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IMF STAFF DISCUSSION NOTE

A Capital Market Union for Europe

Luiza Antoun de Almeida, Wolfgang Bergthaler, Cristina Cuervo, Jose Garrido, Srobona Mitra, André Oliveira Santos, and Anke Weber

Background Notes for SDN/19/07

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A Capital Market Union for Europe—Background Notes

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NOTE 1. PRIVATE PENSION SCHEMES IN THE EU[1]

A. Introduction

1. The European Commission (EC) has long highlighted the importance of retail savings held through institutional investors, such as life insurance companies and pension funds, as key to unlocking capital markets (EC 2015). These are long-term investors matching cash flows from long-term projects to long-term liabilities such as pension liabilities. However, it indicated that life insurance companies and pension funds have reduced their exposure to long-term projects and companies from 25 percent of EU stock market capitalization at end-1992 to 8 percent at end-2012, restricting their portfolio to a few assets. As a result, the EC has championed the development of collective and individual private pension schemes to supplement public pensions schemes. It has supported policy measures to encourage and remove obstacles to the expansion of individual private pension schemes in Europe. It has also called the European Union to encourage the expansion of institutional investors' exposure to long-term assets and SMEs while maintaining sound and prudent asset-liability management.

2. This background note provides an overview of European private pension schemes. Section B briefly summarizes key characteristics of private pension schemes. Section C discusses main issues facing European private pension schemes, including size, structure, asset allocations, home bias, and portability. Section D focuses on key policy initiatives at the European level that address the low development of private pension schemes, the home bias in asset allocations, and the low portability of pension schemes across Member States. It also provides recommendations to improve central elements in the policy initiatives.

3. Several policy priorities emerge from this note. In particular, the note recommends that the overall costs be lowered in the proposed Pan-European personal pension scheme and align its taxes to national pension schemes. The note also encourages Member States to broaden the scope of the fit and proper standards to all board members in pension funds and to require a minimum level of annuitization for all employees.

B. European Pension Schemes

4. Pension schemes can be public or private.[2] Pension schemes (or plans, as they are known in the US) are legally binding contracts with a retirement objective. They are included in employment contracts, defined in pension scheme rules, or required by law, with a mandatory or voluntary participation of employers and/or employees. In the case of public pension schemes, governments underwrite pension contracts and often manage the contributions, assets, and benefits. One example of public pension schemes is the mandatory state-based social security

[1] Prepared by André Oliveira Santos of the IMF's European Department. The author thanks, without implicating, colleagues in IMF's Fiscal Affairs Department for detailed comments on the note.

[2] The characterization of pension schemes in this section is based on Impavido (2013).

systems in Europe that provide earnings-related pension benefits to a large fraction of the population. On the other hand, private pension schemes are underwritten by employers and managed by pension funds, insurance companies, banks, asset management companies for investment funds, or employers. They include both the mandatory and voluntary occupational and personal pension schemes and have a more restricted coverage of the population, with the occupational pension schemes established by single employers or industry associations, while the personal pension schemes are offered by financial institutions to individuals.

5. Private pension schemes may be based on defined benefits or defined contributions. In most advanced economies, defined benefit (DB) pension schemes seek to insure against longevity risk (Impavido 2013)—the risk of living longer than expected and running out of assets—by providing employees with an equivalent lifetime annuity related to a pensionable salary, an accrual factor, and the number of years of contributions. On the other hand, defined contribution (DC) pension schemes only provide employees with a cash balance at retirement based on the contributions to the scheme and the rate of return on invested assets. As long as cash balances are not converted into a lifetime annuity, DC schemes do not provide insurance against longevity risk. Investment and longevity risks are borne by members in DC schemes while they are borne by sponsors in DB schemes. DC pension schemes are fully funded if the value of assets is equivalent to the present value of the benefits. In the case of DB pension schemes, if the value of the assets is lower than the present value of the benefits, they are considered partially funded. To restore the solvency of DB schemes, additional contributions from employers and employees may be required, or benefits may have to be reduced.

6. While accumulated assets in personal pension schemes are associated with individual accounts, the protection of employees' rights over the accumulated assets in occupational pension schemes depends on the underlying legal and financial structures. For instance, pension funds are financial vehicles pooling retirement savings (employee and employer contributions and investment income), investing them, and paying benefits after retirement. They can be autonomous from sponsoring employers, with their assets segregated from the sponsors' balance sheets providing protection against the sponsors' bankruptcy while employees have a legal right over the assets. Non-autonomous pension schemes are not segregated, staying on sponsors' balance sheets as book reserves. Employees have no immediate legal rights over the assets and are not protected against the sponsors' bankruptcy. An intermediary protection mechanism against the sponsors' bankruptcy is the direct sale of pension products by insurance companies to employers or employees where assets remain on the insurance companies' balance sheets but are usually required to be separated from other assets and liabilities associated with other insurance activities.

7. Regulation and supervision of private pension schemes is motivated by the increasing importance of private pension schemes in providing retirement income and the need to address the embedded risks for policy holders. A major crisis in private pension schemes may have a strong impact on poverty at old age, potentially leading to public intervention with budgetary assistance (Rocha, Hinz, and Gutierrez 1999). Moreover, fiscal authorities have a stake in well-functioning private pension schemes given that these are encouraged with guarantees and

preferred-tax treatment to contributions and investment income. Finally, regulation and supervision need to address risks embedded in pension schemes, including: (i) investment risk, consisting of diversifiable and market risks; (ii) agency risk, associated with misalignment of interests between pension managers and employees; and (iii) systemic risk, arising from the pension fund industry's interconnectedness with the economy and other financial sector players. Regulations addressing these risks include rules on licensing, governance, asset segregation, information disclosure, investment, independent custodian, external audit and actuary, and cost and fees. Consumer protection is usually included in specific provisions of the pension legislation, with its goal of protecting the rights and interests of employees and pensioners.

C. Main Issues

Structure and Size

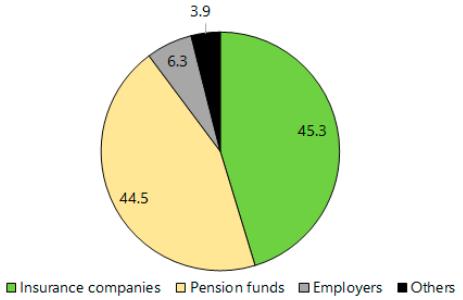
8. The European pension industry is diverse, with different financial institutions providing and managing pension schemes (Figure 1). Most pension schemes are provided by insurance companies (44 percent of assets under management) and pension funds (43 percent) while some employers keep pension schemes on their balance sheets as book reserves (7 percent). Other financial institutions, including banks and investment funds, are also providers but have a lower market share. Most European pension schemes are occupational—or workplace pension schemes—and based on DB, though personal pension schemes based on DCs have been gaining importance, especially in the Czech Republic, Hungary, Italy, Poland, Portugal, Spain, and the UK. US pension schemes are mostly occupational but based on DCs, though most local and state occupational pension schemes rely on DCs.

9. Moreover, the different types of financial intermediaries selling private pensions are under different EU or national laws, and regulatory and supervisory frameworks, with implications for the regulation of pension schemes. For instance, pension schemes managed by pension funds are regulated under the Institutions for Occupational Retirement Provision (IORP-II) Directive, pension schemes by insurers under the Solvency-II Directive, pension schemes by banks under the Capital Requirements Directive (CRD-V), and pension schemes by assets managers according to the Undertakings for Collective Investment in Transferable Securities (UCITS-V) Directive (Financial Stability Board Regional Consultative Group 2017). Reflecting these regulatory arrangements, European pension schemes are also supervised by different authorities, including financial services agencies, pension agencies, central banks, and ministry of finance.

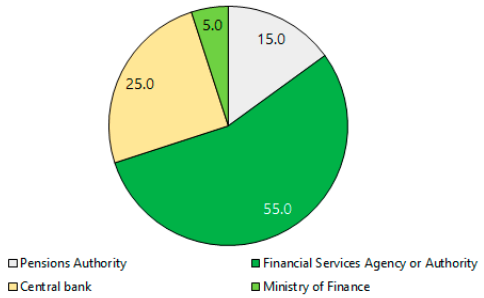
10. Pension fund assets are smaller than in the US. The largest European funded and private pension schemes are located in Denmark, Iceland, United Kingdom. Excluding in Denmark, the Netherlands, and Iceland, assets under management in European funded and private pension schemes accounted for 41 percent of GDP on average in 2017 while assets under management in US funded and private pension schemes represented 145 percent of GDP.

Figure 1. Private Pension Schemes in Europe and the United States

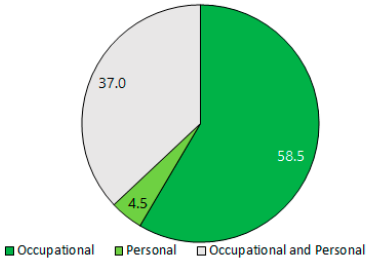
EU: Assets under Management by Private Pension Provider, 2014 (in percent)



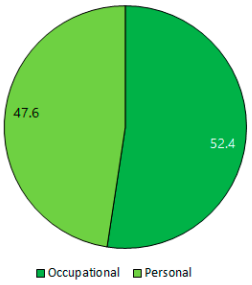
EU: Regulatory and Supervisory Authorities (in percent)



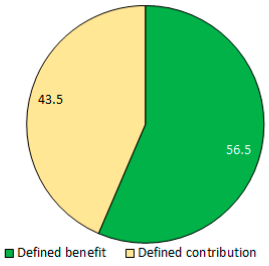
EU: Assets under Management in Occupational and Personal Pension Schemes, 2014 (in percent) 1/



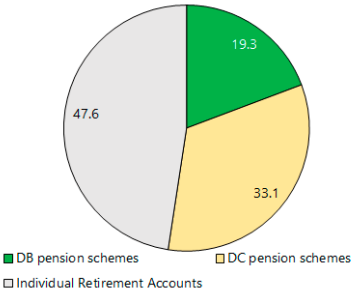
US: Assets under Management in Occupational and Personal Pension Schemes, 2016 (in percent)



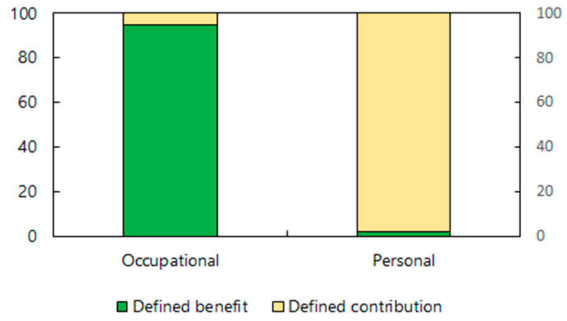
EU: Assets under Management in Defined Benefit and Contribution Pension Schemes, 2014 (in percent) 1/



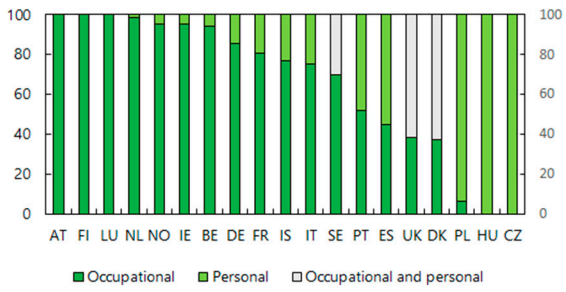
US: Assets under Management in Defined Benefit and Contribution Pension Schemes, 2016 (in percent)



EU: Assets under Management in Defined Benefit and Contribution Pension Schemes, by Type of Pension Scheme, 2014 (in percent) 1/



EU: Assets under Management in Occupation and Personal Pension Schemes, by Member State, 2014 (in percent) 1/



Source: European Insurance and Occupational Pensions Authority (EIOPA), Financial Stability Board Regional Consultative Group (2017), Munnell, Belbase, and Sanzenbacher (2018), Oxera (2013), and US Department of Labor.
1/ Based on data by the Financial Stability Board Regional Consultative Group (2017), complemented with data for Germany in 2013 by Oxera (2013).

11. The size of the pension funds industry depends upon the existence of mandatory state-based social security systems (Figure 2). When mandatory system is the main source of retirement income, assets under management in the occupational and personal pension schemes are usually low. Assets under management in funded and private pension schemes in countries such as Denmark, Iceland, the Netherlands, and Norway with universal basic pensions—in which high wage earners are entitled to a lower percentage of their pre-retirement income paid out upon retirement (or low gross replacement rates)—and in countries such as Ireland, the United Kingdom, Canada, and the United States with strong voluntary personal pension schemes, represent a large percentage of GDP.

12. Tax incentives and mandatory participation play a role in encouraging private pension schemes. Most European countries use some variation of the Exempt-Exempt-Taxed (EET) tax regime to the occupational and personal pension schemes in which contributions and investment income are exempted from taxation but not the benefits. The Netherlands, the US, the UK, and Canada with large funded and private pension fund schemes, provide employees with tax advantages, especially for high wage earners. Moreover, the working-age population coverage is high where participation in funded and private pension schemes is mandatory. Starting from a low level, the coverage rate in the UK has increased since end-2012 with the introduction of the compulsory automatic enrollment of employees in a pension scheme by employers. In the case of Germany, the automatic enrollment was introduced in 2018 for occupational DC pension schemes.

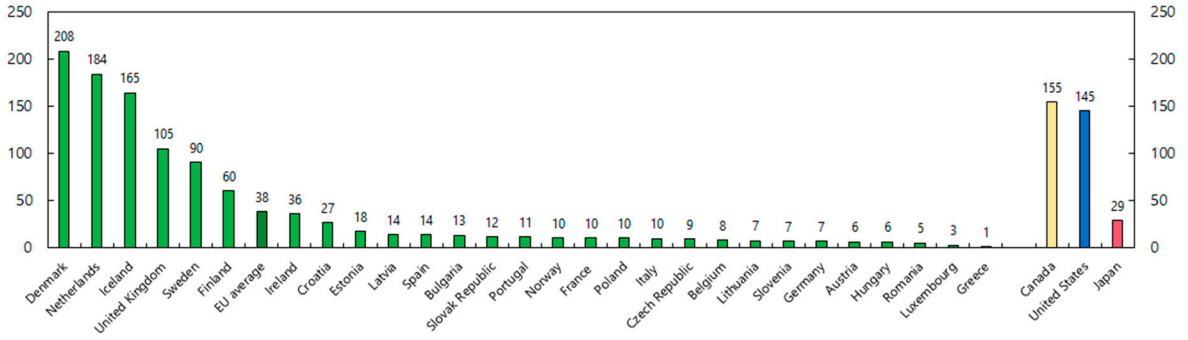
Asset allocations and home bias

13. Asset allocations and prudential limits for occupational pension funds vary across member states (Figure 3). The IORP-II Directive allows member states to lay down detailed investment rules. National prudential regulations often set asset class-investment limits according to the type of pension fund and the financial instrument's liquidity, listing requirements, issuer, etc., with most member states having low asset class-investment limits for traded securities issued by OECD countries.

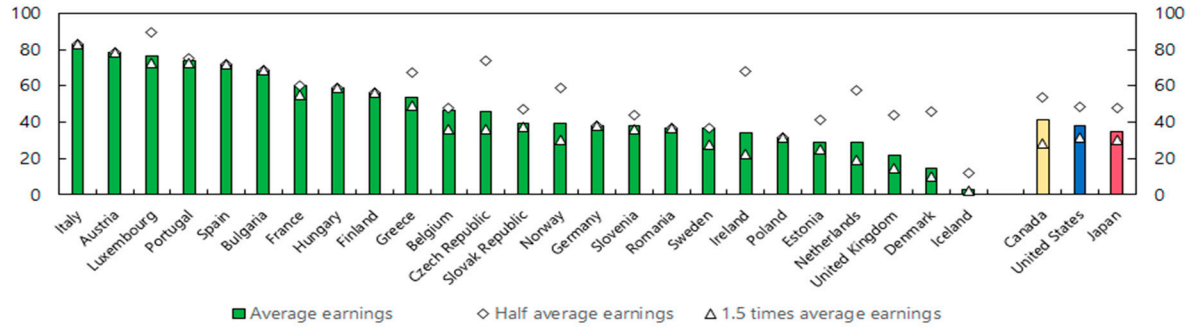
14. Moreover, DC pension funds allocate a larger percentage of total assets to equity while DB pension funds assign a larger weight to bonds. Overall, asset allocations in European occupational pension funds have been stable with equity and debt representing 76 percent of the assets under management on average since 2010. While there is an increasing preference for bonds over equity, the share of equity in the assets under management remains high at 31 percent on average since 2010, with a wide dispersion across member states. DB pension funds' higher asset allocation to bonds could be the result of liability-matching strategies—alike life-cycling strategies—in which pension funds rebalance their portfolio holdings over time to increase the weight of fixed-income securities as the average age of employees increases (FSB Regional Consultative Group 2017). Finally, DB pension schemes have increased their asset allocation to non-traditional asset classes such as real estate, private equity, and hedge funds in search for higher yields.

Figure 2. Public and Private Pension Indicators in Europe and in Other Jurisdictions

Assets under Management in European, Canadian, Japanese, and US Funded and Private Pension Schemes, 2017
(In percent of GDP)



Gross Pension Replacement Rates in Mandatory Public Pension Schemes
(In percent of individual earnings)



Present Value of Taxes Saved over a Lifetime as Tax Incentives, by Income Level
(In percent of the present value of contributions)

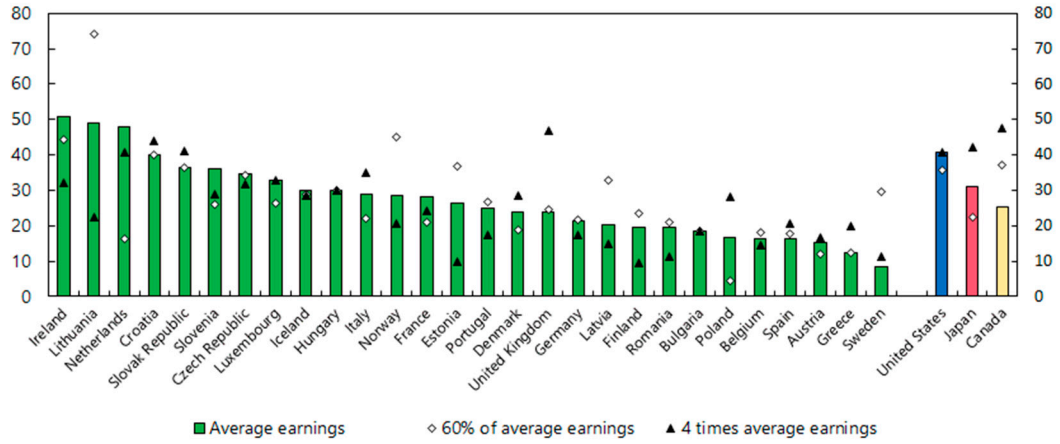
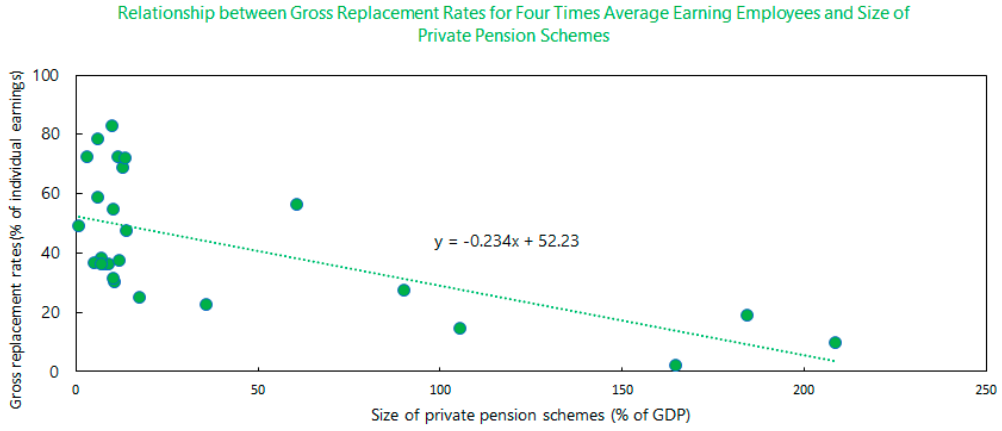
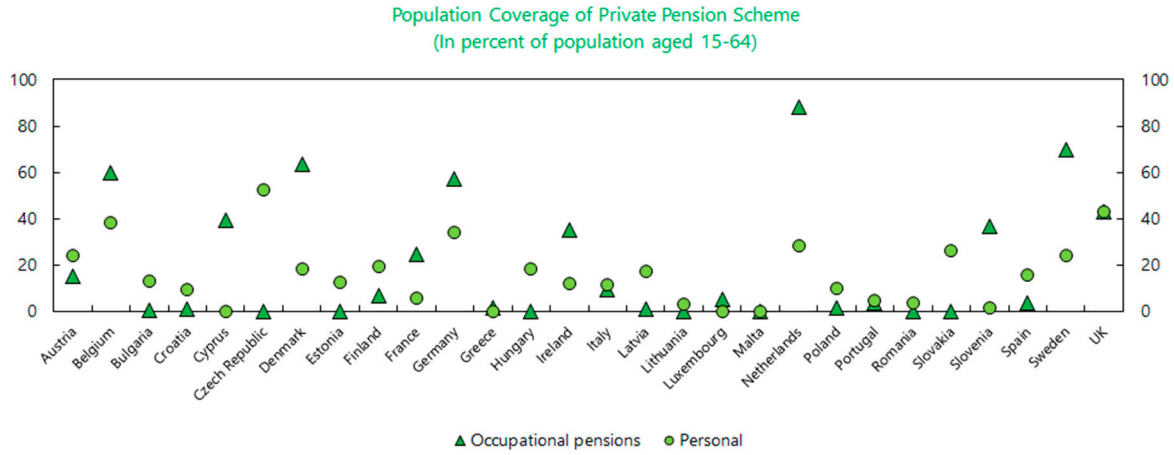
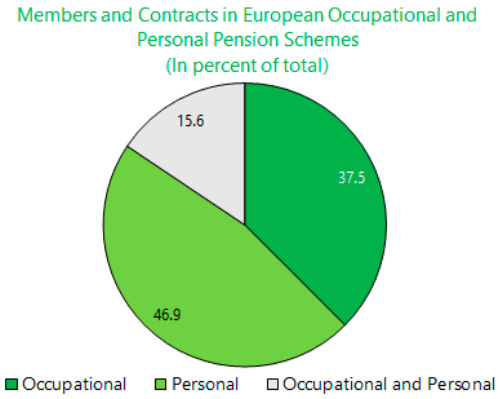


