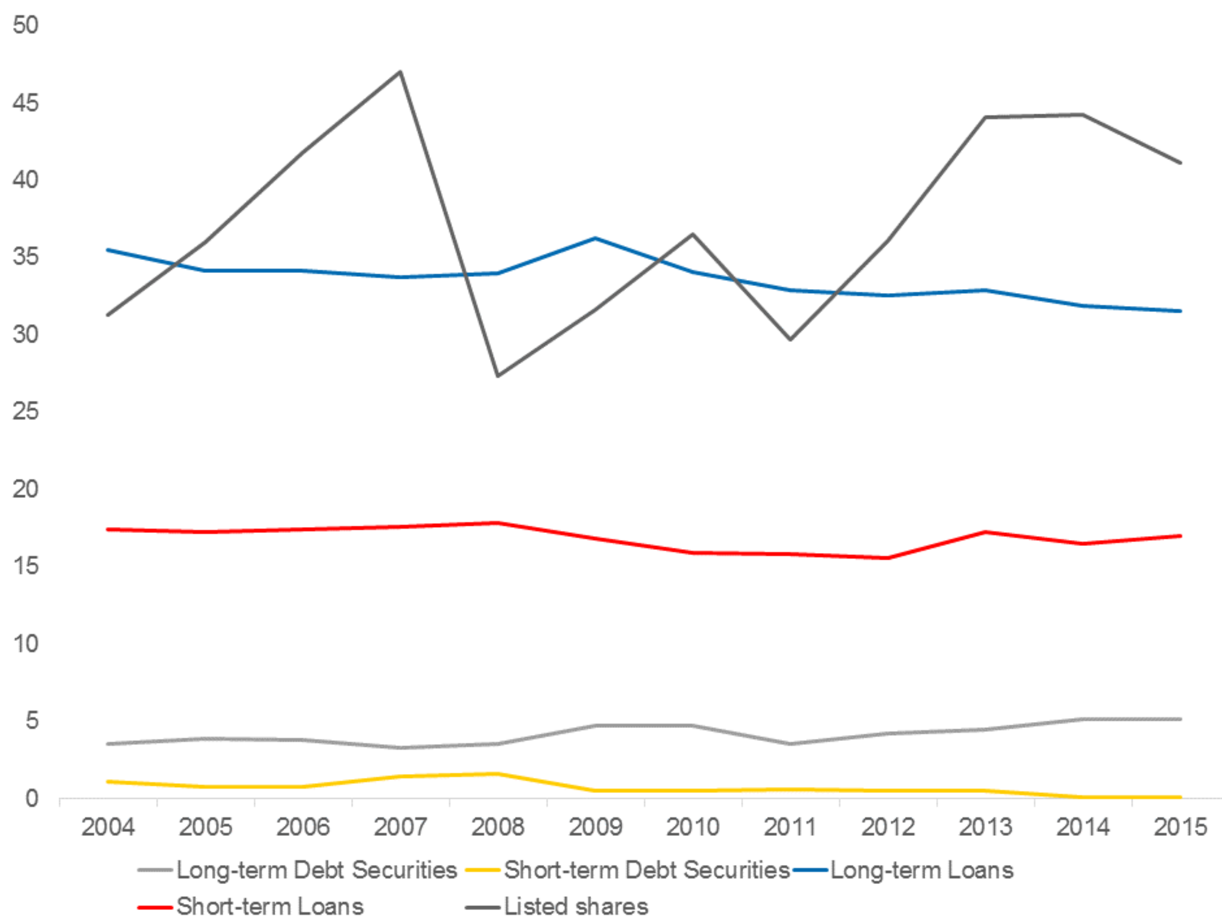
Basel III, because reducing risk-weighted assets is the easiest way for banks to reach the higher capital ratios. Therefore, one might expect that the slow loan growth will endure for quite some time (figure 3-2).

European non-financial corporations will be less prone to banking crises and credit crunches as long as they have access to a larger variety of financing sources including market-based finance. That means that non-financial corporations benefit from a better access to cross-border finance as well as from deeper and more liquid capital markets.

