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# What difference would a Capital Markets Union make for risk-sharing in the EU?

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**Summary:** A Capital Markets Union (CMU) is the great hope of European policymakers. The plan for a CMU tries to reduce the reliance of European investors on banks and build up a market-based risk-sharing channel between member states. Our empirical analysis raises doubts that this can be achieved through the CMU as presently conceived. In line with other skeptics, we provide evidence that (i) financial flows are generally pro-cyclical; (ii) market-based risk-sharing mechanisms tend to break down for member states when they would be most needed; and (iii) even the most developed capital markets crash in a systemic financial crisis. During the Great Recession, failing market risk-sharing was replaced by the ECB through the cross-border payments system TARGET and by troika programs. We conclude that public safety nets must be robust enough to substitute for markets. The CMU is unlikely to make much difference to risk-sharing within the EU.

**Zusammenfassung:** Große Hoffnungen richten sich auf die Kapitalmarktunion (KMU) der EU. Die Pläne für eine KMU sehen vor, die Abhängigkeit europäischer Investoren von der Finanzierung durch Banken zu reduzieren und einen marktbasierten Mechanismus der Risikoteilung zwischen Mitgliedstaaten zu errichten. Unsere empirische Analyse lässt Zweifel an diesen Absichten aufkommen. Wir zeigen, wie schon andere skeptische Stimmen zuvor, dass (1) Finanzströme in der Regel prozyklisch reagieren; (2) marktbasierte Risikoteilung genau dann nicht funktioniert, wenn Mitgliedstaaten solche Mechanismen am dringlichsten benötigen; und dass (3) selbst die am weitesten entwickelten Kapitalmärkte in einer systemischen Finanzkrise zusammenbrechen. Während der großen Rezession war es die EZB, die das Versagen der Risikoteilung durch Märkte mithilfe des grenzüberschreitenden Zahlungssystems TARGET kompensierte; Troika-Programme trugen ebenfalls zur Risikoteilung bei. Unsere Schlussfolgerung lautet, dass öffentliche Versicherungsmechanismen robust genug sein müssen, um in Krisensituationen Märkte ersetzen zu können. Es ist daher unwahrscheinlich, dass durch eine KMU die Risikoteilung in der EU verbessert werden kann.

→ JEL classification: E02, E44, G01, H12

→ Keywords: Capital markets, crisis, financial integration, risk-sharing, TARGET

## I Introduction

The Capital Markets Union (CMU) is the great hope of European Union policymakers (Juncker et al. 2015: 4–5). It is meant to provide stable long-term finance, preferably for investment, to small and medium enterprises and for infrastructure. Evidence from the U.S. suggests that integrated capital markets would smooth the risks of local output shocks to consumption and household income much more effectively than other risk-sharing channels, such as a common budget or bank credit (Asdrubali et al. 1996, Alcidi et al. 2017). Financing investment and infrastructure has become difficult in Southern European member states, where it is most needed in order to move the economy out of depression. Domestic banks are already overburdened with non-performing loans. Other member states would prefer market-based solutions to their woes. A CMU to overcome the renationalisation of banking after the Great Recession seems to be a good idea, even though its greatest sponsor, the UK government, is no longer driving it.

In the first section, we follow the line of research that supports a CMU in principle (Hoffmann and Sørensen 2012), notably that the benchmark for risk-sharing channels is how well they absorb country-specific output shocks on consumption. A number of studies investigate the relevance of various risk-sharing channels in different country groupings, such as the United States, the EU, or the OECD. In a path-breaking study for the U.S., covering 1963–1990, Asdrubali et al. (1996) estimate that the largest share of an output shock (40 percent of a 100 percent shock to state GDP) was absorbed through capital markets and 20 percent through credit markets, compared to only 14 percent through taxes and fiscal transfers. About 25 percent of an output shock that a U.S. state experiences translates into consumption volatility. In the EU and the euro area, however, less than half of shocks to national GDP are absorbed.<sup>1</sup> Alcidi et al. (2017), among others, largely confirm these findings, thus supporting the case for a CMU in normal times. However, they also find that the capacity of market-based channels to absorb idiosyncratic shocks decreased during the Great Recession in the U.S. and Europe; dramatically so for the worst affected member states in Southern Europe.