Figure 2. Public and Private Pension Indicators in Europe and in Other Jurisdictions (concluded)





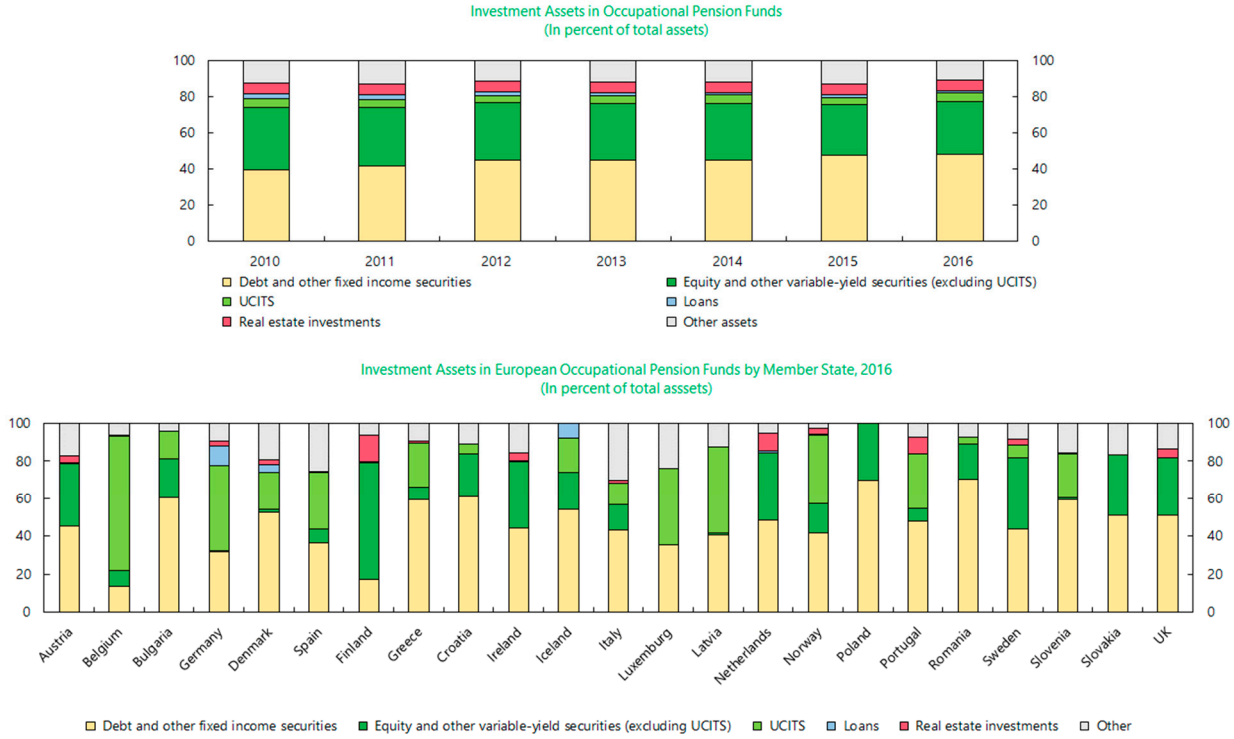


1/ Data on PERCO plans for 2017 come from the French Asset Management Association (AFG) and refer to end 2017. Data on pension insurance contracts for 2017 refer to 2016 instead.
2/ Net technical provisions are taken as a proxy of pension assets in book reserves.
Source: European Commission (2018), Financial Stability Board Regional Consultative Group (2017), OECD (2017), OECD (2018a), and OECD (2018b).

15. The home bias persists in asset allocations in European pension schemes (Figure 4). The extent of home bias in pension schemes may be related to economic and non-economic factors

such as openness to trade, economic development, institutional quality, investor protection, depth of capital markets, and available securities (Darvas and Schoenmaker 2017). Overall, asset allocations in European occupational pension schemes have increasingly favored domestic bonds and equities over foreign assets. Except in Belgian DB pension schemes, the domestic equity asset allocations in member states are higher than the share of their listed domestic companies in the world capitalization. However, the home bias is not unique to European pension funds. State pension funds in the United States also display local-bias where they overweight in-state equity holdings and underweight out-state equity holdings in their portfolio in detriment to their overall performance (Brown, Pollet, and Weibernner 2015, Bradley, Pantzalis, and Yuan 2016, and DiSalvo 2018).

Figure 3. Asset Composition in European Occupational Pension Schemes

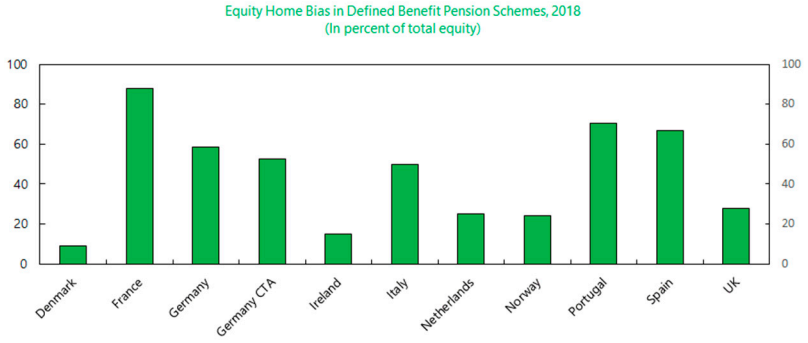


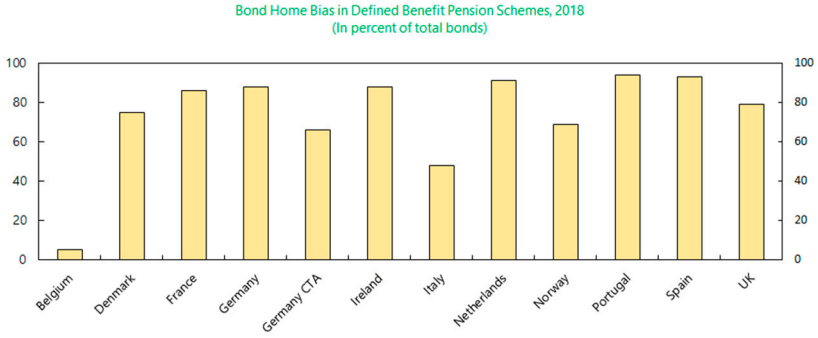
Sources: EIOPA, Mercer European Asset Allocation Survey 2018, World Bank, IMF staff estimates.

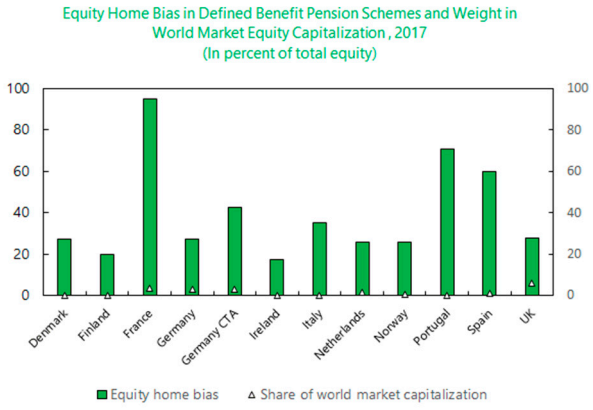
16. Regulatory, taxation, and institutional factors may play a role in the home bias (Figure 4). Prudential foreign asset limits have been lifted for cross-border investments within Europe, but they are still important for ex-EU investments by pension funds. Different tax regimes across Europe hinders pension funds' cross-border asset allocations, contributing to the home bias. Finally, the home bias in asset allocations by DB pension schemes may also be related to board governance. Recent research has found that the home bias is smaller for member states with larger pension funds where the board and staff are professional (Darvas and Schoenmaker 2017). This is consistent with explanations for the home bias based on information asymmetries and behavioral biases (Sercu and Vanpee 2012).

17. Withholding taxes are costly for cross-border investments of pension funds. The non-mutual recognition of the pension fund status across member states make them subject to withholding taxes on their cross-border investments while national pension funds are tax-exempted. To avoid withholding taxes, pension funds invest through tax-exempted but costly financial instruments (PensionsEurope 2016). This represents a cost to nonresident pension funds. As they are often tax exempted in their home member state, the tax credit arising from the withholding tax levied by other member states cannot be used to reduce any tax liability in their home member state (KPMG 2018).

Figure 4. Home Bias in European Occupational Pension Schemes







Breakdown of US State Pension Scheme Stock Holdings by In-State and Out-of-State Investments, 1980Q1-2008Q3

(In percent)

	Average weight in holdings	Average weight in market
In-State investments	9.7	5.6
Out-of-State investments	90.3	94.4
Investment in neighbor States	8.3	8.5
Investment in non-neighbor States	81.9	85.9
In-State investments	9.7	5.6
In-State investment in largest home-State industries	3.7	2
Out-of-State investment in largest home-State industry	9.3	9.3
In-State investment in non-largest home-State industries	6	3.6
Out-of-State investment in non-largest home-State industry	80.9	85.1

Sources: Brown, Pollet, and Weibernner 2015, EIOPA, Mercer European Asset Allocation Survey 2018, World Bank, IMF staff estimates.

Portability

18. Pensions are not portable across member states. Employees in Europe can preserve their accumulated contributions in their pension schemes or take them to another pension scheme in the *same* member state upon termination of employment before retirement. The EU 2014 directive on minimum requirements for enhancing worker mobility between member states focused on improving the acquisition and preservation of supplementary pension rights but had no provisions on the cross-border portability.

19. Portability of accumulated pension contributions is essential for labor mobility and industry size. The lack of rules encouraging portability makes labor mobility across member states more difficult than across states in the United States, for instance. Portability was made easier in the United States by the 2001 Economic Growth and Tax Relief Reconciliation Act that expanded the types of schemes taking transfers and made it easier to transfer rights from one type of scheme to another. This is the case with state- and local-sponsored pension schemes that allow for the purchase of service credits for prior out-of-state government service, the refund of employees' contributions (with or without interest), or the preservation of their pensions and retirement savings upon termination of employment (Oakley and Brown 2016). However, occupational DC pension schemes in the EU are neither required to accept transfers nor to comply with minimum guidelines for timely and efficient transfers when employees change jobs (Munnel, Belbase, and Sanzenbacher 2018). As a result, employees can have multiple nontransferable small-balance pension accounts.

D. Policies

20. The EC has launched policy initiatives to confront the challenges arising from limited development of private pension schemes, home bias, and low portability. The initiatives encompass an improved version of the IORP Directive (IORP-II), a new Directive on a Pan-European Personal Pension (PEPP) product, and a new code of conduct on withholding tax procedures.

IORP-II Directive

21. In December 2016, the EU adopted an improved version of the original 2003 IORP Directive. The latter set out rules governing the activities and supervision of pension funds in member states. The new IORP-II Directive is a welcome step to strengthen the legal, regulatory, and supervisory frameworks for pension funds in Europe. It set common standards to: (i) ensure that occupational pensions are sound and better protect employees and pensioners; (ii) better inform employees and pensioners about their entitlements; (iii) remove obstacles faced by occupational pension funds operating across borders; and (iv) encourage occupational pension funds to invest long-term in economic activities that enhance growth, environment and employment. Though the deadline for EU countries to transpose the IORP-II Directive into their national law was January 13, 2019, 17 member state had not fully done so as of end-March 2019. *Member states should promptly transpose the IORP-II Directive into national law, without further delay, for employees, employers, and pension funds to fully reap the benefits of larger pan-European pension funds.*

22. While the IORP-II Directive aims at encouraging the expansion of pan-European pension funds, it reaffirms that the Directive is without detriment to the role of employers and employees in managing pension funds. As a result, the representation requirements on boards of trustees of occupational pension funds by national laws have a precedent to any provision otherwise in the Directive and will continue to hinder the expansion of pan-European occupational pension funds. This arises because the many national laws mandating employee and/or employer representation on the board of national pension schemes managed by pan-European pension funds make their management complex and costly (European Insurance and Occupational Pensions Authority 2017). Finally, trustees do not need to abide individually but only collectively by fit and proper requirements—that is, only the board of trustees as an entity is required to be knowledgeable and experienced. This may hinder the performance of pension schemes and jeopardize the new risk management, internal audit, and actuarial functions, especially if individual qualifications are not adequate to supervise them in the many functional committees on the board. *Member states should broaden the scope of the fit and proper by requiring all board members individually to be fit and proper.*

PEPP

23. The PEPP is a voluntary personal pension scheme based on DC that will be offered across member states, complementing the existing national pension schemes. The initial draft PEPP proposal was made in June 2017 and awaits European Council decisions after being passed in the European Parliament in April 2019. The PEPP will consist of sub-accounts complying with specific national tax requirements. It will also contain a portability service that will enable employees to continue contributing to their PEPPs when moving to another member state, encouraging labor mobility. Each employee will be offered basic and alternative investment options, accompanied by personalized advisory services that consider employee's financial expertise, situation, and risk preferences. The basic option will be safe and cost effective, with a risk mitigation technique consistent with employees recovering the principal. EIOPA will authorize the PEPP to be distributed across member states by a provider that has been previously licensed according to existing EU rules.

24. While the draft proposal for a pan-European personal pension scheme based on DCs will promote labor mobility, the many information and disclosure requirements may make PEPP an expensive product. The PEPP will be portable, encouraging employees to move across member states. Even though economies of scale in pooling assets across member states will reduce investment costs, its information disclosure, compliance, and advisory service requirements will add a layer of administrative costs that could dent assets' net returns and make it less appealing than national DB and contribution pension schemes by reducing the cash balances available to employees at the retirement age. The yearly one-percent overall cost limit of accumulated assets in the amended proposal will be higher than the equivalent administrative and investment expenses for DC (at 0.95 percent) and DB (at 0.43 percent) schemes in the United States (Munnell, Aubry, Hurwitz, and Quinby 2011). *To avoid excessive administrative costs being borne by employees, the proposal should gradually reduce the one-percent asset-based overall cost limit by half to 0.5 percent*

after the fifth year of operation of pension schemes.[3] This may reduce the profitability of providers with their large fixed costs and discourage marketing and other nonessential administrative costs.

25. Except in the basic investment option, the draft proposal imposes the burden of selection of a suitable post-retirement income on employees. As a payout, the amended proposal allows providers to offer annuities, lump sum, drawdown payments, or a combination of all of them. Employees selecting the basic option will receive personal retirement planning on the sustainable use of their retirement savings. Outside of the basic option, employees are free to make their own out-payment choices, which could, if not carefully exercised, expose them to longevity, investment, bankruptcy, bequest, and inflation risks. Finally, in countries where the purchase of annuities is not mandatory, the market for annuities is likely to be small and expensive. *The draft proposal should require a minimum level of annuitization to all employees.* This will not only protect employees against longevity, investment, and inflation risks but will also allow them to benefit from higher market returns as well as from greater flexibility and liquidity. However, striking the balance between annuitization and other payouts is difficult and will require extensive consultation among stakeholders.

26. Moreover, the draft proposal does not consider the macroeconomic impact of a widespread expansion of pan-European personal pension schemes based on defined contributions. These personal pension schemes could exacerbate the synchronization of business cycles across member states when asset returns across member states are correlated. Evidence from the United States suggests that DCs are procyclical, with employees and pensioners increasing consumption when asset prices are higher and curtailing it when asset prices are lower, which exacerbates the business cycle (Ghilarducci, Saad-Lessler, and Fisher 2012). On the other hand, employees and pensioners relying on DBs are immune to fluctuations in the business cycle. *The draft proposal should create a coordination committee headed by EIOPA with a mandate to monitor the PEPP market on a regular basis with a view not only on consumer protection but also on financial stability.*

27. Finally, the success of pan-European personal pension schemes hinges on the same tax treatment as provided to national personal pension schemes. The success of PEPP hinges on the same tax treatment for cross-border PEPP providers as for domestic PEPP providers. Taxes on cross-border investments of PEPP providers should also be in line with those applied to investments in domestic assets. And, ease of reclaiming withholding taxes would greatly incentivize portability. The EC recommendation on the tax treatment of personal pension products encourages member states to grant the same tax treatment for investments in pan-European personal pension schemes as they grant to their national schemes. These include tax relief for contributions paid to personal pension

[3] The Overture Financial (2016) proposal to the California Secure Choice Retirement Savings Investment Board indicated that a voluntary, automatic-enrollment retirement savings scheme based on an asset-based one-percent overall cost fee that could be lowered below 0.5 percent after the fifth year of operation, would be self-sustaining, simple to manage, and low-cost to participants. Oliver Wyman (2015) proposal to the Connecticut Retirement Securities Board (CRSB), which was tasked to analyze the establishment of a pension scheme for employees who are not enrolled in an occupational pension scheme, indicated that a 0.5 percent fee would not only pay for investment management, recordkeeping, and administration but would also be attractive to third party providers.

schemes, investment income, and payouts. *Member states should extend the tax relief provided to national personal pension schemes to pan-European personal pension schemes even when the latter does not fully qualify under the national criteria for tax relief.*

Withholding taxes

28. The European Commission has published a code conduct to improve the efficiency of withholding tax procedures and is analyzing tax obstacles to cross-border investment by pension funds and life insurers. The code of conduct consists of principles on withholding tax relief, encouraging member states to adopt relief-at-source systems and to establish standardized refund procedures. *Member states should adopt the code of conduct, which would benefit other Member-State pension funds by expediting the procedures for tax relief.* However, the study on tax obstacles to cross-border investment by pension funds and life insurance companies is still not publicly available. *The European Commission should finalize the study and encourage member states to mutually recognize their pension funds by providing other Member-State pension funds with the same tax exemption on their cross-border investments as provided to their national pension funds.* This would align member states' tax regimes with Articles 49 and 63 of the 2007 Treaty of the Functioning of the European Union that focus on the freedom of establishment and free movement of capital, respectively, and that have been reaffirmed by the Court of Justice of the European Union in its recent rulings on withholding taxes.

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NOTE 2. FIRM-LEVEL BENEFITS OF CAPITAL MARKET INTEGRATION[1]

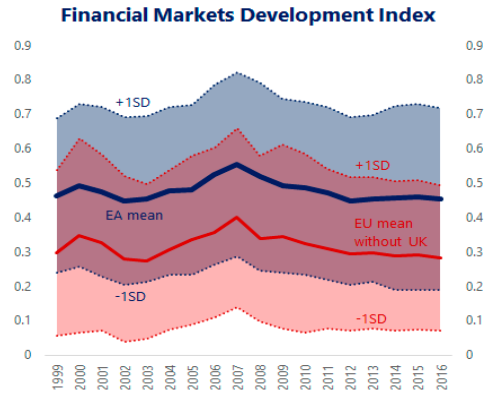
This note covers details on two sets of exercises conducted with firm-level data. First, we analyze the impact of greater financial market development on certain types of firms. Second, we assess the impact of lowering barriers (see main text of the SDN and background note 1) on the dispersion of firms' funding costs across countries.

A. Financial Markets Development and Firm-Level Growth

1. Financial markets are unevenly developed across the EU (Figure 1). The development of markets can be measured by market capitalization and trading of stocks, size of private sector bonds, international placements of debt securities, the market capitalization of smaller (non-top-10) corporates, the number of issuers of private debt, and efficiency or turnover of stock markets (index developed in IMF 2015). According to this composite financial market (FM) development index, in which the United States is at the top of the index (0.9), there are large differences between the developments of markets, say in Bulgaria (0.07), France (0.64), and the U.K. (0.77).