Although German companies rely more on bank financing than on issuing bonds, Germany has a deep stock market with listed shares of German companies making up 31 percent of GDP in 2004. Listed shares rose to 47 percent of GDP in 2007, but fell during the global financial crisis to 27 percent of GDP due to a decline in share prices. While share prices recovered from the crisis, German companies listed stocks now amount to 41 percent of GDP. Compared to listed stocks, long-term bank loans make up 32 percent of GDP. While German companies rely on banks predominantly for debt financing, they rely on capital markets for equity financing. Given these preferences of companies, a merger of Deutsche Börse Group and London Stock Exchange Group will provide German listed companies with a more liquid stock market which could improve stock issuance at lower cost and attract international investors (figure 3-3).

Figure 3-3: Liabilities and Listed Stock of German Non-Financial Corporations

In percent of GDP

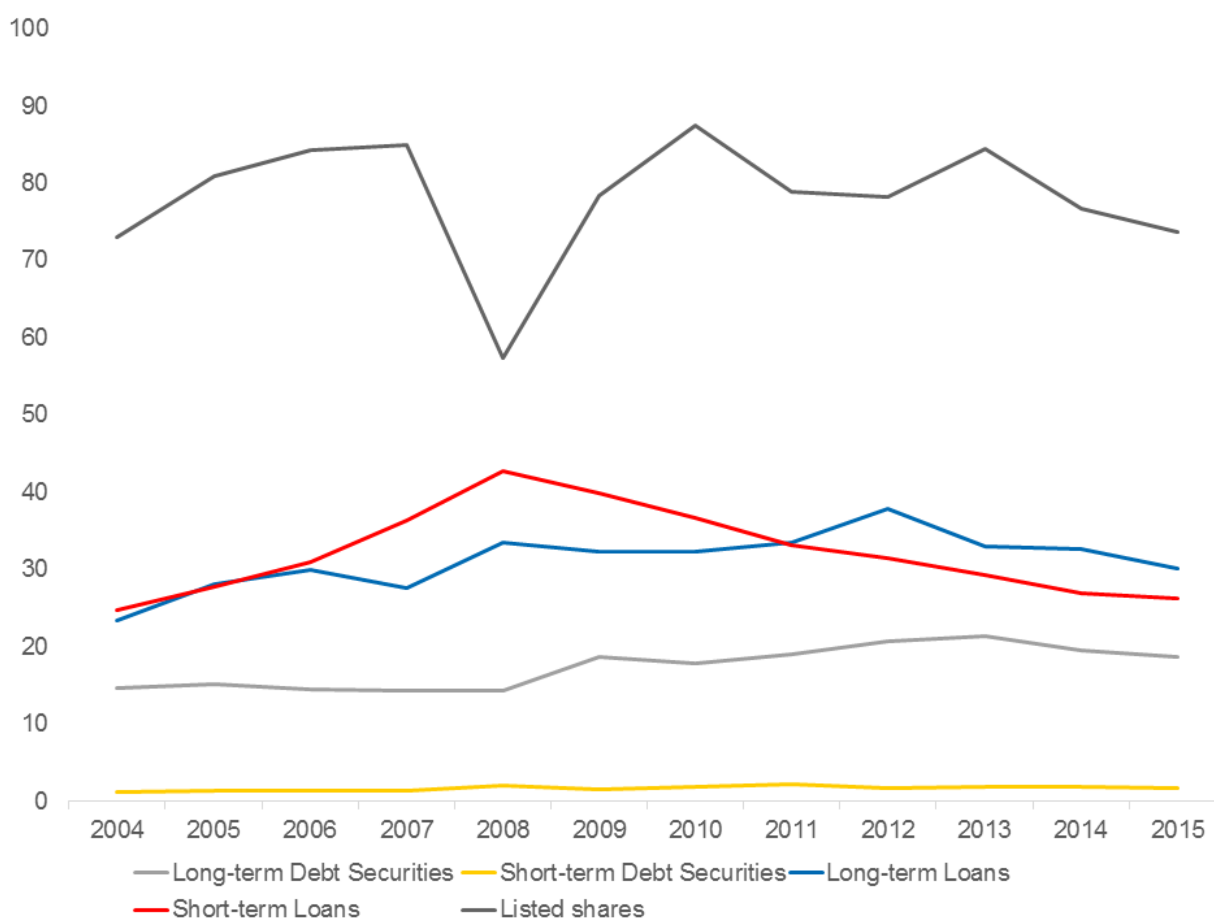


Sources: Eurostat, IW Köln

UK's non-financial companies rely much more on capital market instruments compared to German companies. Although long-term loans and short-term loans amount to 30.1 and 26.3 percent of UK's GDP, long-term debt securities make up 18.7 percent of GDP which is 13.6 percentage points higher compared to Germany. The stock market has also a large relevance for UK's firms. Listed stocks sum to 73.7 percent of GDP which is 32.6 percentage points higher compared to Germany (figure 3-4).

The primary market for listed stocks is a key source of long-term funding for large corporations, while smaller companies rely more on bank funding. The London Stock Exchange Group supplies infrastructure for the largest market for stocks issued by newly listed companies. But the fragmentation of issuance along national markets and the limited size of foreign listings suggest that primary issuance is still very much a national matter which is inconsistent with the creation of a pan-European market (Valiante, 2016). German growth companies with the intention for an initial public offering would benefit from the merger of Deutsche Börse and London Stock Exchange. Market-based financing might also become more attractive to small and medium-sized enterprises (SME) since London Stock Exchange brings with AIM the world's largest market for growth companies to the merged entity.

Figure 3-4: Liabilities and Listed Stock of UK Non-Financial Corporations
In percent of GDP