We make two contributions to this literature. First, we zoom in on different sources of financial flows, private and public, capital and credit, then ask how much they potentially contributed to income and consumption stabilization in the 11 euro area countries. This takes significant risk-sharing channels of a single currency into account, which the literature ignores. Moreover, we follow the lead from research suggesting that the risk bearing capacity of financial markets varies profoundly between normal times and deep recessions—transitory and permanent—as well as systemic shocks (Furceri and Zdzienicka 2013, Gros 2014).

Our findings do not lend support to policymakers' high hopes for a CMU. In line with other skeptics, notably IMF research (Furceri and Zdzienicka 2013), we provide evidence that (i) financial flows are generally pro-cyclical; (ii) risk-sharing mechanisms relying on financial flows tend to break down for member states when most needed; and, moreover, (iii) U.S. experience suggests that even developed capital markets crash in a systemic financial crisis, requiring the intervention of public authorities to avoid a market meltdown. In the Great Recession, public risk-sharing channels bore the brunt of interstate-risk-sharing, contrary to what the literature

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1 For an overview of relevant pre-crisis studies see Schelkle (2017: 87–88).

following Asdrubali et al. (1996) claims.<sup>2</sup> It was the ECB that bore the brunt of the crisis: through the cross-border payments system TARGET (substituting the intra-EA, cross border interbank market) as well as the troika programs to five particularly hard hit euro area member states. Failing markets had to be replaced or these member states would otherwise have been faced with a sudden stop and the immediate need to adjust.

The second section expands on these findings, suggesting that common public safety nets must be robust enough to substitute for markets, not merely underpin them. It questions the premise that nationally idiosyncratic output shocks are the most relevant case for insurance. Common financial instability that inherently arises from integration is arguably more relevant. There is evidence from U.S. business cycle research that finds financial shocks to be an independent and persistent cause for recessions (Nolan and Thoenissen 2009). Moreover, most economic models used for policy making during the Great Moderation ignored the risks that materialized in the Great Recession (Huo and Rios-Rull 2016). We side with Gros (2014), arguing that the euro area needs risk-sharing mechanisms for potentially devastating recessions, not ordinary cyclical fluctuations. The CMU, as presently conceived, is unlikely to make much difference to relevant risk-sharing in the EU.

## 2 Risk-sharing through private and public financial flows

In a fully integrated federation of states, inter-state risk-sharing is achieved when consumption in one member state co-moves more with aggregate consumption than with purely national/regional output shocks. In other words, risk-sharing with others allows a member state to shield domestic consumption from fluctuations of local income due to shocks to local output. Efficient international financial markets can contribute to such risk-sharing through two different channels:

1. Capital markets: holding foreign assets and liabilities generates international factor income and obligations that can offset negative and positive shocks, respectively, to domestic consumption. This is an *ex ante* risk-sharing channel in that the assets must be acquired and liabilities incurred before a shock hits.
2. Debt markets: cross-country lending and borrowing enables agents to smooth consumption over time in the case of negative and positive shocks, respectively. This is an *ex post* risk-sharing channel in that credit or debt provides compensation after a shock has occurred. The distinction is to some extent conventional because, with respect to the risk of default, borrowing is also an *ex ante* risk-sharing channel.

The literature uses income data from national accounts and attributes certain income categories to particular markets: international factor income flows to capital markets and saving/dis-saving to credit markets. However, these distinctions are conventional and empirically questionable, as this quote from Sørensen and Yosha (1998: 212; our emphasis) indicates: “The members of a union can share risk via cross-ownership of productive assets, facilitated by a developed capital

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2 Central bankers were fully aware that their extraordinary monetary policies played that role (Kotz et al. 2012).

market, and may smooth their consumption by adjusting the composition and size of their asset portfolio in response to shocks, for example through lending and borrowing on international credit markets.” In contrast to the existing literature, we do not capture market channels indirectly, through national accounts data, but instead directly through data on financial flows.

Financial flows contribute to risk-sharing if they vary in a countercyclical fashion. Citizens of a country facing a negative (transitory) output shock receive financial flows from abroad (mainly investment and loans), thus reducing the otherwise commensurate drop in national consumption. Vice versa, citizens of a country enjoying a positive output shock would spend their unexpected income surplus over planned consumption and, to a degree, channel their surplus to other countries (investment and credit).