Figure 1. Financial Market Development

Development of markets is highly uneven across the EU



Source: IMF (2015) Financial Development Index database; IMF staff calculations.

2. We use firm-level data on listed and non-listed firms from the Orbis dataset.[2] The sample contains almost 16 million firm-year observations coming from firms in 21 EU countries over the period 2002-2015. The countries are Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Romania, Slovak Republic, Spain, Sweden, and United Kingdom. Table 1 shows the composition of the sample across EU countries.

3. We are interested in knowing whether firms with certain characteristics are disadvantaged by low financial market development. Inspired by Rajan and Zingales (1998), we ask if value added growth of firms operating with lower tangibility and lower leverage is higher in countries with more developed financial markets. The regression is:

$$VA_{isc,t} = c + \boldsymbol{\alpha X_{isc,t}} + \beta FM_{c,t} \times X_{isc,t} + FE_{isc} + FE_{c\times t} + FE_{s\times t} + \varepsilon_{isc,t},$$

[1] Prepared by Luiza Antoun de Almeida of the IMF's European Department.

[2] The author would like to thank the IMF's Research Department—in particular, Federico Díez, Jiayue Fan, and Carolina Sanchez-Villegas— for providing their cleaned Orbis dataset.

where $VA_{isc,t}$ is real value-added growth of firm i in sector s, country c, and year t (measured as the sum of a firm's Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) and total employee compensation); $\boldsymbol{X_{isc,t}}$ are a set of controls for firm-level characteristics (such as total assets, debt to assets, tangibility, and return on assets); $FM_{c,t}$ is the FM development index first developed in IMF (2015) and regularly updated by the IMF; FE_{isc} are firm fixed effects which control for constant structural characteristics of a firm over time; $FE_{s\times t}$ are sectoral trends at the two-digit level that affect all firms within a sector; and $FE_{c\times t}$ are country trends common to all firms within a country.

Table 1. Sample Size of Firms (2002–15)

country	Freq.	Percent	Cum.
Austria	80,669	0.51	0.51
Belgium	124,597	0.78	1.29
Bulgaria	291,858	1.83	3.12
Czech Republic	313,721	1.97	5.09
Denmark	88,660	0.56	5.64
Estonia	101,750	0.64	6.28
Finland	445,122	2.79	9.08
France	4,739,288	29.74	38.82
Germany	813,044	5.10	43.92
Greece	205,341	1.29	45.21
Hungary	795,896	4.99	50.20
Ireland	22,415	0.14	50.34
Italy	2,557,790	16.05	66.39
Luxembourg	17,419	0.11	66.50
Netherlands	47,091	0.30	66.80
Portugal	816,069	5.12	71.92
Romania	576,460	3.62	75.54
Slovak Republic	135,291	0.85	76.38
Spain	2,223,402	13.95	90.34
Sweden	483,368	3.03	93.37
United Kingdom	1,056,533	6.63	100.00
Total	15,935,784	100.00	

Source: Orbis; IMF staff calculations.

4. The equation is estimated with OLS, various fixed effects, and standard errors clustered at the firm level. The regression excludes outliers—the 5 percent highest and lowest observations of real-value-added growth—to ensure that the results are not driven by these observations. We focus the analysis on non-financial firms.

5. We are particularly interested in the coefficient β which shows whether firms with certain characteristics grow more in countries with higher FM development. We focus the analysis on three particular characteristics, X: tangibility (defined as the share of fixed assets in total assets), leverage (defined as the debt to assets ratio), and whether a firm is listed or not. The

differential in real-value added growth for firms with certain characteristic but located in countries *c1* and *c2* with different levels of FM development is

$$\Delta VA = \beta(FM_{c1} - FM_{c2})\Delta X.$$

6. Results show that firms with certain characteristics are less disadvantaged in more developed financial markets. Table 2 reports the results of the baseline regressions for a sample of euro area countries and a sample of EU countries. The column headers indicate the characteristic, X, interacting with FM for each regression. Results suggest that firms with lower tangibility and leverage grow more in countries with higher FM development, while the effect of being listed on value-added growth does not depend on a country's FM development level. In countries with higher FM development firms need a lower level of fixed assets as collateral (tangibility) to access financing and be able to grow. Tangibility seems to be a less important factor particularly in countries with deeper stock markets, as reflected in a high market capitalization of the non-top 10 companies. Similarly, in countries with higher FM development, firms can rely on financing sources other than debt to grow.

Table 2. Financial Market Development and Firm-Level Growth

dependent variable: real VA growth	EA			EU		
	(1)	(2)	(3)	(5)	(6)	(7)
	X=tangibility	X=debt to assets	X=listed	X=tangibility	X=debt to assets	X=listed
debt to assets	0.106***	0.424***	0.104***	0.116***	0.400***	0.114***
total assets	9.66e-08**	9.66e-08**	9.68e-08**	9.09e-08**	9.09e-08**	9.10e-08**
fixed assets to assets (tangibility)	0.313***	-0.0329**	-0.0352**	0.147***	-0.0233	-0.0257*
return on assets	3.172***	3.171***	3.171***	3.211***	3.210***	3.210***
FM#X	-0.468***	-0.436***	-97.99	-0.247***	-0.404***	-111.4
Firm FEs	Y	Y	Y	Y	Y	Y
Country-time FEs	Y	Y	Y	Y	Y	Y
Sector-time FEs	Y	Y	Y	Y	Y	Y
Observations	2,256,934	2,256,934	2,256,934	2,416,852	2,416,852	2,416,852
R-squared	0.866	0.866	0.866	0.864	0.864	0.864

Errors are clustered at the firm level.
*** p<0.01, ** p<0.05, * p<0.1

Source: Orbis; IMF (2015) *Financial Development Index* database; IMF staff estimates.

7. As an illustrative example, we compare firms with similar characteristics but operating in countries with very different financial market development levels (Figure 2). In order to calculate the effect of FM development on the value-added growth of firms with certain characteristics, we pick France as an example of a country with a relatively high FM index and Greece, Slovak Republic, and Estonia as examples of countries with a low FM index. Firms with less tangible assets can grow more in countries with deeper capital markets. A firm with 10 percentage point lower tangibility (fixed assets to total assets ratio) will grow nearly 3 percentage point faster in France than in Slovak Republic. Firms with access to deeper capital markets also need less leverage to expand. For every 10 percentage points of lower leverage a firm can grow nearly 3 percentage points faster in France than in Slovak Republic.

B. Country Dispersion in Firms' Funding Costs and Barriers to Cross-Border Integration

8. This section analyzes firms' cost of funding, how these vary across countries, and whether barriers explain the dispersion. First, we document how cost of funding varies across EU countries. Then, we analyze whether there are still cross-country differences in cost of funding after controlling for firms' fundamentals. Last, we see whether barriers, such as different insolvency regimes, can explain cross-country differences in cost of funding. Throughout the analysis we differentiate between unlisted (small) and listed (large) firms.

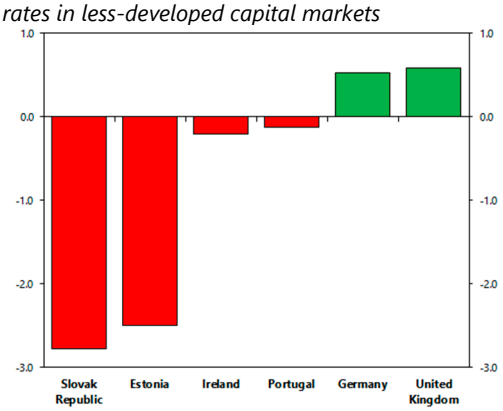
9. There are some caveats when inferring firms' cost of funding from the Orbis dataset. First, our derived variable for debt funding cost—defined by interest expenses in percent of debt—measures the average cost of funding of outstanding debt and not the cost of *new* funding. Second, lending in foreign currency (for instance, lending in euro in a non-euro area country) can reduce considerably the cost of funding. Third, the dataset is based on the country of incorporation of the firm and not on its nationality. In this sense, a German firm participating in the global value chain incorporated in a non-euro area country will count towards the cost of funding in this country. Finally, profit shifting via intra-group interest payments may inflate the cost of funding in some countries.

10. Financing costs are higher for smaller firms than for larger firms within a country. Debt funding costs—defined by interest expenses in percent of outstanding debt—are generally higher for small firms compared to the largest firms in all the countries (Table 3). However, the difference varies between countries. For instance, the difference in funding costs between the smallest and the largest firms in France is lower than in, say, Germany, Spain and Italy.

Figure 2. Low-Tangibility Firms' Growth Performance, 2015 1/

(Percentage point difference in real value-added growth relative to peers in France) 2/

Firms with less collateral tend to grow at slower rates in less-developed capital markets



Source: Orbis; IMF staff estimates.
1/Firms with ratios of fixed assets to total assets 10 percentage points below average.
2/Value added = earnings before interest, taxes, depreciation, and amortization + wages.

Table 3. Firm Size and Debt Funding Costs, 2015 1/

	Funding Costs by Size of Firms (percent)			
	<33rd percentile	between 33rd & 66th	>66th percentile	Difference between smallest & largest (bps)
AUT	6.9	6.5	4.6	238
BEL	7.9	6.3	5.3	256
BUL	10.5	9.2	8.0	250
CZE	8.3	6.2	4.8	356
DEU	7.4	6.4	6.4	97
ESP	7.1	6.3	5.2	193
FIN	7.2	5.9	5.5	175
FRA	5.4	5.4	5.3	14
GBR	7.2	5.8	5.2	197
GRC	8.9	9.1	7.7	122
HUN	6.9	5.8	4.6	233
IRL	7.1	6.8	5.4	167
ITA	8.4	7.5	5.7	265
LUX	NA	2.8	8.4	
LVA	5.9	5.0	4.7	114
NLD	NA	NA	5.8	
POL	7.8	6.6	5.7	210
PRT	6.5	5.7	5.1	137
ROM	NA	6.3	5.6	
SWE	8.2	6.3	5.1	307
SVN	5.8	5.2	5.0	80
SVK	9.0	7.0	5.4	364
Standard deviation	1.2	1.1	0.9	

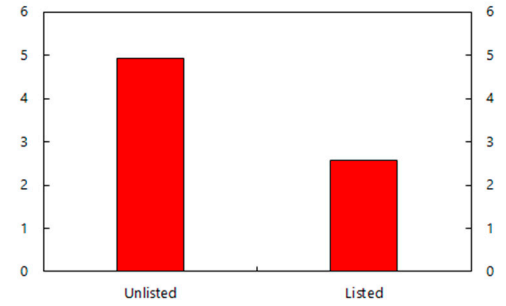
Source: Orbis; IMF staff estimates.
1/ For the EU-wide data, the thresholds for the 33rd and the 66th percentiles for firm size are €389 million and €1.6 billion respectively.

11. The dispersion of funding costs across countries is the highest for small and unlisted firms. The standard deviation of funding costs across countries is highest for the smallest firms (Table 3). With less opportunities for small firms to find diversified funding sources within a country, these firms remain dependent on relationship-based borrowing sources, such as banks and local finance companies. The cross-country dispersion of funding costs is twice as large for unlisted companies than for listed ones in the EU, controlling for firm-specific characteristics such as total assets, return on assets, share of fixed assets in total assets, the level of FM development, and sovereign yields (Figure 3).

Figure 3. Funding Cost Dispersion Across EU Countries

(coefficient of variation in funding costs)

Dispersion in funding costs across countries is almost twice as large for unlisted firms than for listed firms.



Source: Orbis; IMF staff estimates.

12. The following exercise focuses on the euro area sample to abstract from issues with currency differences. Furthermore, countries with a relatively small number of firms, such as Luxemburg, are excluded from the analysis.

13. Cross-country differences in firms' funding costs may reflect different firms' fundamentals as well as country institutional frameworks. In a first step, we look at the contribution of country-specific factors to firms' funding cost dispersion after controlling for firm characteristics. More specifically, we regress firms' funding costs on firms' fundamentals and the sectoral composition estimating country-specific factors that influence all firms within a country:

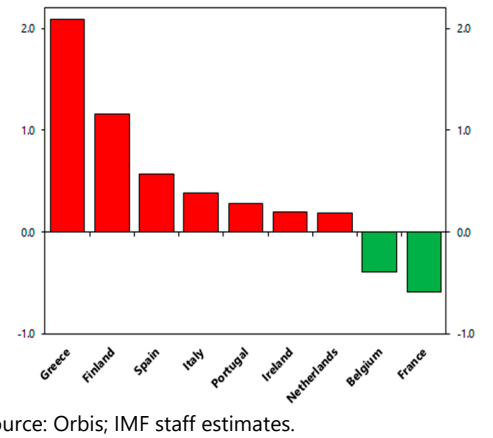
$$i_i = c + \boldsymbol{\alpha X_i} + FE_s + FE_c + \varepsilon_i, \text{ where}$$

i_i is the nominal effective interest rate paid by firm i (defined as interest paid over total outstanding debt); $\boldsymbol{X_i}$ are a set of firm characteristics controls (such as total assets, debt to assets ratio, fixed assets to total assets, and return on assets); FE_s are sector fixed effects; FE_c are country fixed affects relative to Germany. We estimate this regression for 2015, the last year available in our dataset, but results are similar for other years.

Figure 4. Firms' Cost of Debt, 2015 1/

(in percentage points relative to German peers)

Similar firms' funding costs vary widely across the euro area



Source: Orbis; IMF staff estimates.
1/ Country fixed effects from a cross-section regression of firms, controlling for firm characteristics.

14. There is substantial variation in funding costs across the euro area, suggesting that country-specific factors play a role in explaining dispersion in funding costs. For example, after controlling for firm characteristics, Greek firms pay 200 basis points more than similar German firms, and 250 basis points more than similar French firms (Figure 4). The difference between similar Italian and French firms is 80 basis points. Although

not shown here, this dispersion is even higher for smaller firms in the eurozone, with small Greek firms paying 350 basis points more than similar French firms.

15. Barriers identified in Background Note 3 explain part of the dispersion in funding costs across euro area countries. In addition to controlling for firm fundamentals, we now substitute the country fixed effects by other country-specific factors that may influence firms' funding costs, such as FM development and countries' cost of funding (proxied either by sovereign CDS spread or banks' lending rates for corporates). We calculate the standard deviation of the residuals in this regression across euro area countries and then check whether the standard deviation of residuals across countries declines after the inclusion of barriers in the regression. Specifically, the regression is:

$$i_i = c + \boldsymbol{\alpha X_i} + FE_s + FM_c + FC_c + \gamma B_c + \varepsilon_i,$$

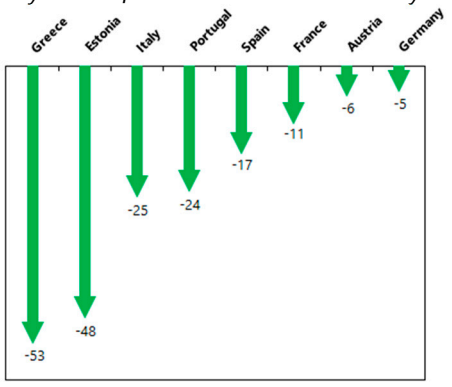
where FM_c is the FM development index of country c; FC_c is the country-specific sovereign CDS spread or MFI lending rates; and B_c is a barrier. The baseline regression does not include the barrier. A barrier is added one at a time to the baseline regression. The standard deviation of the residuals across countries shows the variation in funding costs which cannot be explained by firm characteristics, sector, a country's FM, a country's funding costs, and a specific barrier. We compare the standard deviation of the residuals across euro area countries resulting from inclusions of different barriers. The hypothesis is that after accounting for barriers in the regression the estimated dispersion of funding costs of similar firms across euro area countries would decrease.

16. Barriers explain part of the funding cost dispersion across countries. Among the barriers, the recovery rate for secured claims in an insolvency—as reflected in the World Bank's Doing Business indicator, used as a proxy for the quality of insolvency regimes in the SDN—is able to reduce the dispersion in funding costs the most. After accounting for the recovery rate for secured claims, the dispersion in funding costs is reduced by 6 percent for unlisted firms and by 2 percent for listed firms for the euro area. While not considered for this exercise, accounting for the general insolvency framework reduces the dispersion in funding costs for the EU sample by 24 percent for unlisted firms.

17. Lowering barriers would reduce funding costs significantly in some euro area countries. The sensitivity of cost of funds to a barrier is given by the coefficient γ. If the recovery rate for secured claims in an insolvency is improved to the frontier (taken as the UK), then funding costs for Greece and Estonia would decline by as much as 48–53 basis points, and for Italy and Portugal by as much as 24-25 basis points (Figure 5).

Figure 5. Decline in Firms' Cost of Debt with Better Insolvency Practices 1/

Firms' cost of debt falls with improvements in the recovery value of secured assets in insolvency



Source: IMF staff estimates.
1/ Secured corporate recovery rate converges to best-in-class rate of about 95 percent.

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NOTE 3. BARRIERS TO GREATER CAPITAL MARKET INTEGRATION IN THE EU[1]

This note covers two sets of econometric exercises for measuring the impact of barriers on risk-sharing and bilateral capital market integration in the EU. All results should be interpreted as associations or conditional correlations, rather than causal.

A. Introduction

1. A rich empirical literature has measured risk sharing as the degree to which aggregate regional consumption is insulated from fluctuations in regional income. Asdrubali and others (1986) find that for the United States, 75 percent of shocks to per-capita gross state product are smoothed (39 percent by capital markets, 13 percent by the federal tax-transfer and grant system and 23 percent by credit markets). For Germany, von Hagen and Hepp (2013) show that following reunification, capital markets account for 51 percent of smoothing, with only 21 percent of shocks remaining unsmoothed. In contrast, for the euro area, cross-country risk sharing is more limited. Existing studies show that more than two-thirds of shocks remain unsmoothed, with capital, credit and fiscal channels all playing a limited role (Furceri and Zdzienicka 2015, European Commission 2016).

2. This note sheds light on the importance of capital markets in smoothing shocks in Europe and on the relative importance of various barriers to cross-border capital flows. It uses a modified version of Asdrubali and others (1986). The approach consists of disaggregating GDP into its national aggregates: gross national income (GNI), gross disposable national income (GDNI) and consumption (C). The difference between GDP and GNI is net factor income transfers, which in turn can be disaggregated into net investment income transfers and other net income transfers (including from employee compensation of cross-border employees). The difference between GDNI and consumption is equal to savings, which in turn can be written as investment plus the current account balance. The latter is equal to the change in the net international investment position (NIIP) adjusted for valuation and exchange rate effects.

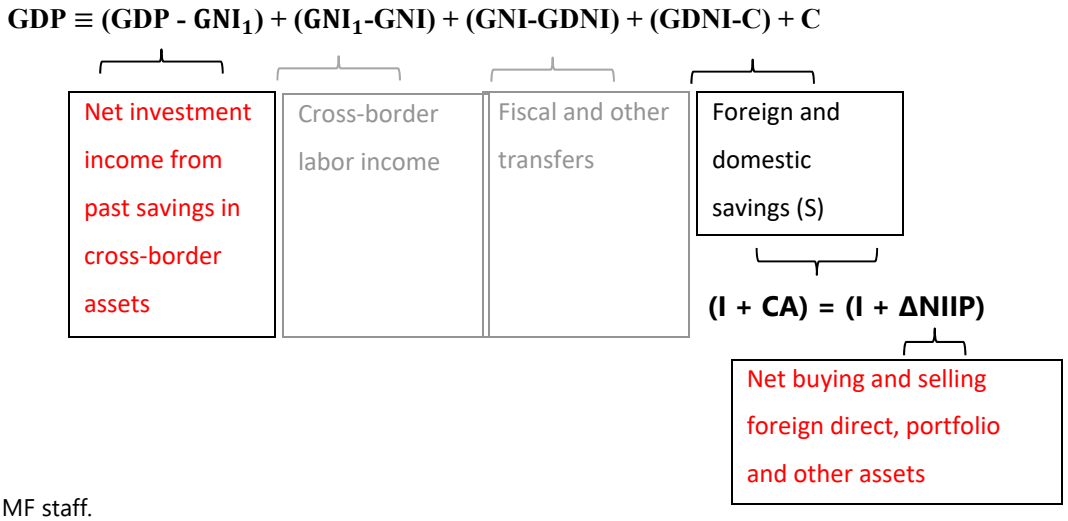
3. Contrary to the existing literature, we consider the capital market channel to work through both net investment factor income flows and savings. Net investment factor income flows consist of dividends, reinvested earnings and interest. In Europe, retained earnings of businesses are not included in this category. The change in the NIIP measures changes in the value of foreign assets owned by the private and public sector minus the value of domestic assets owned by foreigners. It therefore includes changes in the value of private cross-border direct and portfolio equity and investment funds shares and other debt instruments.