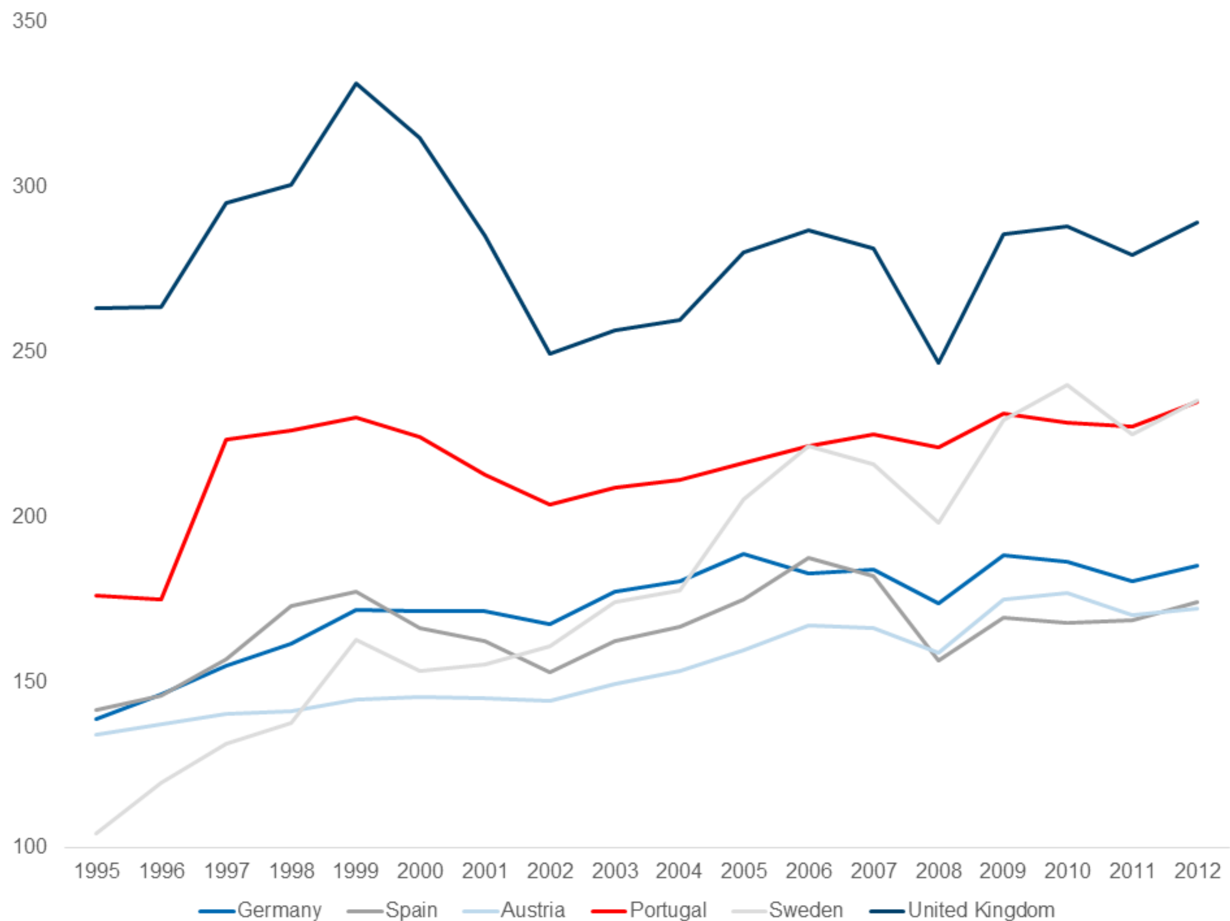
Sources: Eurostat, IW Köln

4 Matching Savings and Investment

Leading households' savings into productive investments is an important function of financial markets. But only a small part of ordinary savers' financial assets are directly invested in the market through stock and bond ownership. Households' financial assets are predominantly allocated in cash and deposit holdings at banks or in pension funds and insurance policies. Instead of the household themselves, financial intermediaries invest for them in capital markets. Households profit from the intermediaries' financial expertise and their access to global financial markets. Through their holdings of mutual funds or by putting savings to pension funds or an insurance corporation, households are able to hold diversified stock or bond portfolios