Financial flows are largely independent of the trade and even the current account balances, as they may affect the private capital account with the rest of the world only. Citizens and firms of a country may borrow and lend at the same time, acquiring and selling claims on each other’s output simultaneously. Only a few authors, like Lane and Milesi-Ferretti (2001), Obstfeld (2012), and Borio and Disyatat (2015), look into the relevance of these financial channels for international risk-sharing independent of current account balances. Using a new dataset on financial flows in the euro area, Hobza and Zeugner (2014: 291) find, “that the geography of financial flows can differ quite markedly from trade flow patterns and suggest that the nexus between surpluses in the ‘core’ with deficits in the periphery went along financial rather than trade interlinkages.”

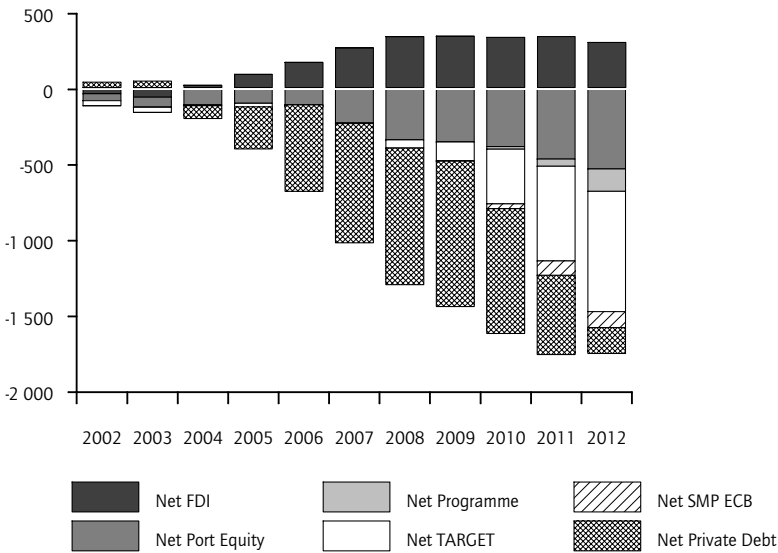
We extend this line of inquiry by looking at private and public financial flows. After all, the European monetary union has a central bank that lends across borders and to cross-border banks; the cross-border payments system TARGET has alleviated the foreign exchange constraint, while, more recently, vast emergency funds, like the European Stability Mechanism (ESM), have helped to bail out sovereign debtors on an unprecedented scale, in return for a heavy dose of conditionality. Because most of the publicly engineered risk-sharing came into its own during the Great Recession, we differentiate between normal times and deep recessions, using the data on bilateral financial flows in the euro area collected by Hobza and Zeugner (2014).

We aggregate their asset types into the following asset groups and rename them for clarity. We add ‘Net’ to all to indicate that each flow is consolidated (change in assets minus change in liabilities).

Figure 1 shows how the level and composition of net financial flows to five so-called peripheral euro area countries (Greece, Ireland, Italy, Portugal, and Spain) changed between 2002 and 2012. Bars on the negative side represent cumulative flows from the rest of the world to the periphery in the particular financial category; for instance, throughout the period under consideration, the rest of the world acquired more portfolio equities from the periphery than vice versa). As shown in Figure 1, until 2008–2009 the rising inflows to peripheral countries were fueled by private investors and lenders. After 2010, we notice a sudden stop and flight of capital flows (Merler and Pisani-Ferry 2012). In particular, financial flows related to portfolio debt, deposits, and loans (aggregated under Private Debt) reversed and were partly substituted by TARGET2 balances, and to a lesser extent by the first bond-buying program of the ECB and as well as the troika programs. It is worth noting that equity investments apparently continued to flow to peripheral countries and the same is true, albeit to a lesser extent, for direct investment. This might suggest a more

Figure 1

**Net Cumulative Flows to Peripheral Countries, 2002-2012**



Source: Hobza and Zeugner (2014) data, own calculations; following the IMF BPM6 standard, we define net flows as the difference between Net Acquisition of Financial Assets and Net Incurrence of Liabilities. Bars on the negative side are net (cumulative) inflows while bars on the positive side are net (cumulative) outflows.