[1] Prepared by Srobona Mitra and Anke Weber of the IMF's European Department, with contributions from Jesse Siminitz. The authors would like to thank Jost Heckemeyer of the Kiel Institute for sharing detailed data on bilateral effective average capital markets tax rates.

4. To the best of our knowledge, this note is the first attempt to estimate the importance of capital markets in this way. The previous literature focused almost exclusively on total net factor income flows. Balli, Kalemli-Ozcan, and Sørensen (2012) decompose the savings channel into domestic and foreign savings but do not disaggregate net factor income transfers.

Figure 1. Capital Market Smoothing Channels 1/

Both cross-border investment income and net changes in cross-border assets involve capital market channels



Source: IMF staff.

1/ GDP: Gross Domestic Product; GNI: Gross National Income; GDNI: Gross Disposable National Income; C: Consumption; I: Investment; CA: Current Account Balance; NIIP: Net International Investment Position.

5. As described in the main note, our results confirm that risk sharing in the EU and euro area is limited and that barriers to capital market integration matter. The smoothing from net investment transfers and the savings channel (which includes direct and portfolio investment in equity and debt) each amount to about 12 percent in the euro area and about 8 percent in the EU. Regulatory quality, effective taxes on cross-border capital market investment activities, insolvency regimes and the extent to which countries have transposed EU directives relevant to capital markets play a significant role in influencing cross-border smoothing of shocks. If all countries were able to improve their insolvency and regulatory systems to the EU average, harmonize taxes and transpose all relevant directives, cross-border risk sharing through capital markets would increase significantly.

6. Digging deeper, data on private bilateral portfolio investment within the EU confirm that various barriers to capital markets limit cross-border savings. The level of bilateral flows is found to be associated with barriers in both the origin and the destination countries. In particular, higher recovery value of assets for secured creditors in both the origin and the destination countries raise the level of cross-border asset holdings. Better regulation in the destination country also increases cross-border asset holdings in general.

7. The remainder of the note is structured as follows: Section B discusses the econometric methodology; Section C describes the data; and section D presents the results.

B. Methodology

Risk Sharing

8. We follow the methodology of Asdrubali and others (1986) who propose a set of regressions to estimate the relative importance of various risk sharing channels. The identity in Figure 1 can be rewritten and modified as

$$GDP = \frac{GDP}{GNI_1}\frac{GNI_1}{GNI}\frac{GNI}{GDNI}\frac{GDNI}{GDNI_1}\frac{GDNI_1}{C}C$$

where we have added two variables compared to the original framework: $GNI_1 = GDP - net\ investment\ income\ transfers$. Therefore $GNI_1 - GNI = other\ net\ income\ transfers$. Moreover, $GDNI_1 = \Delta NIIP + C$, and thus $GDNI - GDNI_1 = investment$.

9. GDP shocks propagate through the system and affect the other income variables in the identity unless they are smoothed by some counter-cyclical factor. If none of these channels are active, and GDP and consumption move one for one, there is no risk sharing. If on the other hand only GDP varies while consumption remains unchanged, full risk-sharing or "consumption smoothing" is obtained.

10. Taking logs and differences, the identity transposes into the following set of regressions:

CM Channel (Investment)	$\Delta logGDP_{it} - \Delta logGNI_{1,it} = {\alpha_t}^m + \beta^m \Delta logGDP_{it} + \varepsilon_{i,t}^m$
CM Channel (Other)	$\Delta logGNI_{1,it} - \Delta logGNI_{it} = {\alpha_t}^o + \beta^o \Delta logGDP_{it} + \varepsilon_{i,t}^o$
Fiscal Channel	$\Delta logGNI_{it} - \Delta logGDNI_{1,it} = {\alpha_t}^d + \beta^d \Delta logGDP_{it} + \varepsilon_{i,t}^d$
Savings Channel (NIIP)	$\Delta logGDNI_{1,it} - \Delta logC_{it} = {\alpha_t}^s + \beta^s \Delta logGDP_{it} + \varepsilon_{i,t}^s$
Savings Channel (other)	$\Delta logGDNI_{it} - \Delta logGDNI_{1,it} = {\alpha_t}^n + \beta^n \Delta logGDP_{it} + \varepsilon_{i,t}^n$
Unsmoothed	$\Delta logC_{it} = {\alpha_t}^u + \beta^u \Delta logGDP_{it} + \varepsilon_{i,t}^u$

where α_t are time fixed effects and β measures the extent of smoothing achieved by each channel in the GDP decomposition. The βs in the first, fourth and last equations are of interest to this note. The first one indicates the fraction of a country-specific shock smoothed by net investment transfers through capital markets (CM), whereas the fourth indicates the percentage smoothed through the capital market savings channel. The last indicates the proportion of shocks that remains unsmoothed.

11. We then analyze how various cross-border barriers to investment are associated with the smoothing achieved through the various channels. First, each of the barriers is converted to a z-score: for each year, the data on barriers is demeaned (based on EU28 or euro area average) and divided by the standard deviation across countries. The z-score, $z_{j,it}$, for each barrier *j* for each country *i* at year *t* is interacted with β^m, β^s,β^n, $and\ \beta^u$:

$$\Delta logGDP_{it} - \Delta logGNI_{1,it} = {\alpha_t}^m + \beta^{m,1}\Delta logGDP_{it} + \beta^{m,j} z_{j,it} * \Delta logGDP_{it} + \gamma^{mj} z_{j,it} + \varepsilon_{i,t}^m$$

$$\Delta logGDNI_{1,it} - \Delta logC_{it} = \alpha_t{}^{s} + \beta^{s,1}\Delta logGDP_{it} + \beta^{s,j}z_{j,it} * \Delta logGDP_{it} + \gamma^{sj}z_{j,it} + \varepsilon_{i,t}^{s}$$
$$\Delta logGDNI_{it} - \Delta logGDNI_{1,it} = \alpha_t{}^{n} + \beta^{n,1}\Delta logGDP_{it} + \beta^{n,j}z_{j,it} * \Delta logGDP_{it} + \gamma^{nj}z_{j,it} + \varepsilon_{i,t}^{n}$$
$$\Delta logC_{it} = \alpha_t{}^{u} + \beta^{u,1}\Delta logGDP_{it} + \beta^{u,j}z_{j,it} * \Delta logGDP_{it} + \gamma^{uj}z_{j,it} + \varepsilon_{i,t}^{u}$$

Note that the above set of regressions collapses to the original set, without the $z_{j,it}$, when the barriers are at the mean ($z_{j,it} = 0$). All the barriers are standardized such that a higher z implies worse regimes.

12. These regressions are estimated for the EU28 and the euro states separately for the period 2000-2017. Equations are estimated using OLS with panel-correlated standard errors (PCSE). PCSE assumes that disturbances are heteroskedastic and contemporaneously correlated across panels. This allows for panel data sets to have the possibility of repeated observations in some countries across time.

Bilateral Asset Holdings

13. Panel data on bilateral portfolio asset positions are used to shed further light on the association between barriers and intra-EU flows. The risk-sharing exercise above looks at cross-border diversification benefits within and outside of the EU. The bilateral data shows that more than 60 percent of cross-border portfolio assets invested by the EU are within the EU, and therefore, the risk-sharing exercise is a good approximation of intra-EU diversification benefits. Still, digging deeper into measuring the importance of barriers in constraining cross-border investment, we look closer at bilateral portfolio—debt, equity, and total—asset positions between countries. Given the limited time series on the bilateral FDI data, we do not report the results of the FDI exercise.

14. Panel regressions explaining the level of country-pair asset investments are estimated by OLS.

$$logA_{f,ijt} = \alpha_t{}^{f} + \gamma_{ij}{}^{f} + \beta^{f1}BAR_{it} + \beta^{f2}BAR_{jt} + \delta^{f1}logGDP_{it} + \delta^{f2}EATR_{ijt} + \varepsilon_{i,t}^{f}$$

where $logA_{f,ijt}$ refers to the natural log of cross-border assets, A, that country *i* invests in country *j* in year *t*. The subscript *f* refers to the type of assets: portfolio equity, portfolio debt, and portfolio total (debt + equity). Each barrier, BAR, is included one by one, both for the origin country, *i*, and the destination country, *j*, to explore if the differences in the barriers matter. The nominal GDP of the origin country, *i*, is included to provide a scale for the asset positions. The effective average tax rate, EATR, that varies for every country pair and over time, is included as a control given its importance in determining flows. Year fixed effects and country-pair fixed effects are included, the latter to capture characteristics about the country pair—distance, language, border, trade relationship—that do not change over time. Standard errors are clustered by country-pairs.

C. Data

Barriers

15. We consider third-party data on legal, regulatory, tax, information and disclosure arrangements (Table 1, Table 2, and Annex). Some of these indicators are based on surveys and perceptions and are not based on hard data. Therefore, the usual caveats apply when it comes to interpretations based on these data. Most importantly, the surveys might only be covering the big cities and may not be representative for the country. There might also be breaks in the data. But these caveats need to be balanced with the convenience of public accessibility of the data. Given the uncertainty about the accuracy of the perceptions of the surveys, we have only used these indicators as standardized distance from the mean. In particular, we have constructed "z-scores" by taking the difference from the cross-country mean and dividing by the cross-country standard-deviation for each year.

- *Regulatory quality*. We use *Worldwide Governance Indicators* (WGI) database (Kaufmann and others 2010). This provides a standardized score of the quality of private sector regulations, summarized from a variety of surveys. These surveys assess the ability of governments to formulate sound policies and regulations that promote private sector development and to provide a comfortable business climate. The z score for regulatory quality decreases for countries with better regimes.

- *The quality of the insolvency regime* is assessed mainly by the recovery rate for secured creditors' claims in an insolvency from the World Bank's *Doing Business* database. Although other variables, such as insolvency costs (in percent of estate) and the overall strength of the insolvency framework were also tested, the coverage of these variables was not adequate. The recovery rate in an insolvency depends on the cost, time and the outcome. Indeed, insolvency costs across the EU28 countries are highly correlated (-0.47) with the recovery rate of the collateral for 2016. The overall strength of the insolvency framework has a correlation of 0.24 with the recovery rate but is not included in the analysis due to a short time series. The z-score for the recovery value of collateral decreases with a higher recovery rate (Figure 2).

- Bilateral e*ffective average tax rates (EATR)* of investing countries, over time, come from Spengel and others (2015, Leibniz Centre for European Economic Research or ZEW). The data on EATR is already adjusted for bilateral tax treaties and measures the investing country's cross-border capital market tax rate in the destination country. We take the average (across investing countries) of the EATR for inbound investments, over time, for the risk-sharing exercise. Countries score higher on the z-score, the further away they are, in absolute terms, from the mean for each year (Figure 2). The level of EATR for each country-pair over time is used for the exercise on bilateral portfolio asset positions. The EATR is also taken as a proxy for the withholding tax rates on interest, dividend and capital gains.

- For assessing the extent of *information and disclosure*, we used confidential data from the European Commission (EC) to create binary variables on whether certain relevant EU-level

directives were transposed properly in national legislations. Each country scored a 1 if the extent of transposition of directives on Accounting, Transparency, Statutory Audit, Market Abuse, and Nonfinancial Disclosure was considered adequate by the EC, and 0 otherwise.

- Other barriers were considered, based on the IMF CMU survey (Background Note 4). The extent of minority shareholder rights and the corporate tax rate are considered useful determinants of cross-border investment. However, data coverage on these variables was limited to only a few years and therefore the results on risk-sharing and bilateral portfolio asset holdings for these indicators are not reported in the main text of the SDN.

Investment income

16. Data on net international income transfers are obtained from the IMF's balance of payments accounts. Of the net income transfers, about 85 percent are investment income, whereas others such as employment compensation make up for only about 15 percent. Investment in turn constitutes direct, portfolio and other investments, with investment income transfers constituting dividends, retained earnings and interest.

Change in the NIIP

17. We focus here on private direct and portfolio investment, obtained from the IMF's balance of payment accounts. We use direct investment in equity and investment fund shares and debt instruments. For portfolio investment we use the equity and investment funds shares and debt instruments for all sectors excluding the government and central bank. We are interested in the change in the balance (that is the difference between assets and liabilities).

Bilateral asset holdings

18. Bilateral portfolio asset holdings are obtained from the IMF's *Coordinated Portfolio Investment Survey*. Only private sector debt and equity securities are considered, leaving out government issuances and central bank holdings of portfolio securities.

19. Historically, portfolio asset holdings within the EU have favored debt over equity, even as equity flows have been more resilient. Owing to the limited stock of equities and lower cross-border diversification of portfolio investment through pensions and insurance, bilateral equity asset holdings have trailed debt holdings (Figure 3). For example, the sum of all bilateral private portfolio debt invested in other EU members peaked at $9 trillion in 2009, when bilateral equity was only a third of that amount. However, since the Global Financial Crisis (GFC), equity holdings have continued to slowly rise and have recently surpassed debt. This shows that debt holdings are less resilient to negative shocks (Gavilan and Hillebrand 2017) as lenders and debt investors retrench from markets they feel are unable to service coupon payments if the shock persists. This is similar to the retrenchment of cross-border bank and interbank unsecured loans within Europe after the crisis.

D. Results

What proportion of shocks are smoothed and by which channel?

20. The contribution of net investment income to consumption smoothing is limited in Europe. Table 4 shows that net investment flows smooth about 8 percent of shocks in the EU28. Smoothing is significantly higher for the euro area-11 (EA11) countries, suggesting that these countries are subject to smaller barriers on cross-border capital flows. The extent of smoothing through net investment flows is smaller than through all international factor income flows, though the difference is small, meaning that investment is more important in smoothing shocks than cross-border labor compensation. The size of the β coefficient for all international factor income flows is consistent with the previous literature. EC (2016) finds that about 7 percent of shocks are smoothed among 13 euro-area countries, whereas Furceri and Zdzienicka (2015) show that it is about 8 percent. EC (2016) also finds that smoothing through labor compensation is limited (a coefficient of 0.0024).

21. Similar decompositions for the United States reveal much higher smoothing through capital market channels, but there are differences in coverage. Previous studies estimate that in the United States, about 45 percent of shocks are smoothed through cross-border income transfers (EC 2016, and Furceri and Zdzienicka 2015). The decompositions for the United States employ state-based GDP and cross-state income transfers data. In the United States, retained earnings of corporates help explain a significant portion of the cross-border capital market income channel (Alcidi and others 2017). For the EU, where investment income from balance of payments statistics is used for the decomposition, retained earnings from cross-border operations of corporates are not included in primary investment income. Cross-border retained earnings do form a part of disposable income and hence capital markets savings channel of income smoothing in the EU.

22. The contribution of the savings channel is similarly limited in Europe. It only amounts to about 9 percent in total for the EU28. Again, this is higher for the euro area and EA11 countries. In terms of changes of the NIIP, only the subcomponent of changes in the value of direct investment in equity and investment funds was found to be significant. The amount of smoothing from the total savings channel is somewhat lower than the estimate by Furceri and Zdzienicka (2015), who find that for the euro area the coefficient amounts to 0.310. This could be because their time period is different (1979-2010) and smoothing may have significantly decreased after the crisis. Our estimates are close to the EC's estimates for 13 euro area countries for which savings channel smoothing accounts for about 18 percent.

23. A large amount of shocks to GDP remain unsmoothed in Europe. For the EU28 the unsmoothed part of shocks to consumption accounts for more than 80 percent. This is much smaller in the EA-11 (41 percent). Reflecting the smaller estimate of savings market smoothing, the proportion of unsmoothed shocks is greater than that estimated by Furceri and Zdzienicka (2015). Again, the estimates in this note are close to EC (2016), who show that for 13 euro area countries, the proportion of unsmoothed shocks accounts for about 76 percent.

What is the relative strength of different barriers in constraining cross-border investment?

24. We first consider only one barrier at a time in our regressions. The detailed results of the regressions are found in Tables 5-8. When the coefficient on the interaction term with barriers is not significant we test whether the coefficient on $\Delta logGDP_{it}$ and $\Delta logGDP_{it}$ interacted with the barrier(s) are jointly significant. We focus on the euro area, but the results hold for the EU28 as well.

25. We find that regulatory quality, taxes, insolvency regimes and transposition of EU capital markets directives play a significant role in the cross-border smoothing of shocks. This is true for investment, total savings and the proportion of unsmoothed shocks (Tables 5-8 and Figure 4). Due to data limitations, we focus on the change in direct investment in equity in the NIIP regression:

- *Insolvency*. The coefficient on the interaction of GDP growth and insolvency regimes (recoverability of collateral, _v13) is found to be significantly negative in the savings and investment equations and significantly positive in the unsmoothed shocks equation. This means that if a country's quality of the insolvency regime is one standard deviation above average (z=-1), there will be a larger fraction of shocks smoothed through the capital market investment income and savings channels. Importantly, these flows would to a large extent arise after a shock has hit. This is for instance, when private equity firms decide on whether to buy distressed firms.

- *Regulatory quality*. The coefficients on the regulatory quality variable are significantly negative in the investment and savings equation and significantly positive in the unsmoothed shocks regression. In other words, there is more smoothing of shocks when regulatory quality is better. Firms and households will invest more abroad in this case and thereby increase their ex-ante insurance. These results should be seen with those on bilateral asset holdings, where a higher regulatory quality of the destination invites greater portfolio equity assets.

- *Taxes*. We find that the absolute deviation of EATR matters for cross-border flows. Unsurprisingly, this effect is especially pronounced for risk sharing via changes to cross-border direct equity investment. Moreover, the further above average a country is from the average profit taxes, the less smoothing from capital markets it will receive. These results imply that harmonization of tax rates across countries could significantly enhance cross-border capital flows and smoothing.

- *Transposition of EU directives*. We find that if countries have transposed EU directives on transparency, market abuse, and on disclosure of non-financial information this significantly enhances capital flows and increases the smoothing of shocks.

Which barriers are associated with bilateral asset holdings?

26. Digging deeper, we find that the level of cross-border portfolio assets increases with lower barriers in destinations. Cross-border asset holdings—debt, equity and total—adjusted for

the size of the economy and bilateral capital markets tax rates, increase with better insolvency regimes and regulatory quality in destinations (Table 9 and Table 10).

- *Insolvency*. Improving the recoverability of debt in the event of an insolvency increases asset holdings, especially portfolio debt. Results show that if the insolvency regime of the destination country improves by 1 standard deviation—or by 23 percentage points, for example, from an average like Italy to Germany's level—then average cross-border portfolio assets would increase 1¼ times. Furthermore, results suggest that cross-border assets would increase further if the insolvency regime of the source countries improves along with that of the destination countries. If both were to improve by 1 standard deviation each, then total asset holdings could increase 1.6 times (Figure 5).

- *Regulatory quality*. Both cross-border portfolio debt and equity increase with better regulatory quality of destinations. While improvements in regulatory quality in the source countries could *reduce* the size of cross-border assets going to another country, results show that improvements in regulation in both the source and the destination countries increases assets overall and significantly so (Tables 9-10). If the destination regulatory quality improves, *ceteris paribus*, by 1 standard deviation—like, for example, the regulatory quality in Lithuania improving to Denmark's level—then asset holdings could improve 1½ times on average (Figure 5).

- *Insolvency, regulatory, and taxes.* Asset holdings would almost double if there is 1 standard deviation improvements in regulatory quality, insolvency regimes and lower taxes in destinations (Figure 5).

Table 1. Barriers: Measurement and Data Sources 1/

	Barrier	Measurement/data	Indicates	Variable Name	Year	Source
Legal & Regulatory	Extent of conflict of interest regulation (0-10)	Extent of disclosure Extent of director liability Ease of shareholder suits	Higher the better	minority_v11	2014-2017	WB DB
	Extent of shareholder governance index (0-10)	Extent of shareholder rights Extent of ownership and control Extent of corporate transparency	Higher the worse	minority_v12	2014-2017	WB DB
	Cost of enforcing contracts	Cost, in percent of claim	Higher the worse	enfcontract_v10	2004-2017	WB DB
	Quality of judicial processes		Higher the better	enfcontract_v25	2016-2017	WB DB
	Insolvency costs	percent of estate value paid in court fees, administrator and lawyer fees and others	Higher the worse	insolvency_v6	2004-2017	WB DB
	Recovery rate in an insolvency	Cents on the dollar recovered by secured creditors after costs on insolvency proceedings and depreciation are deducted and the outcome for the business (survival or not) is taken into account	Higher the better	insolvency_v13	2004-2017	WB DB
	Regulatory Quality	Standardized scores across countries: -2 to +2	Higher the better	rqe	2000-2016	WGI
Tax	Effective Average Tax Rate	percent	Fragmentation is bad	eatr	2000-2017	ZEW
	Corporate tax (% of profits)		Higher the worse	paytax_v6	2006-2017	WB DB
Information and disclosure	Transposition of EU legislations	Dummy variables	1 if "OK", 0 if not.			
	Accounting	Dummy variables		dum_ec_acc	2018	EC (Confidential data)
	Transparency	Dummy variables		dum_ec_tran	2018	EC (Confidential data)
	Statutory audit	Dummy variables		dum_ec_stataud	2018	EC (Confidential data)
	Market Abuse Regulation	Dummy variables		dum_ec_mar	2018	EC (Confidential data)
	Nonfinancial disclosure	Dummy variables		dum_ec_nfdisc	2018	EC (Confidential data)

Source: IMF staff

1/ "WB DB": World Bank *Doing Business*; "WGI": *Worldwide Governance Indicators (*Kaufmann and others 2010); "ZEW": Leibniz Centre for European Economic Research; "EC": European Commission.