without holding the assets directly. Moreover, through the ownership of funds or insurances households do not need to adjust their portfolio directly, but the can rely on the financial expertise of professional asset managers. In addition to that, there is also the possibility to invest in passively managed funds which track the growth of an index.

Figure 4-1: Households' Financial Assets

In percent of GDP



Sources: Eurostat, IW Köln

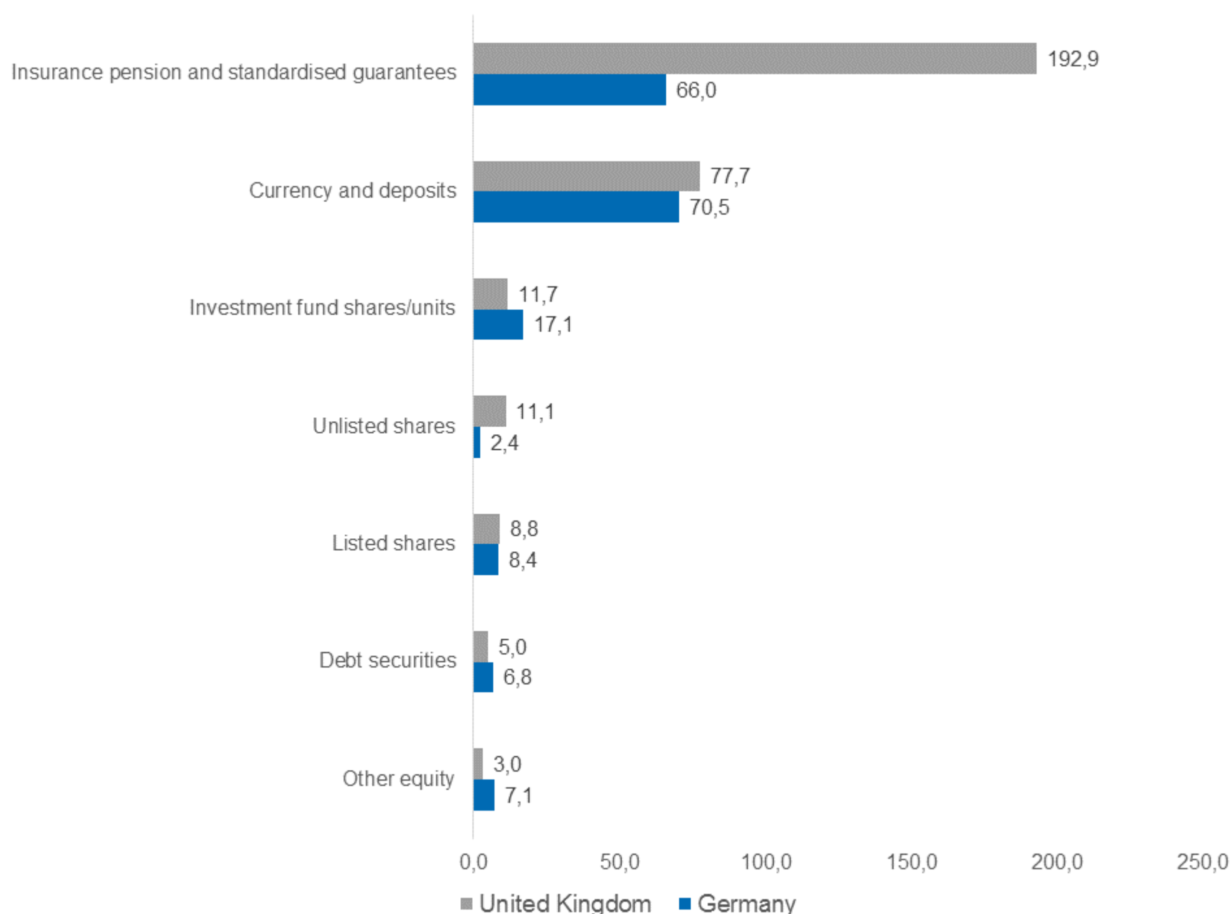
German households' financial assets have grown at a steady pace from 138.7 percent of the German GDP in 1995 to 185.2 percent of GDP in 2012. Although the German savings rate is high by international comparisons, households' financial assets are in the medium range. This result might be driven by households' risk-aversion and their preference for low-yield bank de-