Table 1

**Definition of financial flow variables**

Private channels		Public channels	
Code	Description	Code	Description
Net FDI	Change in foreign direct investment	Net Target	TARGET2 flows*
Net Portfolio Equity	Change in portfolio equity	Net Programme	Euro area bailout flows
Net Portfolio Debt	Change in portfolio debt (without SMP)	Net SMP ECB	Acquisitions under ECB Securities Market Programme
Net Other Investment	Other investment (without Target and Programmes)		
Net Private Debt	Portfolio Debt + Other Investment (without SMP, TARGET and Programmes)		

\* Although TARGET imbalances represent claims and liabilities vis-à-vis the TARGET system, the bilateral database must assign them to countries, hence: "if Spain represents 21% of the sum of all countries with net liabilities to the ECB, then 21% of the German net claims on TARGET II are assumed to be claims on Spain".

Source: own elaboration of Hobza and Zeugner (2014) at URL: [www.zeugner.eu/studies/finflows/](http://www.zeugner.eu/studies/finflows/)

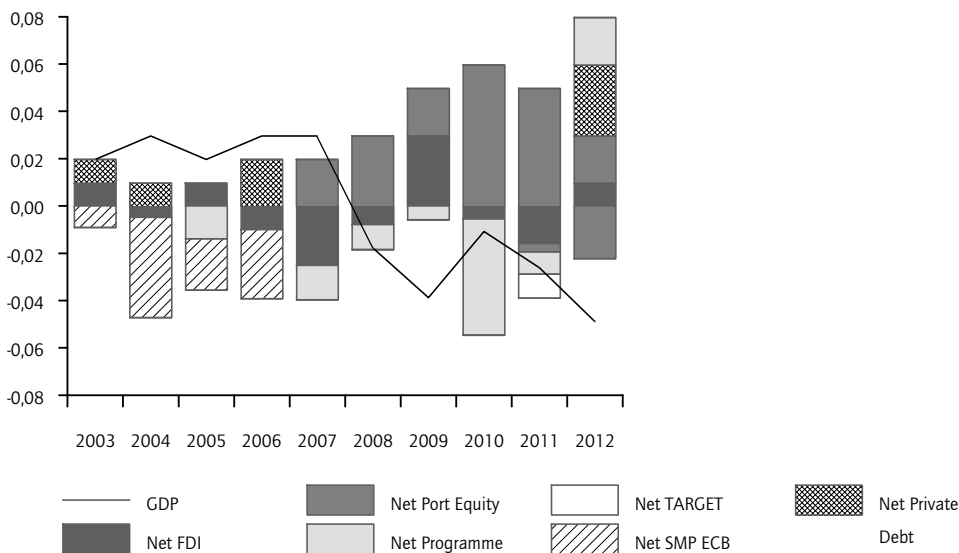
constructive role for some financial instruments. However, we do not find any significant relation between equity, FDI flows, and idiosyncratic shocks to GDP.

The previous graph shows that, at least since the crisis years, financial risk-sharing worked as predicted (more inflows to countries with deepening recessions). However, the next graph illustrates that this was entirely due to public risk-sharing. It plots both the aggregate GDP growth rate of peripheral countries (line) and the annual change in net international financial flows relative to GDP (bars). As before, negative bars are (changes in) net inflows to peripheral countries, while positive bars represent (changes in) net outflows. Shocks to GDP are absorbed when financial flows are counter-cyclical, which is when the bars are on the same side of the GDP growth line.

Figure 2 shows that financial flows relating to (Net) Private Debt were pro-cyclical even before the crisis (orange bars). Since 2009, Private Debt flows started to decrease and became outflows until the end of the period under consideration. Portfolio Equity and FDI do not show a clear pattern, although FDI was counter-cyclical for most of the years under consideration. Financial flows relating to TARGET2 were counter-cyclical from 2008 to 2011, while they became pro-cyclical in 2012. The latter is likely due to the increasing magnitude of the troika programs after 2010, which allowed a temporary reduction in the TARGET2 imbalances. When a sudden stop

Figure 2

**Change in Financial flows and GDP growth in peripheral countries, 2002-2012**



Sources: Hobza and Zeugner (2014); OECD; own calculations.

of private flows to peripheral countries occurred, it was compensated by public financial flows. The graph also visualizes that changes in financial flows were more volatile than GDP growth.