Table 2. Summary Statistics: Risk-Sharing Regressions

	Obs	Mean	Std Dev
Nominal GDP (bill EUR)	476	1,743.20	5,066.25
Δln(Nominal GDP)	476	0.05	0.06
Investment Income dependent variable	464	0.00	0.02
Nominal Consumption (bill EUR)	476	1,290.53	3,692.77
Δln(Nominal Consumption)	476	0.04	0.05
Effective Average Tax Rate (EATR)-inbound	476	24.30	7.30
Recovery Rate in Insolvency (_v13)	376	63.45	23.80
Regulatory Quality (rqe)	420	1.21	0.43
Z_EATR_absolute (EU27 sample)	459	0.80	0.56
Z_Insolvency_v13 (EU27 sample)	362	0.00	0.98
Z_rqe (EU27 sample)	405	0.00	0.98
Z_EATR_absolute (EA sample)	323	0.81	0.55
Z_Insolvency_v13 (EA sample)	250	0.00	0.97
Z_rqe (EA sample)	285	0.00	0.98

Source: IMF staff estimates.

Table 3. Summary Statistics: Bilateral Portfolio Asset Regressions

Variable	Obs	Mean	Std Dev
Portfolio debt (USD bill)	10,936	9.9	31.4
Portfolio equity (USD bill)	10,632	5.5	24.9
Portfolio total (USD bill)	11,428	14.7	47.0
ln (portfolio debt)	9,871	-1.0	3.3
ln (portfolio equity)	9,308	-2.3	3.7
ln (portfolio total)	10,710	-0.9	3.3
ln (Nominal GDP)	11,751	5.4	1.6
EATR	11,427	24.3	7.8
Tax (% of profits)	8,203	44.2	12.6
Recovery Rate (Insolvency	9,335	65.6	23.5
Regulatory Quality (rqe)	10,137	1.3	0.4

Source: IMF staff estimates.

Table 4. Results—Baseline: Capital Market Smoothing and Unsmoothed Shocks			
OLS with panel correlated errors (PCSE)	**Coefficient (z statistic)**	**N**	**R-squared**
International factor income transfers			
EU28	0.07***	476	0.06
	(2.81)		
Euro area	0.10 ***	323	0.07
	(2.60)		
EA11	0.21 ***	187	0.14
	(2.65)		
Of which			
International investment transfers $(\boldsymbol{\beta^m})$			
EU28	0.08 ***	464	0.10
	(3.15)		
Euro area	0.12 ***	311	0.13
	(3.09)		
EA11	0.23 ***	175	0.25
	(3.05)		
Savings $(\boldsymbol{\beta^s+\beta^n})$			
EU28	0.09 **	476	0.19
	(2.15)		
Euro area	0.12 **	323	0.23
	(2.29)		
EA11	0.36 ***	187	0.38
	(3.59)		
Of which			
Direct equity investment ($\boldsymbol{\beta^n}$)			
EU28	*0.18*	*440*	*0.03*
	(1.60)		
Euro area	*0.42***	*292*	*0.04*
	(2.45)		
Unsmoothed $(\boldsymbol{\beta^u})$			
EU28	0.81 ***	476	0.87
	(24.90)		
Euro area	0.75 ***	323	0.83
	(17.65)		
EA11	0.41 ***	187	0.63
	(4.82)		
****,**,* denotes significance at 1, 5, 10 percent respectively.*			

Table 5. Results—Barriers and Cross-Border Investment Income Smoothing 1/

Dependent Variable: $\Delta logGDP_{it} - \Delta logGNI_{1,it}$

VARIABLES	base	zEA_eatr_in_out	zEA_insolv13	zEA_rqe	zEA_paytax	zEA_enf	dum_ec_tran	dum_ec_mar	dum_ec_nfdisc
dlnomgdp	0.119***	0.141***	0.127**	0.127***	0.0929***	0.115***	0.0917**	0.0986**	0.119***
	(0.0384)	(0.0491)	(0.0546)	(0.0428)	(0.0249)	(0.0267)	(0.0393)	(0.0407)	(0.0388)
zEA_eatr_in_out_nomgdp_abs		-0.0196							
		(0.0391)							
zEA_eatr_in_out_abs		-9.66e-05							
		(0.00229)							
zEA_insolvency_v13_nomgdp			-0.0107						
			(0.0344)						
zEA_insolvency_v13			-0.000190						
			(0.00113)						
zEA_rqe_nomgdp				-0.0235					
				(0.0297)					
zEA_rqe				9.17e-05					
				(0.00127)					
zEA_paytax_v6_nomgdp					-0.0448				
					(0.0383)				
zEA_paytax_v6					0.000169				
					(0.00150)				
zEA_enfcontract_v10_nomgdp						-0.0151			
						(0.0311)			
zEA_enfcontract_v10						0.000581			
						(0.00152)			
dum_ec_tran_nomgdp							0.0340		
							(0.0221)		
dum_ec_mar_nomgdp								0.0504	
								(0.0350)	
dum_ec_nfdisc_nomgdp									-3.12e-05
									(0.0490)
Constant	-0.00430	-0.00968**	-0.00276	-0.00430	-0.00354	-0.00746**	-0.00422	-0.00460	-0.00430
	(0.00360)	(0.00399)	(0.00366)	(0.00376)	(0.00343)	(0.00298)	(0.00359)	(0.00360)	(0.00371)
Observations	311	311	246	276	218	246	311	311	311
R-squared	0.133	0.135	0.178	0.139	0.199	0.178	0.136	0.143	0.133
Number of ctryn	19	19	19	19	19	19	19	19	19

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1/ Equations are estimated using OLS with panel-correlated standard errors, with year fixed effects. We tested all variables for joint significance ($\beta^{m,1} + \beta^{m,j} = 0$). With the exception of "zea_paytax_v6_nomGDP" they were found to be significant at the 5 percent level.

Table 6. Results—Barriers and Smoothing Through (Total) Savings 1/

Dependent Variable: $\Delta logGDNI_{it} - \Delta logC_{it}$

VARIABLES	base	zEA_eatr_in_out	zEA_insolv	zEA_rqe	zEA_paytax	zEA_enf	dum_ec_tran	dum_ec_mar	dum_ec_nfdisc
dlnomgdp	0.117**	0.158**	0.248***	0.189***	0.0140	0.122***	0.0875*	0.0455	0.0971**
	(0.0510)	(0.0784)	(0.0518)	(0.0517)	(0.0514)	(0.0401)	(0.0478)	(0.0581)	(0.0480)
zEA_eatr_in_out_nomgdp_abs		-0.0457							
		(0.0715)							
zEA_eatr_in_out_abs		0.00504							
		(0.00395)							
zEA_insolvency_v13_nomgdp			-0.145***						
			(0.0338)						
zEA_insolvency_v13			0.00416***						
			(0.00157)						
zEA_rqe_nomgdp				-0.162***					
				(0.0380)					
zEA_rqe				0.00622***					
				(0.00191)					
zEA_paytax_v6_nomgdp					-0.182***				
					(0.0516)				
zEA_paytax_v6					0.00348				
					(0.00226)				
zEA_enfcontract_v10_nomgdp						-0.0726*			
						(0.0434)			
zEA_enfcontract_v10						0.00171			
						(0.00213)			
dum_ec_tran_nomgdp							0.0361		
							(0.0347)		
dum_ec_mar_nomgdp								0.173***	
								(0.0651)	
dum_ec_nfdisc_nomgdp									0.153**
									(0.0600)
Constant	-0.0304***	-0.00658**	-0.0126**	-0.00144	0.00845*	-0.00958**	-0.0307***	-0.0294***	-0.0282***
	(0.00317)	(0.00331)	(0.00526)	(0.00461)	(0.00434)	(0.00454)	(0.00308)	(0.00290)	(0.00306)
Observations	323	323	250	285	218	250	323	323	323
R-squared	0.230	0.234	0.322	0.302	0.305	0.266	0.231	0.270	0.255
Number of ctryn	19	19	19	19	19	19	19	19	19

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1/ Equations are estimated using OLS with panel-correlated standard errors, with year fixed effects. The coefficients for "dum_ec_tran_nomgdp" and "zEA_eatr_in_out_nomgdp_abs" were found to be jointly significant at the 5 percent level.

Table 7. Results—Direct Equity Investment Risk Sharing 1/

Dependent Variable: $\Delta logGDNI_{1,it} - \Delta logC_{it}$

VARIABLES	base	zEA_eatr_in_out	zEA_insolv14	zEA_rqe	dum_ec_tran	dum_ec_mar	dum_ec_nfdisc
dlnomgdp	0.419**	1.966***	2.104	0.679***	0.0875*	0.347**	0.358**
	(0.171)	(0.650)	(2.597)	(0.260)	(0.0478)	(0.155)	(0.176)
zEA_eatr_in_out_nomgdp_abs		-1.428***					
		(0.504)					
zEA_eatr_in_out_abs		0.0276					
		(0.0190)					
zEA_insolvency_v14_nomgdp			-3.613				
			(8.157)				
zEA_insolvency_v14			0.132				
			(0.192)				
zEA_rqe_nomgdp				-0.436*			
				(0.262)			
zEA_rqe				-0.00810			
				(0.0154)			
dum_ec_tran_nomgdp					0.0361		
					(0.0347)		
dum_ec_mar_nomgdp						0.185	
						(0.273)	
dum_ec_nfdisc_nomgdp							0.539
							(0.328)
Constant	-0.00571	-0.0819	-0.140	-0.0411	-0.0307***	-0.00667	-0.0122
	(0.0671)	(0.0734)	(0.103)	(0.0598)	(0.00308)	(0.0669)	(0.0661)
Observations	292	292	72	259	323	292	292
R-squared	0.039	0.046	0.056	0.042	0.231	0.039	0.040
Number of ctryn	19	19	18	19	19	19	19

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1/ The dependent variable is a subset of the change in the NIIP, namely cross-border direct equity flows. Equations are estimated using OLS with panel-correlated standard errors, with year fixed effects. The coefficients for "dum_ec_tran_nomgdp", "dum_ec_mar_nomgdp" and "dum_ec_nfdisc_nomgdp" as well as "zea_insolvency_v14_nomgdp" were found to be jointly significant with dlnomgdp respectively at the 5 percent level.

Table 8. Results—Barriers and Risks Unshared 1/

Dependent Variable: $\Delta log C_{it}$

VARIABLES	base	zEA_eatr_in_out	zEA_insolv	zEA_rqe	zEA_paytax	zEA_enf	dum_ec_tran	dum_ec_mar	dum_ec_nfdisc
dlnomgdp	0.746***	0.687***	0.603***	0.678***	0.797***	0.754***	0.792***	0.834***	0.769***
	(0.0423)	(0.0536)	(0.0531)	(0.0463)	(0.0504)	(0.0416)	(0.0443)	(0.0334)	(0.0341)
zEA_eatr_in_out_nomgdp_abs		0.0581							
		(0.0568)							
zEA_eatr_in_out_abs		-0.00331							
		(0.00326)							
zEA_insolvency_v13_nomgdp			0.162***						
			(0.0339)						
zEA_insolvency_v13			-0.00309**						
			(0.00138)						
zEA_rqe_nomgdp				0.159***					
				(0.0327)					
zEA_rqe				-0.00508***					
				(0.00153)					
zEA_paytax_v6_nomgdp					0.108*				
					(0.0592)				
zEA_paytax_v6					-0.00117				
					(0.00207)				
zEA_enfcontract_v10_nomgdp						0.127***			
						(0.0431)			
zEA_enfcontract_v10						-0.00320			
						(0.00209)			
dum_ec_tran_nomgdp							-0.0568		
							(0.0372)		
dum_ec_mar_nomgdp								-0.214***	
								(0.0412)	
dum_ec_nfdisc_nomgdp									-0.177***
									(0.0534)
Constant	0.0205***	0.00683**	0.0229***	0.0117***	0.00526	0.0216***	0.0209***	0.0193***	0.0179***
	(0.00263)	(0.00270)	(0.00420)	(0.00391)	(0.00442)	(0.00121)	(0.00254)	(0.00233)	(0.00262)
Observations	323	323	250	285	218	76	323	323	323
R-squared	0.834	0.834	0.870	0.864	0.823	0.570	0.835	0.858	0.847
Number of ctryn	19	19	19	19	19	19	19	19	19

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1/ Equations are estimated using OLS with panel-correlated standard errors, with year fixed effects. The coefficients for dum_ec_mar_nomgdp, dum_ec_tran_nomgdp and zea_eatr_in_out_abs were found to be jointly significant with that of dlnomgdp respectively at the 1 percent level.

Table 9. Results—Bilateral Private Portfolio Connections and Barriers One-by-One 1/

	ln(Portfolio Debt)		ln(Portfolio Equity)		ln(Total)	
VARIABLES	(1)	(2)	(1)	(2)	(1)	(2)
lNGDP	1.589***	1.974***	2.496***	3.346***	1.920***	2.460***
	(0.327)	(0.283)	(0.374)	(0.361)	(0.279)	(0.252)
eatr_in	0.00146	0.00354	0.00852	0.00333	0.000777	0.00172
	(0.00930)	(0.00707)	(0.0101)	(0.00907)	(0.00816)	(0.00727)
insolvency_v13	0.00370		0.00457		0.00773**	
	(0.00418)		(0.00343)		(0.00367)	
counter_insolvency_v13	0.0116***		0.00110		0.00902***	
	(0.00422)		(0.00346)		(0.00305)	
rqe		-0.328		-0.393*		-0.311*
		(0.199)		(0.201)		(0.172)
counter_rqe		1.052***		0.789***		0.902***
		(0.217)		(0.179)		(0.173)
Constant	-11.28***	-12.93***	-16.45***	-21.11***	-12.72***	-15.03***
	(1.880)	(1.573)	(2.022)	(1.862)	(1.592)	(1.359)
Observations	7,578	8,557	7,293	8,033	8,239	9,269
R-squared	0.061	0.122	0.111	0.231	0.073	0.173
Number of country-pairs	710	710	676	681	722	721

Source: IMF staff estimates.

1/ The regressions are estimated by panel OLS, with country-pair fixed effects, year fixed effects, and standard errors clustered by country-pairs (shown in parenthesis); *** p<0.01, ** p<0.05, * p<0.1. All asset connections are directional, with "counter_[ ]" representing variables for destinations.

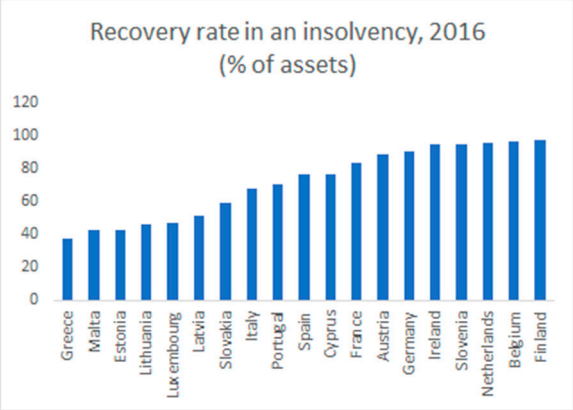
Table 10. Results—Bilateral Private Portfolio Connections and Barriers Together 1/

	(1)	(2)	(3)
VARIABLES	ln(portfolio debt)	ln(portfolio equity)	ln(total)
insolvency_v13	0.00297	0.00343	0.00720*
	(0.00424)	(0.00364)	(0.00386)
counter_insolvency_v13	0.0117***	-0.000181	0.00857***
	(0.00404)	(0.00343)	(0.00296)
rqe	-0.604***	-0.558***	-0.679***
	(0.222)	(0.212)	(0.184)
counter_rqe	1.171***	0.751***	0.919***
	(0.242)	(0.178)	(0.183)
lNGDP	1.983***	2.852***	2.314***
	(0.358)	(0.426)	(0.300)
eatr_in	-0.00189	0.00575	-0.00171
	(0.00906)	(0.0106)	(0.00819)
Constant	-13.90***	-18.59***	-15.05***
	(2.045)	(2.131)	(1.665)
Observations	6,997	6,707	7,587
R-squared	0.080	0.108	0.092
Number of connections	705	673	720

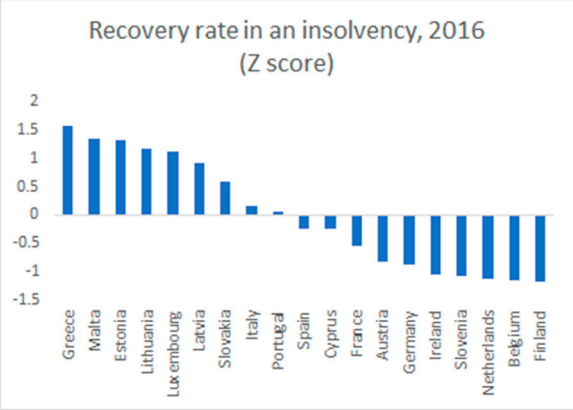
Source: IMF staff estimates.
1/ The regressions are estimated by panel OLS, with country-pair fixed effects, year fixed effects, and standard errors clustered by country-pairs (shown in parenthesis); *** p<0.01, ** p<0.05, * p<0.1. All asset connections are directional, with "counter_[ ]" representing variables for destinations.

Figure 2. Barriers: Selected Examples of Data and Z-scores

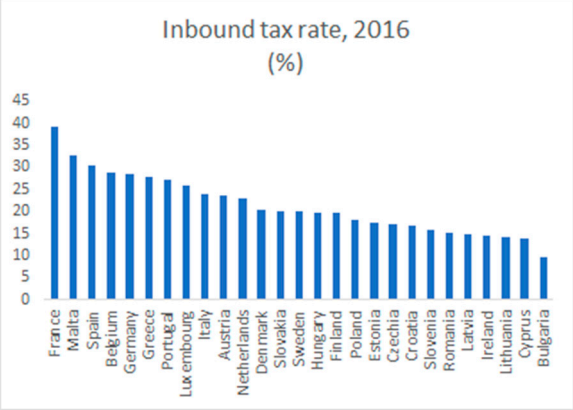
The data on recovery rates....



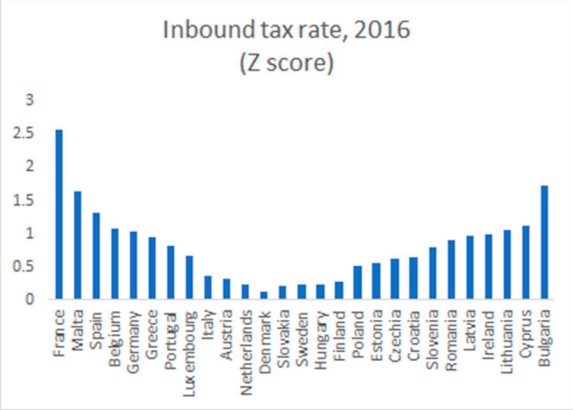
...is transformed into z-scores for each year, with z-scores increasing with worse ratings



The average capital markets tax rate that EU countries face on financial investments in a country....



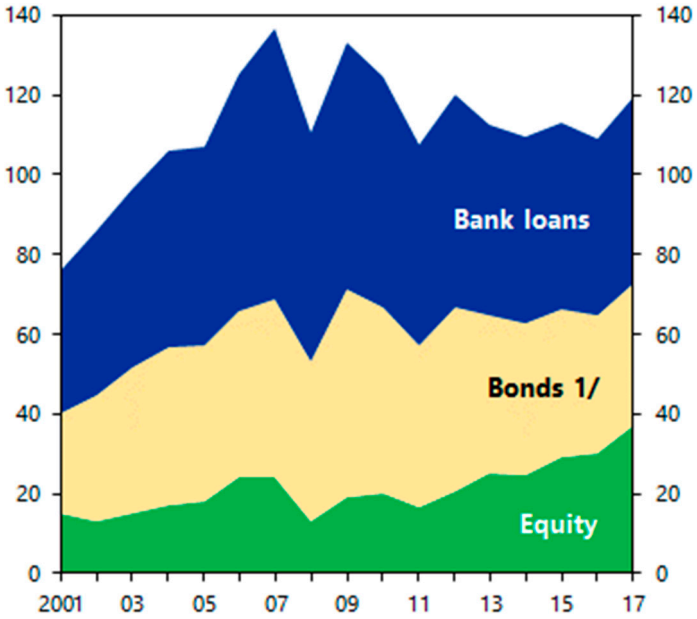
...is transformed into a z-score that penalizes countries from their absolute deviation from the average. Countries with the highest and the lowest tax rates have the highest z-scores.



Sources: World Bank Doing Business Indicators; ZEW; IMF staff estimates.