posits. Households in Portugal, for example, hold much more financial asset, which increased from 176.5 percent of GDP in 1995 to 235.1 percent of GDP in 2012. But the highest amount of households' financial assets in the EU can be found in the UK's household sector. Financial assets grew in the UK from 263.5 percent of GDP to 289.5 percent of GDP. In comparison to Germany, the UK's households' financial assets are more volatile. While they grew from 263.5 percent of GDP in 1995 to 331.5 percent of GDP in 1999, they fell to 249.5 percent of GDP in 2002. When we abstract from the financial crisis in 2008, the UK's households' financial assets have grown at a much more stable pace since then (figure 4-1).

German and UK households do not differ much in their direct asset holdings. Households' wealth allocated in listed shares amount of 8.8 percent of GDP in the UK and 8.4 percent of GDP in Germany. Differences are also negligible for direct bond holdings. Those amount to 5.0 percent of GDP in UK and to 6.8 percent in Germany. While UK households hold more unlisted shares (11.1 percent of GDP vs. 2.4 percent of GDP in Germany), German households hold more investment fund shares instead (17.1 percent of GDP vs. 11.7 percent of GDP in UK). Some, but not too large, differences can also be seen from currency holdings. These sum to 70.5 percent of GDP in Germany and 77.7 percent of GDP in UK (figure 4-2).