Pro and counter-cyclicality of financial flows can be shown more rigorously by estimating how each component (FDI, portfolio-equity, and debt, etc.) changes with shocks to national output (GDP). A simple extension of the framework proposed in Asdrubali et al. (1996), Sørensen and Yosha (1998) and Kalemli-Ozcan et al. (2014) allows us to focus on the relation between GDP shocks and financial account components. Our goal is to measure whether financial flows contributed potentially to risk-sharing that absorbs idiosyncratic shocks to GDP. We must assume that these cross-border flows enable consumption smoothing, although the strength of this is itself a matter left for future research. To take the example of Net Portfolio Debt, we estimate for this component and for each country  $i$  at time  $t$ :

$$\Delta \left( \frac{\text{Net Portfolio Debt}_{i,t}}{\text{GDP}_{i,t}} \right) = \alpha_i + \beta^{\text{debt}} \Delta \log \text{GDP}_{i,t} + \varepsilon_{i,t}.$$

The  $\alpha$  coefficient captures time fixed effects that control for the common component (for instance, a common macroeconomic shock in year  $t$ ) so that the  $\beta$  coefficient refers only to the country specific shocks.<sup>3</sup> The beta coefficients measure the fraction of national shocks, i. e. negative or positive deviations from the aggregate, that is absorbed by variation in portfolio debt. Following a positive shock to GDP, a positive value of  $\beta$  indicates an increase in net domestic investments in tradable debt instruments or lending abroad. Conversely, a negative shock to GDP is absorbed when followed by a decrease in Net Portfolio Debt, which represents a financial inflow. Hence, the betas for each financial component should have a positive sign, i. e. going in the same direction as the output shock. Figure 3 and Table 2 report what we find, using a two-step GLS (General Least Square) procedure:<sup>4</sup>

Foreign direct investment has no effect, while portfolio equity has, if any, a destabilizing (pro-cyclical or dis-smoothing) effect. However, neither coefficient is significant. At the same time, private debt flows are significant and have a strong destabilizing effect.<sup>5</sup> This channel contains both private holdings of corporate and government bonds and cross-border (mainly interbank) loans. Yet, the destabilizing negative contribution of private debt flows is completely offset by the Target2 flows and the assistance programs from the European Financial Stability Fund, later replaced by the ESM and the IMF. The Security Market Program of the ECB is not significant and has a negative sign. This bond-buying program was relatively small and probably was dominated by other extraordinary measures, such as the Long-term Refinancing Operations and the announcement of Outright Monetary Transactions.

3 It would be useful to look at the relative importance of the common components across years. But since we are working with a small dataset, trying to interpret them could be misleading.

4 We use real per capita data for eleven euro area countries: Austria, Belgium, Germany, Netherlands, Finland, France, Italy, Ireland, Spain, Greece and Portugal. In line with the literature, we assume an AR(1) structure for the error terms.

5 To recall: this variable consists of portfolio debt and other private investments from which the official flow components are removed, in contrast to the Hobza and Zeugner aggregation of data.