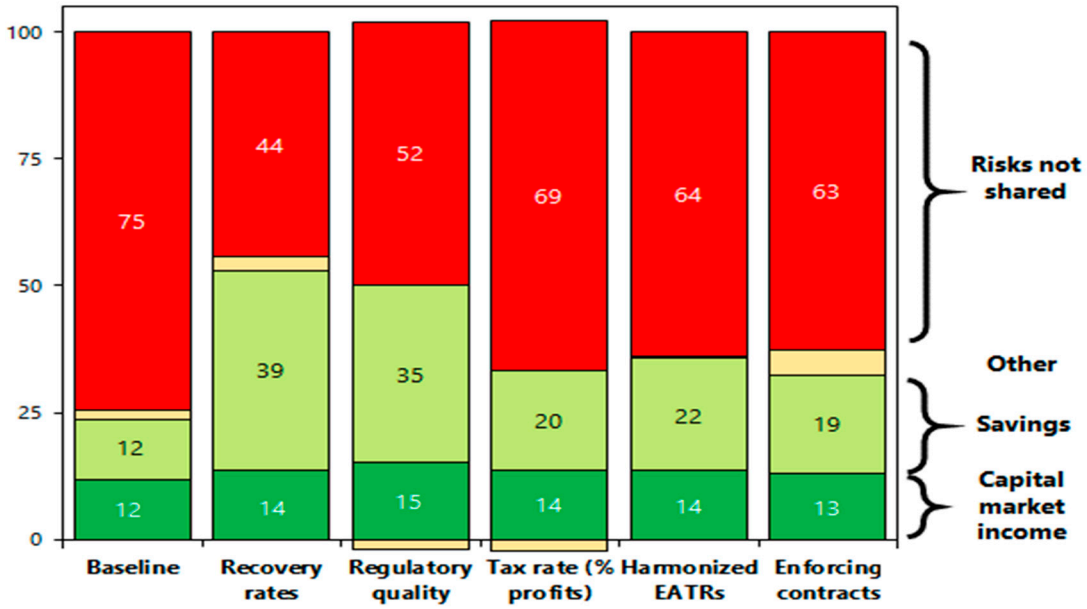
Figure 3. Cross-Border Financial Claims Within the EU, 2001–17
(Sum of bilateral asset holdings in percent of EU GDP)

Cross-border equity claims have increased steadily



Sources: Bank for International Settlements, Locational Banking Statistics; IMF, Coordinated Portfolio Investment Survey; and IMF staff calculations.
1/ Central bank holdings and government securities are removed.

Figure 4. Relative Strength of Barriers in Influencing Risk Sharing 1/

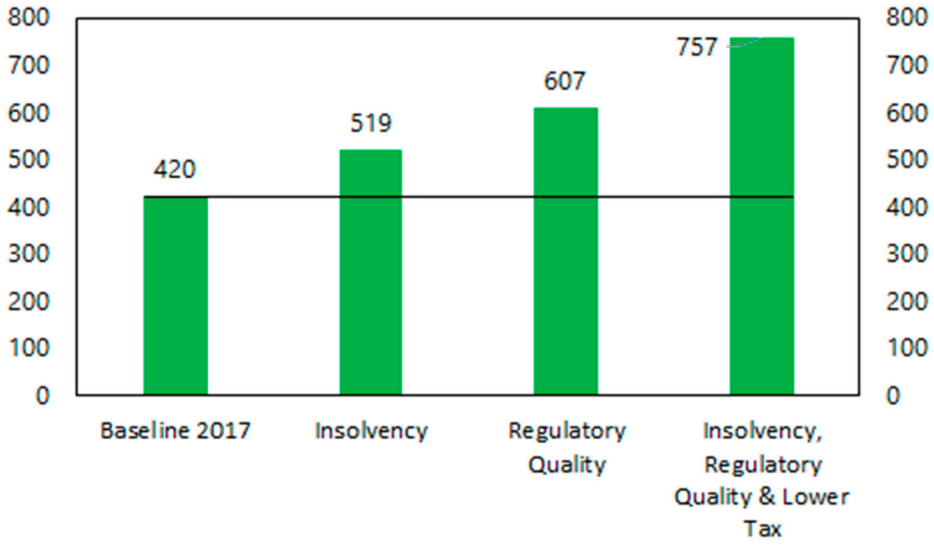


	Baseline	Recovery rates	Regulatory quality	Tax rate (% profits)	Harmonized EATRs	Minority Shareholder Protection*	Enforcing contracts
β^{m}	12	14	15	14	14	35	13
β^{Other}	2	3	-2	-2	0	-3	5
β^{u}	75	44	52	69	64	7	63
$\beta^{savings}$	12	39	35	20	22	61	19

Source: IMF staff estimates.

1/ The figure shows the sizes of risk-sharing channels when each barrier is reduced by 1 standard deviation, that is, putting z =-1 in Tables 5, 6, and 8. The "Minority Shareholder Protection" is based on limited data for 4 years for the euro area countries, and its results are not reported in the main text. The data behind the figure is summarized in the table.

Figure 5. Average Bilateral Portfolio Asset Holdings After Lowering Obstacles in Destination Countries by 1 Standard Deviation 1/
(Level, USD millions)



Source: IMF staff estimates.
1/ Simulations based on estimates in Table 9 (last two columns) and Table 10 (last column).

Annex. Z-Scores for 2016

The z-scores on barriers vary over time. As an illustration, below are the z-scores for Regulatory, Insolvency and Taxes for each country in 2016, shown in a chart in the main SDN text. The aggregate score for each country is calculated by taking the sum of the three z-scores. The barriers are discussed in Table 1, with summary statistics in Table 2.

Country	Recovery Rate in an Insolvency	Regulatory quality	Effective Average Tax Rates	Sum	Average
GRE	1.32	1.98	0.94	4.24	1.41
BUL	1.36	0.96	1.72	4.05	1.35
HRV	1.52	1.57	0.65	3.74	1.25
ROM	1.42	1.11	0.91	3.44	1.15
MAL	1.09	-0.03	1.64	2.71	0.90
HUN	0.99	1.07	0.24	2.31	0.77
LTU	0.94	0.01	1.06	2.02	0.67
FRA	-0.71	0.15	2.57	2.01	0.67
LVA	0.69	0.13	0.97	1.79	0.60
POR	-0.14	0.59	0.83	1.28	0.43
ITA	-0.02	0.86	0.37	1.21	0.40
ESP	-0.41	0.27	1.32	1.18	0.39
SVK	0.38	0.51	0.21	1.10	0.37
POL	0.21	0.38	0.51	1.09	0.36
CYP	-0.42	0.18	1.12	0.89	0.30
CZE	-0.16	0.31	0.63	0.78	0.26
SLV	-1.21	1.00	0.80	0.59	0.20
EST	1.07	-1.10	0.56	0.52	0.17
LUX	0.89	-1.15	0.67	0.41	0.14
BEL	-1.27	-0.39	1.07	-0.59	-0.20
AUT	-0.95	-0.59	0.31	-1.23	-0.41
DEU	-1.00	-1.34	1.04	-1.30	-0.43
IRL	-1.19	-1.19	1.00	-1.38	-0.46
SWE	-0.67	-1.42	0.22	-1.86	-0.62
DNK	-1.20	-0.86	0.13	-1.92	-0.64
FIN	-1.30	-1.34	0.27	-2.38	-0.79
NDL	-1.25	-1.66	0.23	-2.67	-0.89

Sources: World Bank *Doing Business Indicators*; *Worldwide Governance Indicators* (Kaufmann and others, 2010); ZEW; IMF staff estimates.

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NOTE 4. SURVEY ON OBSTACLES TO CAPITAL MARKET INTEGRATION IN THE EU[1]

1. Design and participants. The survey on Barriers to Cross-Border Investment ("IMF CMU Survey") was sent to 249 investors, including the largest asset managers (51), pension funds (46), venture capital funds (102) and insurance companies (50) in Europe. It was also sent to national European market regulators. The survey was completed by 10 financial institutions and 21 national regulators. In addition, private equity investors responded to the survey questions as a group.

2. Scope of survey. The survey included three parts: (i) country specific questions on capital market developments, data availability, legal, regulatory and tax barriers, (ii) progress on specific capital market union milestones, and (iii) general questions on the impact of Brexit and regulation of capital markets in Europe (Annex). At the end of the survey, respondents were invited to provide any additional comments on obstacles to cross-border investment and, in the case of private investors only, to indicate the size of their financial assets (proprietary or managed) in each member state.

- *Country specific questions*. This part of the survey strived to better understand the relative importance of various deterrents to cross-border financial integration. Respondents were asked to rate the level of secondary market liquidity in equity and private debt markets (on a scale of 1 (very high) to 5 (very low). They were also asked to provide their views on information availability on credit risk, data on quotes and trades and the availability of prospectuses in English (accessible, somewhat accessible, not accessible). Finally, respondents were asked to what extent various legal, regulatory and tax barriers deter cross-border investment (no deterrent, somewhat a deterrent, high deterrent). Respondents were asked to provide a country-specific score for each of the 28 EU countries or the EU27 or euro area overall.

- *Progress on specific CMU milestones*. This part was aimed to assess how useful the various European Commission CMU initiatives have been in fostering more cross-border investment. Respondents were asked to rank helpfulness on a scale of 1 (extremely helpful) to 5 (not at all helpful). Initiatives that respondents were asked about included the Prospectus Regulation, Securitization Regulation and Venture Capital Regulation. They were also asked to assess the effectiveness of various directives and regulations (for example on covered bonds, investment funds, crowdfunding, personal pensions (PEPP)) at harmonizing markets. In all cases, respondents were given an opportunity to provide additional comments on further improvements needed.

- *General questions*. This part strived to gather more information on respondents' views on the impact of Brexit and how regulation of capital markets should be conducted in Europe. Respondents were asked to indicate their level of agreement on a scale of 1 (strongly agree) to 5 (strongly disagree) with statements such as: "Europe needs a single supervisor and regulator for

[1] Prepared by Anke Weber and Srobona Mitra, of the IMF's European Department.

all market-based activities" and "Brexit makes financial market activities more complex and therefore more complicated to supervise".

3. Broad takeaways

- *Severity of different types of obstacles.* Deficiencies in insolvency frameworks, regulatory quality and quality of auditors are significant obstacles to cross-border investment in most of the EU27 countries. That said, scores in the three other areas (data availability, level of taxes and length and difficulty of reclaiming withholding taxes) are not much lower (Figure 1).

- *Institutional impediments*. Restrictions on access to trading platforms and differences in listing requirements hinder firms' ability to raise funds from cross-border venues. Survey results show that more than 40 percent of respondents considered listing requirements in the EU27 were somewhat of a deterrent to cross-border integration. A third of the participants felt that protectionist policies hindered cross-border M&As (Figure 1).

- *EU vs. euro area vs. U.K*. The U.K scores much higher in most areas than the euro area or EU27 overall. This is particularly evident for regulatory quality, and information accessibility. While the UK scored highly on secondary market liquidity, EU27 countries lagged on this score (Figure 2).

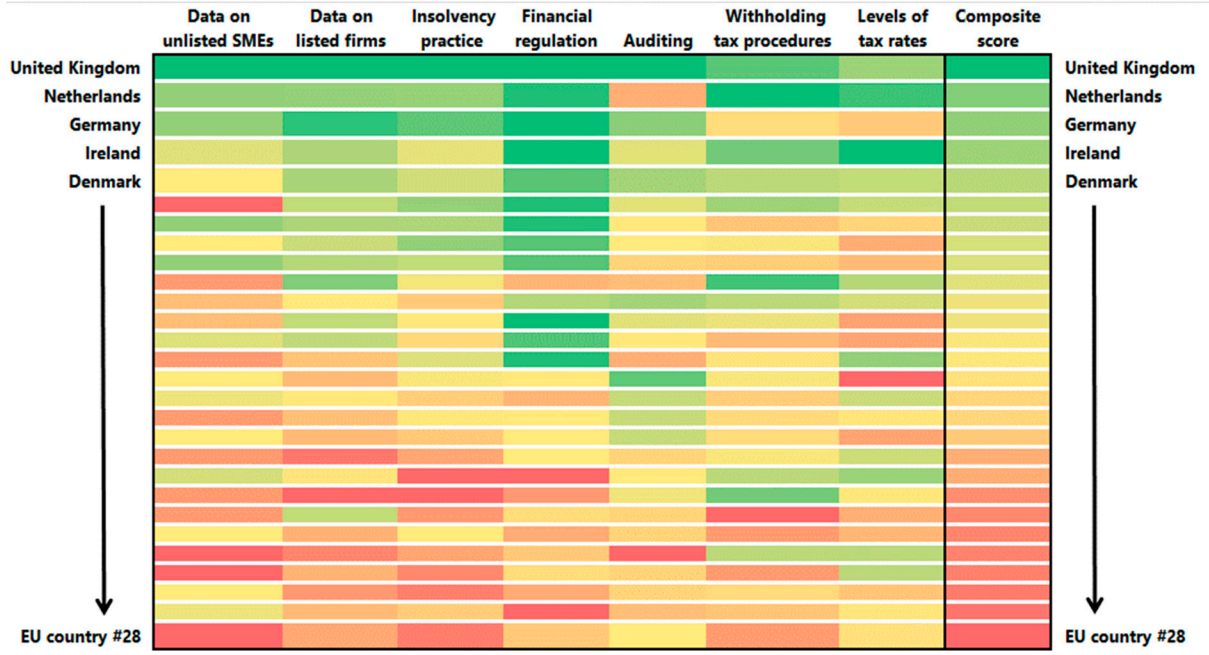
- *Securities markets and cross-border comparability*. Listing requirements, accounting differences, and restrictions on cross-border offerings are impediments to capital flows (Figure 2). More than half were concerned about home and host country restrictions cross-border product offerings and over 40 percent of respondents flagged insufficient protection of minority investors and weaknesses in the laws that govern the ownership and transfer of securities.

- *Consistency with similar indicators*. The IMF survey-based results are broadly consistent with similar indicators provided by other international organizations, (e.g., the correlation between the IMF CMU Survey overall score as shown in Figure 1 and the overall z-scores (Annex in Background Note 3, and Figure 11 in the main SDN) computed from third-party indicators are correlated by 0.74 (Figure 3).

- *Progress on specific CMU milestones*. Respondents were generally complimentary of the various CMU initiatives by the European Commission. The majority found these useful in enhancing cross-border integration (Figure 3)

- *General questions*. There was broad agreement that further harmonization of insolvency regimes would be desirable. Respondents also viewed Fintech as a useful avenue to help connect local markets. There was some support for giving ESMA more supervisory power and for having a single euro area supervisor and regulator for capital market-based activities. Some respondents felt that after Brexit capital markets in Europe would be more complicated to supervise (Figure 4).

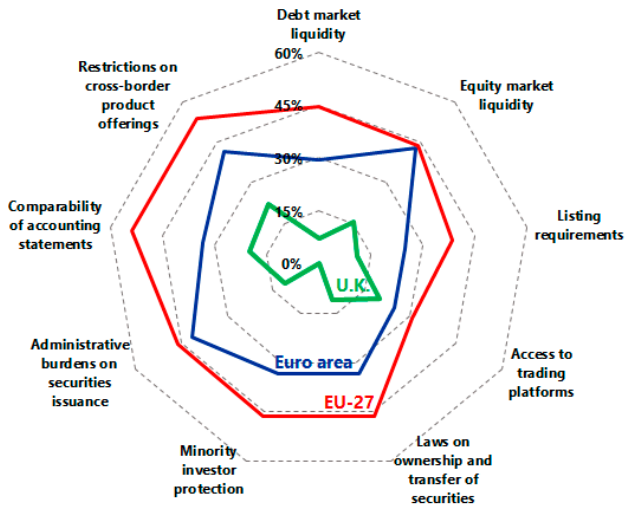
Figure 1. IMF CMU Survey Results: By Country and Area 1/



Source: IMF CMU Survey; IMF staff calculations.
1/ MEs = small and medium enterprises. Red = 3 (high concern), yellow = 2 (medium concern), green =1(no concern). For each country the composite score is a simple average of scores in each of the seven areas listed in the figure; the colors in the last column reflect relative composite scores across countries.

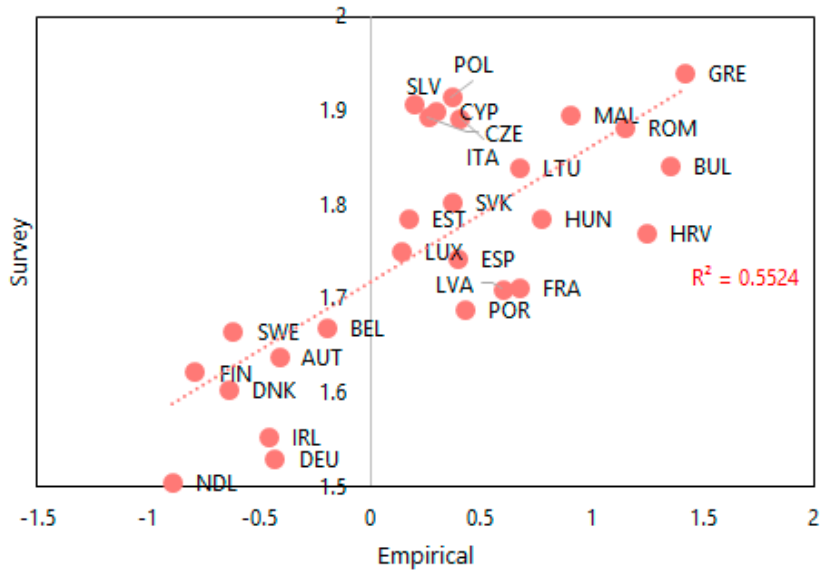
Figure 2. IMF CMU Survey Results: Equity and Debt Markets

(Percent of respondents citing inadequacy or concern) 1/



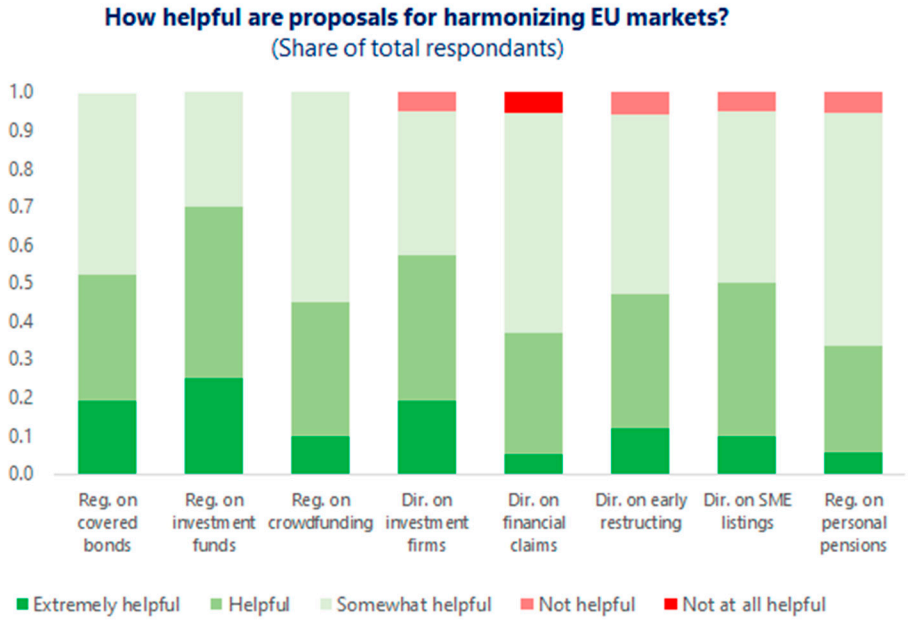
Source: IMF CMU Survey.

Figure 3. IMF CMU Survey Results: Correlation with Average Scores Based on Third-Party Indicators on Barriers 1/



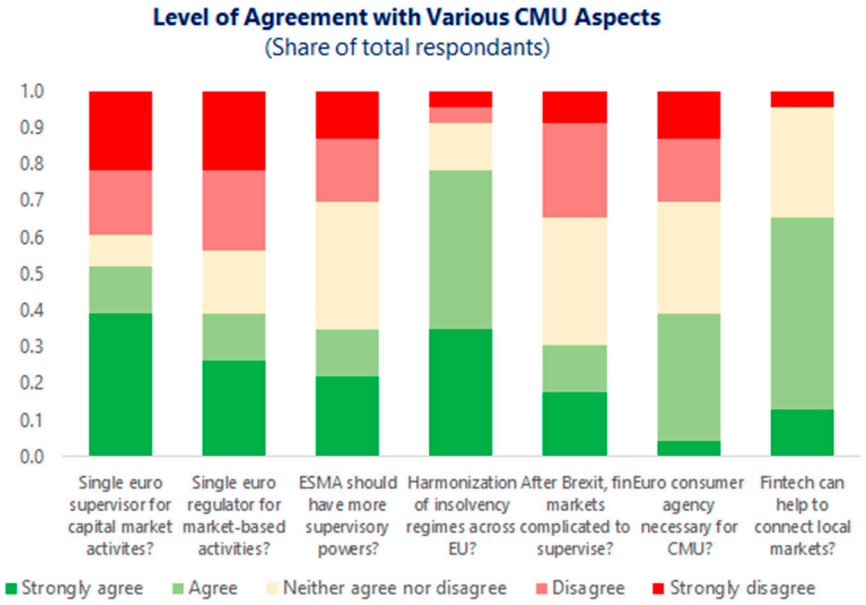
Source: IMF CMU Survey; World Bank; IMF staff estimates.
1/ Chart depicts composite scores from IMF survey and those from the average z-scores on barriers from the Annex in Background Note 3.