Figure 4-2: Households' Portfolio Allocation

In percent of GDP, 2012



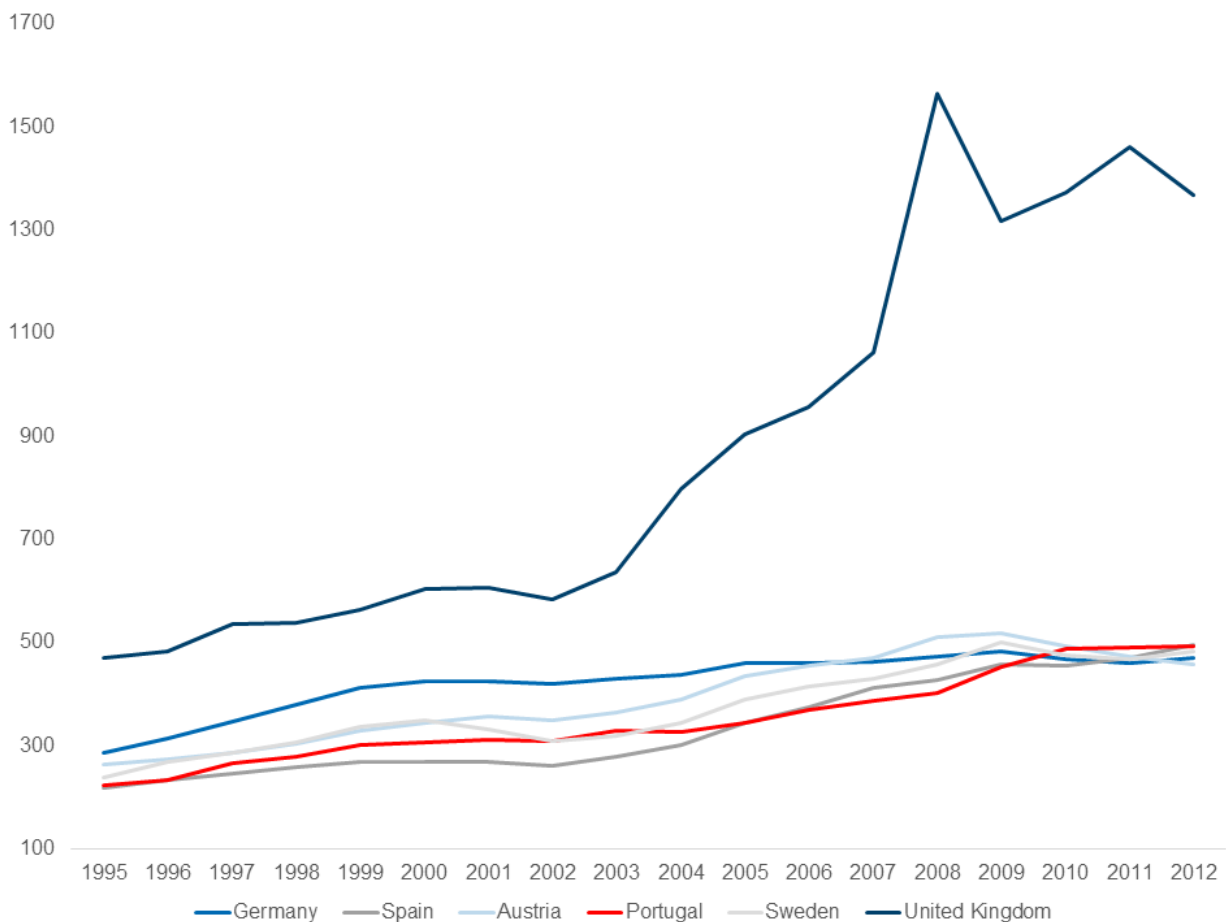
Sources: Eurostat, IW Köln

The major differences between the financial asset holdings of German and UK private households can be seen from insurance, pension and standardized guarantee schemes. While those amount to 66.0 percent of GDP in Germany, they amount to 192.9 percent of GDP in UK. Most UK household wealth in held in the form of housing and pensions with a shift from housing to pensions over time. This shift is largely driven by the tax-treatment of pensions making them more attractive for savers (Banks/Smith, 2014). There is a large amount of financial assets in UK hold through financial intermediaries which can be invested abroad (figure 4-2). For German companies yearly investments in Industry 4.0 solutions up to 40 Bill. Euro are expected (PwC, 2014). Having better access to the UK's financial capital would foster the investment in these new technologies at lower costs.

The amount of financial assets of UK financial companies deviates clearly from those of the financial companies in other EU countries and they are growing at a faster pace. While the financial assets of financial companies in Germany, Spain, Austria, Portugal and Sweden were between 218 and 287 percent of GDP in 1995 and grew to a range between 547 to 495 percent of GDP, UK's financial companies' financial assets were 469 percent of GDP in 1995 and grew to near to 1370 percent of the UK GDP in 2012 (figure 4-3).