Figure 3

**Responses of financial flows to output shocks**

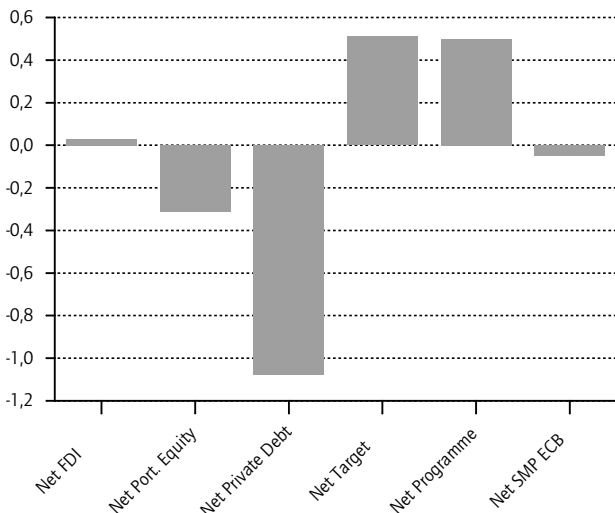


Table 2

**Regression results for eleven euro area countries**

Variables	Net FDI	Net Port Equity	Net Private Debt	Net Target	Net Programmes	Net SMP ECB
GDP	0.027 (0.160)	-0.314 (0.232)	-1.084** (0.421)	0.514* (0.300)	0.501*** (0.148)	-0.052 (0.044)
Observations	110	110	110	110	110	110
Number of country_id	11	11	11	11	11	11

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

**3 The limits and preconditions of market-based risk-sharing**

The analysis in the last section accepted some premises of the economic literature that potentially underpins a CMU for the EU: that we should worry about country-specific output shocks and that consumption smoothing is the welfare economic goal of sharing risks through monetary-financial integration. The literature following on from Asdrubali et al. (1996) and Sørensen and Yosha (1998) is very forceful in advocating capital markets as risk-sharing channels: the acquisition of claims on output of other countries ex ante would even insure against permanent output shocks, since income flows from these foreign investments compensate for the fall in output at home. By contrast, credit markets would shy away from a hard-hit country or give loans only at terms that



reflect the permanent impairment of a country's productive capacity in this case. This is perfectly rational from a lender's point of view, but does not help the borrower who needs risk-sharing most.

How relevant is this scenario for the risk-sharing that would ensure the integrity of the monetary union? The euro area crisis was a common financial crisis that turned into a sovereign debt crisis in the bond markets of some member states. Greece was the exception proving the rule that causation was from financial to sovereign debt crisis. The nature of the 'shock' was financial instability that had evolved in the wake of market integration. The process was underregulated and undersupervised, not only at the regulatory EU level but also at the international level of cooperation between governments and central banks, notably the Basel Committee and the G20. The ensuing downside risks were borne, by and large, by European taxpayers. These could be averted only to the extent that Target balances contained the fallout from a sudden stop of private capital flows and troika programs managed to shift the burden of adjustment onto specific countries that came under a bond market attack.

This systemic instability is different from the notion of exogenous shocks hitting a national economy, like bad weather or oil price surges. Crucially, financial market integration may not share but create risks. The big crises since the mid-1980s were banking crises and stock market crashes, following on from financial liberalization in those years. Between 1970 and 2010, Babecky et al. (2012) show that banking crises in 40 developed countries have been leading indicators of currency and sovereign debt crises, while the latter did not reliably lead up to banking crises. The euro area crisis was just a particularly severe example for this international pattern. In such situations, it is not so much consumption smoothing that is at stake but the collapse of entire economies, wiping out sound banks alongside reckless ones and, more importantly, valuable firms and the lifetime savings of households.

It is arguably such catastrophic scenarios that one needs to prevent, losses above a certain threshold that are too much to bear without jeopardizing the functioning of entire political-economic systems (Gros 2014). Consumption smoothing, in particular compensating a fraction of the deviation from the trend, is still quite effectively done by European welfare states, although much less in Southern and Central-Eastern Europe than in Northern Europe (Dolls et al. 2010): the periphery tends to have smaller unemployment benefits and less progressive taxes, which both weaken automatic stabilizers. Discretionary austerity measures were, on the whole, quite progressive, cutting high public pension more than small benefits and raising taxes for high earners disproportionately (De Agostini et al. 2016). Rather, the problem is that entire economies take a hit and trend levels of consumption, income, and output must be adjusted downward. It was not inequality or volatility that was the depressing outcome of a systemic crisis that was allowed to run its course in particular member states; it was poverty.

But why is there this impression that a CMU works in the U.S. and helps this monetary-financial-fiscal union to share risks among member states, to the benefit of consumption smoothing? A number of explanations are relevant.

Higher incidence of specific shocks: As Alcidi et al. (2017: Figure 2) show, the dispersion of GDP growth was larger in the U.S. than in the EA-11 between 2000 and 2010. Idiosyncratic output risks are more prevalent and U.S. markets are better at absorbing them. An approach that makes

their stabilization the benchmark for risk-sharing capacity is likely to find that the U.S. does better.