Figure 4. IMF CMU Survey: Harmonizing EU Markets



Source: IMF CMU Survey; IMF staff estimates.

Figure 5. IMF CMU Survey: CMU Action Plan Initiatives



Source: IMF CMU Survey; IMF staff estimates.

Annex. Survey Questions for Investors and Market Regulators in Europe on Barriers to Cross-Border Investment

Survey Questions for Investors and Market Regulators in Europe on Barriers to Cross-Border Investment

Part 1. Country-specific	AUT	BEL	CYP	EST	FIN	FRA	GER	GRE	IRL	ITA	LVA	LTU	LUX	MAL	NDL	POR	SVK	SVN	ESP	BUL	CRO	CZE	DEN	HUN	POL	ROM	SWE	UK	EA19	EU28
Capital market development (very high, high, neutral, low, very low, don't know)																														
1 How would you rate the level of secondary market liquidity in private debt markets in the member state/EA/EU ?																														
2 How would you rate the level of secondary market liquidity in equity markets in the member state/EA/EU?																														
Data/Information																														
Please rate the following (accessible, somewhat accessible, not accessible, don't know):																														
3 To what extent is information on credit risk (e.g., on non-performing loans and loan details such as dates and amount outstanding) readily accessible?																														
o Unlisted SMEs																														
o Listed firms																														
4 How accessible are data on quotes and trades from the national exchanges?																														
5 To what extent are prospectuses on firms in English readily available?																														
Legal, regulatory and tax barriers																														
Please rate to what extent each of the following are a barrier/deterrent to cross-border investment (not a deterrent, somewhat deterrant, high deterrant, don't know):																														
6 Level of capital gains tax rates																														
7 Length and difficulty of procedures for reclaiming a withholding tax																														
8 Level of withholding tax rates (interest/dividend)																														
9 Level of corporate income tax rate																														
10 Functioning of courts																														
11 Legal framework surrounding ownership and transfer of securities																														
12 Insufficient protection of minority investors																														
13 Excessive protection of minority investors																														
14 Insolvency framework (cost, recovery rates and length of time of procedures)																														
15 Administrative burdens associated with the issuance of securities (including prospectus and filing requirements)																														
16 Comparability of accounting statements																														
17 Quality of auditors																														
18 Financial regulatory quality (clarity, consistency and efficiency of regulatory processes, inspection, investigation and surveillance power of regulator)																														
19 Restrictions imposed by home or host country in offering cross-border products to investors																														
20 Protectionist policies inhibiting cross-border mergers and acquisitions																														
21 Differences in listing requirements																														
22 Access restrictions to trading platforms																														

Annex. Survey Questions for Investors and Market Regulators in Europe on Barriers to Cross-Border Investment (concluded)

Part 2: Progress on Specific CMU Milestones

This part would seek to obtain an overall score that is not country specific.
Please rate the following (extremely helpful, helpful, somewhat helpful, not helpful, and not at all helpful):

		Additional comments on further improvements needed
1	Once fully implemented, how helpful will the EU Prospectus regulation be in enabling investors to make informed decisions and in reinforcing investor protection?	
2	Once it becomes applicable to transactions in 2019, how helpful will the EU STS securitization regulation be in promoting more securitization?	
3	How helpful is the EU venture capital regulation at boosting investment in start-ups and innovation?	
4	How helpful are the following proposals for harmonizing EU markets:	
	o Regulation and Directive on covered bonds	
	o Regulation and Directive on investment funds (UCITS/AIFMD)	
	o Regulation and Directive on crowdfunding	
	o Directive on investment firms	
	o Directive on financial claims	
	o Directive on early restructing and second chance	
	o Directive on SME listings	
	o Regulation on PEPP (personal pensions)	

Part 3: General Questions

This part would seek to obtain an overall score that is not country specific.

On a scale of 1 (fully disagree) to 10 (fully agree), please rate the following:

1	There should be a single European supervisory institution for all institutions that are engaged in capital market activities.	
2	There should be a single European regulator for all market-based activities.	
3	ESMA should have more supervisory powers.	
4	There is a need for greater harmonization of insolvency regimes across member states.	
5	After Brexit, financial market activities are going to be more complex and therefore more complicated to supervise.	
6	A pan European consumer agency that oversees consumer protection is a necessary condition for a truly integrated capital market.	
8	New FinTech solutions can help to better connect local markets to integrated financial centres with large pools.	
9	There is a need for further harmonization across countries of the implementation of various EU legislations:	
	o MiFID2 [for trading venues, exchanges, investment firms, securities]	
	o UCITS [mutual funds]	
	o AIFMD [alternative investment funds]	
	o EMIR [derivative transactions, CCPs]	
	o CSDR [post-trade]	
	o IORP II [pensions]	
	o Solvency II [insurance]	
10	After Brexit, it will be difficult to sell products and conduct cross-border trades using the following legislations:	
	o MiFID2 [for trading venues, exchanges, investment firms, securities]	
	o UCITS [mutual funds]	
	o AIFMD [alternative investment funds]	
	o EMIR [derivative transactions, CCPs]	
	o IORP II [pensions]	
	o Solvency II [insurance]	

Please provide any other comments on barriers to cross-border investment

NOTE 5. REGULATING AND SUPERVISING EU SECURITIES MARKETS[1]

A. Regulation and Supervision of Securities Markets

1. Securities regulation primarily focuses on protecting investors, ensuring fair and efficient markets for trading securities, and managing systemic risk. These objectives are interrelated and often a mechanism primarily designed to achieve one objective also supports the others. Focus on investor protection and market fairness and efficiency translates into investors having all necessary information to make investment decisions; market operators and intermediaries being fit and proper and abiding by appropriate conduct of business rules; and promoting transparency of prices. Prudential supervision in securities markets has a dual focus: the capital of firms is relevant in that it should allow for an orderly liquidation in the event of bankruptcy, but regulatory and supervisory efforts should also ensure that if a firm fails, its counterparties, clients and markets themselves suffer minimal damage. This turns the focus to proper clients' asset segregation and margin requirements and default rules at exchanges and clearing systems.

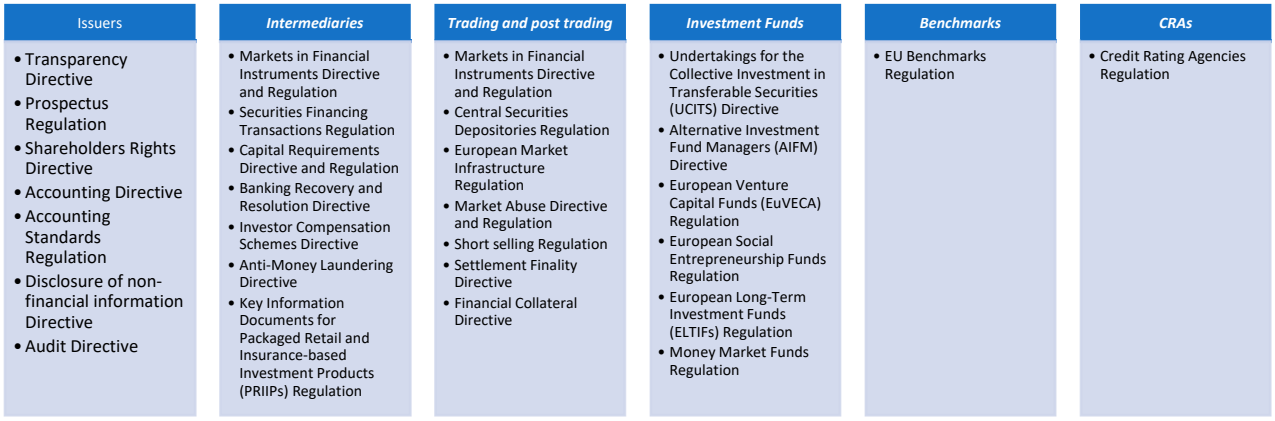
2. In contrast with banking, securities regulation generally encompasses a broad and diverse group of entities performing significantly different activities involving different risks. The scope of regulatory responsibility covers not just regulation and supervision of investment firms, but the products offered in the market and their issuers, the operations of the markets themselves, and other market participants such as financial market infrastructure. Financial market infrastructure (securities clearing and settlement systems) are generally the joint responsibility of securities regulators and the central bank given their connection to the payment systems and their potential for systemic impact. The breadth of objectives of securities regulation, responsibilities, entities supervised, range of instruments affected and ways those responsibilities are carried out results in no two countries' regimes being identical.

B. The EU Framework for Securities Markets

3. The securities regulatory framework in the EU aims to harmonize standards for the regulation and supervision of EU capital markets. In constant evolution since the approval of the Financial Services Action Plan by the European Commission in 1999 and spurred by subsequent initiatives including the de Larosière Report in 2009 and, more recently, the CMU Action Plan, the EU securities rule book is a complex and extensive compilation of legislation and regulations that cover most aspects of capital markets activities, from raising capital, trading and asset management, to clearing and settlement of transactions.

[1] Prepared by Cristina Cuervo of the IMF's Monetary and Capital Markets Department.

Figure 1. Most Relevant Capital Markets Directives and Regulations



Source: IMF staff.

4. Several layers of legislation, implementing rules and guidelines make up the EU single rulebook. The framework principles are set by Level 1 measures, adopted by the European Parliament and the Council of the EU in the form of Directives or Regulations. Regulations are directly and entirely applicable to all member states, whereas Directives must be transposed by member states into national law. Level 2 measures are the next step of regulation. They can take the form of Implementing Directives or Implementing Regulations issued by the Commission by delegated authority; or regulatory or implementing technical standards drafted by the European Securities and Markets Authority (ESMA) and, in some cases, by other European Supervisory Authorities (ESAs). Regulatory and Implementing Technical Standards are formally adopted by the European Commission, and they become either Delegated Regulations (in the case of Regulatory Technical Standards) or Implementing Regulations (in the case of Implementing Technical Standards). Level 3 measures are guidelines and recommendations issued by ESMA (and in some instances other ESAs) and aim to ensure consistent application by national regulators of the Level 1 and 2 frameworks.

5. Supervision of capital market activities relies with the National Competent Authorities (NCAs), while ESMA plays mainly a harmonizing role. Under this structure, the NCAs are responsible for the supervision of national securities markets and enforcement of the regulatory framework. ESMA carries out the direct supervision of specific financial entities in the EU (Credit Rating Agencies and Trade Repositories) and promotes supervisory convergence across the membership. ESMA was created further to the recommendations of the de Larosière Report as part of a broader plan for a more efficient and integrated framework for the supervision of the EU financial system. In addition to ESMA, this new framework consisted of the European Systemic Risk Board (ESRB), and supervisory authorities for the banking and insurance sectors, the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA).

6. ESMA is an independent EU authority that contributes to safeguarding the stability of the financial system by enhancing investor protection and promoting stable and orderly

markets. It began operations in 2011 and replaced the Committee of European Securities Regulators (CESR), a network of EU authorities to promote consistent supervision across the EU and provide advice to the EC. While ESMA is independent, there is full accountability towards the European Parliament where it appears before the Economic and Monetary Affairs Committee (ECON) at their request for formal hearings. It also has full accountability towards the Council of the EU and EC.

7. ESMA's Board of Supervisors makes the policy decisions, while a Management Board ensures it carries out its mission. The Board of Supervisors guides the work of ESMA and has the ultimate decision-making responsibility on a broad range of matters, including the adoption of Technical Standards, Opinions and Guidelines. It is supported by standing committees and working groups that deal with technical issues. The Board of Supervisors is composed of the ESMA Chair and the heads of the NCAs responsible for securities regulation and supervision. Additionally, the European Commission, the ESRB, the EBA, EIOPA and the European Free Trade Association Surveillance Authority are non-voting members. In turn, the Management Board focuses on the development of the work program, budget and resources. It is composed of the ESMA Chair and six members selected from the Board of Supervisors.

8. Broader coordination of financial supervisory activities takes place at the Joint Committee, whose objective is to strengthen cooperation between the three ESAs. Through the Joint Committee, the ESAs coordinate their supervisory activities and ensure consistency in their practices. In particular, the Joint Committee works in areas of micro-prudential analysis of cross-sectoral developments, risks and vulnerabilities for financial stability, retail investment products, supervision of financial conglomerates, accounting and auditing and measures combating money laundering. The Joint Committee also plays an important role in the exchange of information with the ESRB and in developing the relationship between the ESRB and the ESAs.

C. Why Does the Single Rulebook Not Achieve Harmonization?

9. The single rule book covers the range of capital market issues in detail, but there is still some degree of discrepancy in member states' regulatory frameworks and in how they are applied. Directives are transposed into national legislation by each member state, which provides flexibility to adapt them to national legal frameworks and translates into differences in the resulting regulatory frameworks. These frameworks are interpreted and supervised by each NCA, which can also lead to fragmentation in the application of regimes. Finally, there are still areas which have not been fully harmonized at the regulatory level. An example of this is the quite varied availability and use of liquidity risk management tools in the regulation of UCITS across the EU membership, with countries taking different approaches to this issue both in legislation and in the supervision or licensing of investment funds, as recent Financial Sector Assessment Programs (FSAPs) have shown.

An Example of the EU Single Rulebook
Legislation on Undertakings for Collective Investment in Transferable Securities (UCITS)

The first UCITS Directive (UCITS I), adopted in 1985, is a "product" Directive that created the first EU open-ended collective investment structure invested in transferable securities. The UCITS Directive launched a single EU common framework with common minimum organizational and operational requirements for UCITS to operate and providing the ability for a UCITS to be sold to the public across the EU. UCITS I was revised in 2001 through (a) the 'Management' Directive No 2001/107/EC which introduced a single EU status for UCITS management companies to operate throughout the EU and a simplified prospectus to provide information in a simplified format to UCITS investors, and (b) the 'Product' Directive No 2001/108/EC allowing UCITS to invest in a wider range of financial instruments including derivatives. The UCITS III 'package' was adopted in 2002 and came into effect in 2003. In 2009 Directive No 2009/65/EC, also known as 'UCITS IV Directive' was adopted. It became applicable on July 1, 2011. It introduced the requirement for a Key Investor Information Document (KIID), replacing the simplified prospectus, and common frameworks for mergers and master-feeder structures. The 'UCITS V Directive' No 2014/91/EU amended the 2009 version by introducing additional definitions of the tasks and liabilities of UCITS' depositaries, strengthening the rules on remuneration and creating a common framework for sanctions. It became applicable on March 18, 2016.

UCITS master legislation is complemented by the following measures:

1. Commission Implementing Regulation (EU) 2016/1212 laying down technical standards for the submission of information to ESMA;
2. Commission Delegated Regulation (EU) 2016/438 on depositaries' obligations;
3. Commission Directive 2010/43/EU on organizational, conflicts of interest, conduct of business and risk management requirements and content of the agreement between a depositary and a management company;
4. Commission Regulation (EU) No 583/2010 on the content of the KIID;
5. Commission Regulation (EU) No 584/2010 on standard notification to a host member state competent authority and UCITS attestation, use of electronic communication between competent authorities, and procedures for on-the-spot investigations and exchange of information between competent authorities;
6. Commission Directive 2010/42/EU relates to certain provisions concerning fund mergers and master-feeder structures.
7. Commission Delegated Regulation (EU) 2018/1619 of 12 July 2018 amending Delegated Regulation (EU) 2016/438 as regards safe-keeping duties of depositaries

The framework set out above is further detailed by Level 3 measures, the most important of which are guidelines issued by ESMA such as:[1]

1. Guidelines on sound remuneration policies (2016);
2. Guidelines on ETFs and other UCITS issues (2014);
3. Guidelines on risk measurement and the calculation of global exposure for certain types of structured UCITS (2012);
4. Guidelines - Selection and presentation of performance scenarios in the KIID for structured UCITS (2010);
5. Guidelines - Common definition of European money market funds (2010);
6. Guideline on the methodology for the calculation of the synthetic risk and reward indicator in the KIID (2010);
7. Guideline on the methodology for calculation of the ongoing charges figure in KIID (2010); and
8. Guidelines- Risk Management principles for UCITS (2009).

[1] Guidelines previously issued by CESR were grandfathered.

10. ESMA plays a harmonizing role both via the issue of Level 3 measures and through the promotion of supervisory convergence. To a certain extent, ESMA's guidelines address the above-mentioned regulatory fragmentation by creating non-binding practical guidance for national regulators and industry, the so-called Level 3 measures. ESMA also takes an active role in the promotion of supervisory convergence, or the consistent implementation and application of the same rules using similar approaches across the member states for the purposes of ensuring a level playing field. It does this mainly using guidelines, opinions and Q&As, and to a more limited extent through supervisory colleges and peer reviews. ESMA's powers are of course limited, and it cannot enforce the use of non-binding guidance or the implementation of recommendations from peer-reviews.

D. Impact of the CMU Project

11. There has been considerable progress towards unification of European capital markets in the past decades and, more recently, under the CMU Action Plan. Building on harmonization underway in the EU for more than two decades, the CMU Action Plan proposed to address certain priority areas to put in place the building blocks for a well-regulated and integrated CMU.

12. Two years after the adoption of the CMU Action Plan, some important initiatives have been delivered. The Prospectus Regulation replaced the Directive and was adopted in June 2017, cutting red tape for companies seeking financing opportunities. In October 2017, Regulations on European Venture Capital and Social Entrepreneurship Funds were adopted aiming to boost investment into venture capital and social projects. The Regulation on Simple, Transparent and Standardized Securitizations was adopted in December 2017, with the purpose of helping to build confidence in the securitization market.

13. Many other significant initiatives are underway. So far, 10 out of 13 proposals putting in place the building blocks of the CMU are under discussion by the EU co-legislators. These include the proposal on more proportionate and effective prudential rules for investment firms and a proposal for review of the European Supervisory Authorities (including ESMA), which we discuss further below. Other very significant proposals within the initiative are the ones to create a Pan-European personal pension product (PEPP), a covered bonds framework, the facilitation of cross-border distribution of investment funds—to reduce the costs of cross-border distribution of funds and make it simpler and more effective—and a crowdfunding framework. For 6 out of the 10 pending proposals the Commission considers that agreement will only be possible if there is strong commitment from all EU institutions (EC 2018).

E. Where to Next?

14. Despite progress, capital markets in Europe continue to be fragmented and the question remains how the regulatory structure can be optimized to support greater integration. As noted by the recent Euro Area FSAP (IMF 2018), national legal frameworks continue to differ in ways that affect the unification of capital markets. Moreover, several issues that have the

potential to create impediments to the free movement of capital have not been resolved. Different laws governing issuance of securities, listing requirements, accounting and financial reporting standards, insolvency procedures and taxation of financial products can create fragmentation. There is a significant degree of investor domestic bias and the issuance of securities is perceived as a domestic rather than EU-wide venture.

15. At the same time, the prospect of Brexit adds relevance to the development of the CMU project. While the extent of the relocation of capital markets activity from the UK to continental Europe and Ireland after Brexit is still unclear, the capital markets landscape will change as a result, possibly bringing with it an increased need for integration and coordination. In particular, it is expected that supervision currently concentrated in the UK will spread out to different member countries which can exacerbate existing fragmentation. More fragmented supervision resulting from Brexit is likely to give rise to regulatory arbitrage and the current framework may not be enough to guarantee consistency in authorization, supervision and enforcement related to the relocation of entities, activities and functions from the UK.

16. The 2015 CMU Action Plan has been recently reviewed to take stock of implementation to date and ensure re-shuffling of priorities where needed. In 2017, and with Brexit negotiations already underway, the EC launched a public consultation on the CMU mid-term review to take stock on progress of implementation, reframe actions in the light of work taken and evolving market circumstances and complement the plan with new measures as needed. Further to responses received, the EC updated and complemented the original agenda with new priority measures.

17. Reflecting on other major jurisdictions' regimes can provide some direction on the pending implementation of the CMU Action Plan. While every framework is deeply rooted in the legal and institutional history of the jurisdiction, some features boost the effectiveness of the system. As shown by examples of well developed capital markets such as in the United States and Australia, strong central regulation is a key feature. So is the implementation of measures for improving transparency like the use of centralized filing systems for issuers and other participants (as done in the United States and Canada), which promotes comparability at the regional level and promotes convergence of disclosure practices and standards. Fragmented regulatory and supervisory systems need to focus on reducing inconsistencies, via cooperation agreements, use of SROs or other cooperation mechanisms, as in Canada. Also, a growing global trend is the approach of specifically considering arrangements for the designation and oversight of systemically important institutions.