Figure 4-3: Financial Companies' Financial Assets

In percent of GDP



Sources: Eurostat, IW Köln

From these numbers can be inferred that German companies might benefit from a merger of Deutsche Börse Group and London Stock Exchange Group, because the merger will be a bridge to the UK's financial capital which can be used by German firms to finance investments. German savers might also benefit from a merger between Frankfurt and London by having access to a diversified and liquid stock market. Although German savers have preferred investing in highly liquid deposits in the past, they could improve their savings decisions by holding a higher fraction of wealth in stocks which yield a higher expected return compared to deposits and which are also highly liquid. Since the low interest rate environment is expected to last for a longer time period, savers might prefer to demand financial instruments with a higher return without engaging in too much risk. A well-diversified stock portfolio might be attractive for savers with a long investment horizon. Its risk would be manageable as long as savers could easily sell their shares in liquid markets. From the viewpoint of allocating savings, the proposed merger of Deutsche Börse Group and London Stock Exchange Group would also be beneficial for savers.

5 Conclusion and Outlook

Economic prosperity and growth depend on the efficient matching of savings and investment. A prerequisite for this are integrated and highly liquid financial markets which provide access to a variety of financial instruments for the corporate sector and enable efficient risk diversification for investors and savers. Liquid and stable financial markets are needed in order to achieve an efficient price discovery for stocks, bonds, foreign exchange as well as for derivative contracts. In this study, we analysed the proposed merger of Deutsche Börse Group and London Stock Exchange Group in light of its contribution to improve these prerequisites for economic prosperity and growth.

The EU is traditionally characterized by a bank-based financial system with capital market activity, like stock and bond issuance, concentrating only on its largest corporations. During the global financial crisis and the banking and sovereign debt crisis in the Eurozone even very profitable companies suffered from a restrictive access to finance when their banks got into distress, while companies which had access to capital markets were less affected by the crises. A crisis lesson was that companies need better access to capital markets in addition to the financial intermediation through banks. Enhancing the depth and liquidity of capital markets would provide companies with a larger pool of financing options. The primary market for listed stocks is an important source of capital for financing long-term investment projects. The proposed merger will increase the liquidity of the stock market and thereby attract investors. Investments become less risky for investors when liquidity is high because liquidity ensures that orders can always be executed at attractive and undistorted prices. Moreover, a larger and more liquid stock market with access to UK's financial capital will be beneficial for German companies through an easier access to a larger international investor base.

A second consequence of the financial crisis was that European capital markets became fragmented along national lines. Cross-border bank lending and investment broke down. The European Commission's action plan for a Capital Markets Union is a step in the right direction. Reviving financial market integration, fostering cross-border investment and cross-border asset holdings is urgently needed. A merger of Deutsche Börse Group and London Stock Exchange Group would be beneficial to EU companies and to this political project because it would provide the EU with a large and highly liquid financial market infrastructure which covers different

countries. The merger would help to consolidate the nationally fragmented system of stock exchanges, clearing systems and securities depositories. The consolidated system would foster the price discovery process towards more informational efficiency, is would increase liquidity and thereby attract international investors. Increasing the investor base would be beneficial for the EU because it would increase cross-border asset holdings and thereby foster risk-sharing in case of country-specific shocks.

The UK households hold financial assets in the amount of 192.9 percent of the UK's GDP, while UK financial companies hold assets summing up to 1.400 percent of the UK's GDP. German companies will benefit from the proposed merger through a better access to UK's financial capital. German savers might also benefit from a bridge between Frankfurt and London by having access to a larger, more diversified and more liquid stock market. Although German savers preferred investing in highly liquid bank deposits in the past, they could improve their savings decisions in the current low interest rate environment by holding a higher fraction of their wealth in form of a well-diversified stock portfolio which yields a higher expected return compared to deposits while also being highly liquid.

All in all, it can be concluded that the merger would be beneficial for European companies and households. Moreover, the merger underlines the European Commission's action plan towards a Capital Markets Union because the merger contributes to financial integration by providing the EU with a large and liquid financial market infrastructure.

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