**Greater role for capital markets:** It is well-known that the U.S. has a more capital market-based financial system than Continental Europe. So one would expect capital markets to perform better with respect to consumption smoothing. Even banking generates its big value added in investment rather than commercial banking. Our regression results above suggest, however, that capital flows do so primarily by being less pro-cyclical than debt and credit, but they are also not reliably counter-cyclical.

**Greater tolerance for inequality:** Consumption smoothing through capital markets, even if it would work, is obviously bound to be regressive. Wealth inequality is always and everywhere more extreme than income inequality. So those who hold internationally diversified assets, directly or through their investment and pension funds, will benefit from this type of consumption smoothing but not those who live largely on their incomes. Thus, the evidence that the U.S. has more uniform consumption growth rates (Alcidi et al. 2017: Figure 2) is not reassuring. Dispersion matters, in particular with respect to poverty.

Even in the U.S., however, the experience of the Great Recession and the role of financial shocks to business cycle dynamics are not entirely captured by the existing literature on inter-state risk-sharing. Central bankers and their applied researchers are painfully aware of these blind spots because they would need workhorse models that capture the role of the financial system. Huo and Rios-Rull (2016: 3–4) list the ingredients that economic models should have in order to capture the experience of the Great Recession: financial shocks (such as rising interest rates) must be able to trigger a large drop in house prices; this must lead to a substantial decline in consumption, due to wealth inequality and many households depending on credit; frictions make it impossible to make up for the shortfall in wealth through more earnings; the reduction in demand leads to lower productivity, for instance because fewer customers and lower prices make services look as if they are less productive; interest rates can hit the lower bound and cannot stimulate the economy. Only since the financial crisis has there been a sustained attempt at introducing research on financial frictions and amplifying mechanisms into workhorse models of policymakers.

The evidence can no longer be ignored. Based on a financial accelerator model developed by Ben Bernanke and co-authors in the late 1990s, Nolan and Thoenissen (2009: 596) find for U.S. business cycles in postwar history that financial shocks “are found to (i) be very tightly linked with the onset of recessions, more so than TFP [total factor productivity] or monetary shocks; (ii) remain contractionary after recessions have ended; (iii) account for a large part of the variance of GDP; (iv) be generally much more important than money shocks.” Income smoothing through capital markets collapsed in the U.S. from 55 percent of an output shock in 1998–2007 to 34 percent in 2008–2009 (Alcidi et al. 2017: Figure 5). The literature on inter-state risk-sharing simply subsumed financial shocks under output shocks.

What the U.S. system is better at providing is protection of states against self-fulfilling financial crises. However, this is not an achievement of capital market integration. A non-commercial actor, like the central bank, is required to stop the vicious circle when the stock market or other assets crash; the amplification through fire sales produces a contagion that can drag even sound institutions into the abyss. Lending and market-making of last resort put a floor under these

asset prices, thus stopping the downward spiral. Federal fiscal bailout capacities—in the case of the U.S., Treasury bonds bought by the FDIC—allow macroeconomic policymakers to identify liquidity and solvency problems in the banking system, facilitating the restructuring of the banking system once the dust has settled. Monetary bailout capacity for the government ensures that bond markets cannot turn the table and attack those that just rescued the financial system. In the EU, governments must tread carefully with their restructuring of banks because they fear the exactly this turning of the table; strict, treaty-based, prohibition of monetary financing by the ECB makes a backup for fiscal authorities uncertain, if not completely impossible.

If the EU is concerned with smoothing income and consumption across the cycle, capital markets work more effectively in the U.S. while there is room for improvement in the euro area. Consumption and income smoothing through market risk-sharing is neither equitable nor targeted, however. Welfare states perform this better and more reliably, especially for households who are credit-constrained and asset-poor. Moreover, the CMU cannot provide a solution to Europe's most urgent problems of macro-stability. It cannot do this in the United States without reinsurance from public channels (Alcidi and Thirion 2017). As long as member states are not ready to underwrite collectively the risks that financial integration generates, they should think of segmenting financial markets to prevent contagion. The macroprudential turn in monetary policy and financial supervision makes more sense against this backdrop than CMU.

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