18. One of the significant additions to the CMU Action Plan further to its mid-term review is the proposal to extend ESMA's supervisory powers to give more heft to the center. The EC has proposed to enhance ESMA's supervisory coordination role by giving it responsibility to set EU-wide supervisory priorities, check the consistency of NCAs' work programs with EU priorities, and review their implementation. The NCAs would also be required to notify ESMA when a market participant intends to significantly outsource, delegate portfolio management services to a third party or transfer risks to non-EU countries in a way that would allow the firm to benefit from the EU

passport while essentially carrying out its activities outside the EU. Moreover, ESMA would be the direct supervisor over certain sectors of capital markets (i.e. benchmarks, approval of certain EU prospectuses and all non-EU prospectuses drawn up under EU rules; European Venture Capital Funds, Social Entrepreneurship Funds and Long-Term Investment Funds), and coordinate market abuse investigations.

19. A key part of the EC proposal is amending the governance of ESMA, which would also contribute to strengthening its supervisory convergence measures. The proposed governance changes are intended to address the challenges in managing conflicts between EU and national interests, which can create the risk that ESMA's decisions are not taken in the common interest of the EU, that decision-making is delayed or that there is an inaction bias. The governance changes are expected to be particularly helpful in enhancing ESMA's ability to use its supervisory convergence tools, such as peer reviews.

20. Enhancing ESMA's powers and governance would help further harmonize and strengthen the securities supervisory framework in the EU. ESMA has emphasized that its powers and tools are not sufficiently strong to deal with all cases of regulatory or supervisory arbitrage and has called for enhancement of its supervisory convergence tools (ESMA 2017a, 2017b and 2017c). Advancing the EC proposal, as discussed above, would be a welcome step to address this. Under the proposal, peer reviews would become the responsibility of review committees, exclusively composed of staff from ESMA. The NCAs would be required to make every effort to comply with any guidelines and recommendations that ESMA may issue as a follow up to a peer review. It would also enhance ESMA's ability to publish peer review reports.

21. The experience of other systems shows the importance of developing greater consistency. Strengthening supervisory frameworks in the EU through convergence is a needed step, but alone may fall short of delivering the solid regulatory and supervisory arrangements needed for a truly unified capital market. As the Canadian example illustrates, as long as regional (provincial) approaches to regulation and supervision remain, efforts have to focus on striving for consistency across the system. If the CMU project is to deliver a more integrated capital market in the EU, this requires solid regulatory and supervisory efforts to ensure the safety and integrity of markets. In light of Brexit, a CMU may also mean a less geographically concentrated industry under the supervision of a more diverse set of NCAs, making supervisory harmonization even more relevant. This may not be fully achieved through ESMA's supervisory convergence efforts and further rethinking of the EU supervisory structure and legislative requirements may be needed.

22. While greater convergence is a key goal, the diversity of EU capital markets firms and products calls for a flexible approach to designing the optimal regulatory structure. Centralizing all functions at a European level may not be optimal given both the heterogeneity of the sector and the close connection between supervisory functions and law enforcement. These features make consideration of optimal structure very different from other sectors, for example banks, which may be more concentrated and more homogeneous in function. Securities supervision in the EU deals with a very broad spectrum of firms that differ significantly in size and geographic footprint across the EU. It also covers securities markets activities performed by banks, further

complicating the framework, given the different institutional structures at the EU level. The importance of enforcement programs—which often involve administrative and criminal prosecutions of firms, corporates and individuals— in the overall approach to supervision of market conduct also adds a level of geographic relevance due to jurisdictional and legal issues.

23. Ensuring centralized supervision for systemically important institutions is particularly relevant in the EU, due to the cross-border nature of systemic firms. The increased systemic importance of CCPs over the past years suggests that further centralization of the supervisory framework would be appropriate. Currently, NCAs are responsible for the authorization and supervision of CCPs, coordinating with ESMA and central banks of issue in supervisory colleges. As the recent Euro Area FSAP concluded, endowing ESMA with direct supervisory power would promote a consistent approach in addressing cross-border risks and enhance the level playing field among CCPs. Also, centralized prudential supervision of systemic investment firms by the SSM, as proposed by the EC, would reduce the supervisory arbitrage risks that national supervision could create. Coordination will remain key: the ECB should coordinate with NCAs and ensure sufficient expertise in supervising these complex firms. Consideration should be given to granting ESMA a stronger role in facilitating enhanced cooperation.

24. Any strengthening of ESMA's powers and competences must be backed by institutional support and resources. If direct supervision of some entities and more independent peer reviews are incorporated into ESMA's mandate further to the EC proposal, it will be important to ensure that the authority houses the necessary skills to deliver any new tasks.

25. Broadening transparency would also be an important step. While a sound transparency regulatory framework is in place in the EU, the practice of disclosure mostly remains a domestic matter, enhancing the country bias in the issuance and investment in securities. Further to the Prospectus Regulation, ESMA's website hosts an online database containing recently published EU prospectuses, which is already an improvement in transparency. Further consideration may be given to providing a single-point of access to EU issuer information, potentially enhancing the current online database of prospectuses hosted within ESMA's website. In the future, moving to a centralized filing system for issuers—similar to those put in place in the United States and Canada—could be considered. While this would involve a deep review of the EU disclosure and reporting framework it would not only make filing by issuers and other affected participants simpler and more efficient but could also increase transparency for all interested parties and help create a sense of a EU primary market.

26. Efforts should also continue in the regulatory front to ensure that legislation of securities markets is less fragmented over time. As mentioned, there are some areas where harmonization could still go further (either by addressing differences in transposition of Directives or areas still not fully harmonized, like investment funds' use of liquidity risk management tools), and it is important that momentum under the CMU plan is maintained in that direction, making the need for supervisory integration less urgent.

27. Additionally, several challenging issues will need to be eventually tackled to properly address obstacles to cross-border investment throughout the Union. As noted in the mid-term review of the CMU Action Plan, disparity in insolvency regimes and tax treatment are still some of the key issues why cross-country investment in the EU remains low. While the CMU Action Plan covers a very wide range of legislative and regulatory measures towards strengthening the capital markets in the EU, including an enhanced supervisory structure, significant work remains to be done in the tax and insolvency frameworks to advance the CMU.

28. Increasing cross-country investments is a challenging task that goes beyond regulatory and legal frameworks. It also involves finding the right incentives for investors to buy securities issued by an entity in a foreign jurisdiction. Expectations on the growth of cross-country investments should be considered with caution, taking into account that even in large markets only a few large or well-known foreign issuers attract domestic investment.

Annex. Alternative Approaches to Securities Regulation

Across jurisdictions, core securities regulatory responsibilities are handled in different ways by agencies that often have differing responsibilities, powers and priorities. While sharing the primary goals of investor protection, ensuring fair and efficient markets and the reduction of systemic risk, there are as many different regulatory and supervisory structures to address them, as there are jurisdictions. These differences often reflect historical development or government structure. The broad reach of securities regulation and range of participants in the market often means that more than one agency is involved in setting rules and conducting oversight, making coordination on supervisory and enforcement matters key.

United States

The United States has the largest capital market in the world, with over 4300 listed domestic securities issuers, almost 8,000 registered investment funds (Investment Company Institute 2017), 3607 broker-dealers (FINRA, end-2018), and tens of thousands of investment advisers.

Regulation of the largest market in the world is both a federal and state level responsibility. The US Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission are both independent federal agencies tasked with regulating markets. The federal regulators rely on extensive self-regulation of trading markets (by the exchanges) and firms (by self-regulatory organizations or "SROs")—without which such a large market could not be effectively supervised. State regulators, usually housed within government departments, focus on local issues of securities, smaller intermediaries (such as investment advisers with less than $100 million under management), and investor protection against fraud (e.g. with prospectus rules for issues that only take place in that state).

Securities requirements vary across the states and there is little or no coordination between federal and state regulators. In many cases federal requirements overrule state requirements where they overlap, such as the prospectus requirements for listed issuers. The two federal regulators do cooperate where their jurisdictions intersect.

The federal regime sets out extensive requirements in most areas, backed up by active enforcement of those standards. The United States is notable for its investment in enforcement of securities laws. For example, a third of SEC staff are in enforcement, far higher than in most other jurisdictions, supplemented by actions of federal and state law enforcement agencies, the exchanges and the SROs.

Canada

Regulation of securities markets in Canada takes place at the provincial/territorial level and there are regulatory agencies in each jurisdiction. There is no federal securities regulator, although efforts to establish one are on-going. A formal coordination system is in place under the auspices of the Canadian Securities Administrators (CSA) that strives for cooperative development and

implementation of harmonized rules. While the bulk of the day-to-day requirements for disclosure, market regulation and intermediaries have been harmonized, material differences still exist, both at the level of local requirements and in the interpretation of rules by different regulators. The resources devoted to enforcement are increasing, but these activities are not fully coordinated across the regulators or with the criminal authorities. National SROs play a strong role in oversight of the 266 securities dealers, and 15 exchanges and trading systems, and in conducting enforcement activities (Annual reports of the Investment Industry Regulatory Organization of Canada and Mutual Fund Dealers Association of Canada 2018; the Ontario Securities Commission website).

Both the United States and Canada have put in place centralized systems for filing and making publicly available disclosure documents (EDGAR in the US and SEDAR in Canada). Intermediary licensing applications—run by FINRA in the United States and the National Registration Database operated by the Canadian Securities Administrators in Canada—make their national markets more efficient and transparent for all interested parties. In addition, Canada has a passport-like system in place for the review and approval of regulatory applications (prospectus approvals, registrations, exemption applications, etc.) across the provinces.

Japan

In Japan, a unified federal regulator—the Japan Financial Services Authority (JFSA) —is responsible for regulation of a significant securities market with 2000 market intermediaries, ranging from large G-SIBs to small brokers and advisers, and 3655 listed domestic issuers (Japan Exchange Group 2019). The system relies on extensive use of SROs, such as the Japan Securities Dealer Association and the regulatory arm of the stock exchanges, which like their American counterparts are responsible for front line oversight of prudential and conduct standards and for market surveillance. In addition, there are other bodies that operate with delegated authority from the JFSA that participate in supervising the markets and market participants, such as Local Finance Bureaus (supervision of small and medium sized firms) and the Securities and Exchange Surveillance Commission (inspection, investigation and enforcement).

United Kingdom

In the UK, the Financial Conduct Authority (FCA) is responsible for oversight of more than 2150 listed issuers (LSE statistics 2018), several exchanges and 20,000 registered firms. The Prudential Regulatory Authority is responsible for the prudential supervision of systemically important securities firms, including large banks that carry out securities markets activity. Stock exchanges in the UK play a role in setting and enforcing trading rules for their members, while the FCA is responsible for setting listing requirements for issuers. Exchanges are expected to have in place systems to conduct front-line surveillance of their respective markets, but the primary responsibility for enforcing the market integrity regime lies at the FCA. SROs are not a feature of the UK regime. The FCA is active in enforcement but with fewer resources devoted to it than in the US.

Australia

In the 1990s, Australia replaced a system of state-level securities regulation with a central federal regulator operating under a federal statute. In 1998, the federal regulatory system was restructured to split prudential regulation from market conduct and assign these responsibilities to separate agencies.

The Australia Securities and Investments Commission (ASIC) is responsible for issuer regulation, business conduct for all financial market participants (including banks, insurance companies, pensions/superannuation funds), supervision of the equity and derivatives markets, and prudential supervision of firms that are not required to be licensed by the Australia Prudential Regulatory Authority (APRA). Notably, ASIC is also the companies' regulator and so has wider authority to address issues such as corporate governance than securities regulators elsewhere.

APRA is responsible for the prudential supervision of banks, pensions, and insurance companies, among others. There are formal mechanisms in place to support coordination among the regulators and the central bank. The states retain some involvement in consumer protection matters and pursuing financial misconduct in their respective jurisdictions. Unlike many jurisdictions, the stock exchange has no role in market surveillance; this activity is conducted by ASIC. ASIC devotes significant resources to enforcement activities and is notably active in pursuing breaches of their laws.

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NOTE 6. CORPORATE INSOLVENCY AND DEBT ENFORCEMENT IN THE EU[2]

1. Corporate insolvency—and to a lesser extent, debt enforcement—frameworks have been identified as major obstacles to a unified European capital market (European Commission (EC) 2015a, EC 2015b, and EC 2015c). Investors may avoid buying securities issued in other member states for two main reasons: First, they may be unfamiliar with national insolvency and debt enforcement frameworks, generating uncertainty and unpredictable results. Second, some national frameworks may be costly, inefficient and deficient. Corporate insolvency frameworks of EU member states significantly differ in terms of processes available (such as rehabilitation and liquidation procedures), cost of the procedures, and recovery values for creditors. In some cases, investors may be concerned that their claims will receive a low return and face significant delays.

2. The focus of the capital market union (CMU) is on corporate insolvency, which must be distinguished from the resolution of financial institutions. The legal framework for the resolution of banks is driven by public interest in maintaining financial stability and protecting depositors. Resolution regimes emphasize expediency and are largely administrative, subject to only ex post judicial controls. The legal framework for bank resolution has been harmonized as part of the European banking union. However, the legal framework for bank liquidation remains different in each EU member state. Harmonization of the bank resolution regimes has had a positive impact on the integration of the market for bank securities, but the CMU focuses on the broader securities markets.

3. The objective of corporate insolvency and debt enforcement frameworks is to maximize the return to creditors while balancing creditor rights with debtor protection. This can be achieved through a transparent, clear and predictable legal framework, which is speedy and cost effective. The legal frameworks need to be supported and implemented by an adequate institutional framework. This includes judges, insolvency practitioners, lawyers, and enforcement agents/bailiffs and requires adequate specialization and supervision.

4. The legal and institutional framework for debt enforcement, on the one hand, and corporate insolvency, on the other hand, must be distinguished. In the event of a debtor's default on a claim, a creditor will enforce individually on a specific debtor asset or assets with preference (if secured) or any asset (if unsecured) the due and unpaid claim using the debt enforcement framework. In times of distress of the business as a whole, creditors will seek a collective insolvency proceeding over all of the debtor's assets for the insolvent business to either restructure or liquidate the business. Seeking to maximize return for all creditors, the rehabilitation procedure aims at restructuring a viable business while the liquidation process liquidates a non-

[1] Prepared by Wolfgang Bergthaler and José Garrido of the IMF's Legal Department (Insolvency Working Group).

viable business. A distressed but not yet insolvent business may seek a restructuring with (some or all of its) creditors through preventative restructuring procedures.

5. There are minimum standards that insolvency laws should include. These refer to multiple aspects (UNCITRAL 2004 and World Bank (WB) 2016): rules on the commencement of an insolvency procedure including a stay on enforcement actions to temporarily preserve the insolvent business, processes for developing and adopting a restructuring plan and dealing with dissenting creditors as well as giving the provision of fresh financing to the insolvent business for the restructuring process some preference over pre-existing creditors. The reorganization process can either be debtor-driven (debtor in possession—DIP) and/or creditor-driven, but it must provide proper protection for all parties involved. EU member states have developed different approaches to corporate insolvency, and their degree of alignment with those minimum standards varies.

6. The corporate insolvency and debt enforcement frameworks are virtually entirely enacted and implemented by EU national member states. There are only a few (limited in scope) acts (such as the EC Recommendation 2014/135/EU and the recent Directive on Restructuring and Insolvency, Directive (EU) 2019/1023), which are enacted at the EU level. By way of comparison, the United States have a uniform legal and institutional framework for insolvency (the US Bankruptcy Code and US bankruptcy courts), although this is the result of historical circumstances unrelated to the design of federal capital markets. In addition, the legal and institutional framework for debt enforcement in the USA relies on state laws and state courts, but this has not prevented the development of markets in debt instruments.

7. One notable exception is the EU 2015 Insolvency Regulation. The Insolvency Regulation (Regulation (EU), 2015/848) provides a framework for the establishment of jurisdiction over insolvency cases, and for the recognition and cooperation in cross-border insolvency cases. Since the EU is based on the freedom of establishment, enterprises can shift their center of main interests to other member states and be subject to the insolvency regime of such states (the Insolvency Regulation includes safeguards to avoid opportunistic changes of center of main interests). Although the insolvency regime may not be among the main factors for the decision to move to a particular member state, it can be an additional factor. This may generate a competitive dynamic among member states – enterprises from jurisdictions with deficient insolvency regimes may move to other member states and access capital markets from there.

8. The EU has taken some welcome first steps in increasing the convergence of member states in corporate insolvency law and debt enforcement.

- *Insolvency*. The recently adopted Directive on Restructuring and Insolvency (Directive (EU), 2019/1023) aims at achieving a degree of functional convergence by setting minimum standards on preventive restructuring, rather than full harmonization. This seems a more politically feasible approach in the short to medium term (IMF 2018a). It also establishes some minimum standards in terms of debtor in possession (DIP) in preventive restructuring, a stay of enforcement actions to temporarily preserve the distressed business, the adoption and confirmation of restructuring plans, and the protection of new financing to the distressed business. The minimum standards

established for preventative frameworks are expected to slowly emerge as the standard for reorganization procedures more broadly. The Directive on Restructuring and Insolvency also sets some minimum standards for insolvency practitioners, the judiciary, and data collection on relevant procedures.

- *Debt enforcement*. The Directive on financial collateral has been adequately implemented as an essential part of EU financial markets (Directive 2002/47/EC), but other European legislation has only had a limited impact on debt enforcement procedures that are relevant for capital markets (Directive 2014/17/EU on mortgage credit); and enforcement related instruments with respect to unsecured claims at the European level). The EC issued a proposal for the extra-judicial enforcement of collateral (EC 2018a) which, if adopted, could have a significant impact on the development of certain debt instruments, such as covered bonds.

9. The impact of these steps taken will only materialize in the medium term and critical issues have not yet been addressed. The EU member states will need to implement the Directive on Restructuring and Insolvency within the next two years. The bulk of controversial issues in insolvency law remain unaddressed in the Directive on Restructuring and Insolvency such as the rehabilitation and liquidation proceedings, the creditor ranking in insolvency, and most of the core topics of the corporate insolvency regime. The impact of the proposal for the extra-judicial enforcement of collateral (EC 2018a) will only materialize in the medium to long run, after the Directive is adopted, implemented, and new contracts incorporate the possibility of using the new mechanism.

10. Going forward, the EC should take stock of what has been achieved and pursue further improvements based on careful analysis and data collection efforts. The work towards the Directive on Restructuring and Insolvency has demonstrated that in the medium term only a very selected set of minimum standards commands enough consensus among member states.

- First, the EC should follow up on the ongoing benchmarking exercise for debt enforcement and insolvency systems, possibly through Report on Standards and Codes ("ROSC") like assessments (Council 2017a).

- Second, in terms of data collection and processing, the EU Justice Scoreboard (albeit focusing on judicial efficiency) and the provisions implementing the Directive on Restructuring and Insolvency should be used to collect and analyze data on debt enforcement and corporate insolvency cases to assess efficiency and effectiveness of the systems (IMF 2019; EC 2018b, Garrido et al., 2019); certain member states have done commendable work in this regard (IMF 2018b).

- Third, in the long term and based on the benchmark exercise and the data collection analysis, further legislative action may be warranted for improving corporate insolvency laws. This could include minimum standards for a number of core features of insolvency processes, such as the triggers for insolvency proceedings, the effects of a stay, rules on set-off (between the insolvent business and creditors), treatment of executory contracts (i.e., a contract that has not yet been

fully performed or fully executed and in which both sides still have important performance remaining), and avoidance provisions (i.e., rules which permit transactions for the transfer of assets or the undertaking of obligations prior to insolvency proceedings to be cancelled or otherwise rendered ineffective and any assets transferred, or their value, to be recovered in the collective interest of creditors), which all vary widely in the EU.

- More specifically, it would also be important to set minimum standards on the ranking of claims and creditor priorities because the number and volume of priorities strongly impact not only the payout expectations of creditors in liquidations but also complicates the negotiation and the voting arrangements in rehabilitation proceedings. Given the experience and the results of the Directive on Restructuring and Insolvency —which was negotiated for over two years and resulted in many compromises there will be significant obstacles to pursue this legislative agenda.

- Fourth, in the area of debt enforcement, the most relevant area for the capital market union would be the development of effective mechanisms for the enforcement of immovable collateral across the EU (Council of the European Union 2017b). The enforcement of movable collateral is of lesser importance.

11. The Capital Market Union will most likely have to proceed without a comprehensive harmonization of the insolvency and creditor rights regimes in the EU. As explained above, the European efforts in the areas of insolvency and creditor rights have been limited and faced significant resistance from member states. The European Institutions should assume that the divergences in the insolvency and creditor rights regimes are going to affect the EU in the medium term. The EC may need to again consider the needs for further harmonization/minimum standards in the insolvency and debt enforcement frameworks in a few years' time.

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