CESifo, a Munich-based, globe-spanning economic research and policy advice institution

Forum

Autumn 2014

Volume 15, No. 3

Focus

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CESifo Forum ISSN 1615-245X (print version)
ISSN 2190-717X (electronic version)
A quarterly journal on European economic issues
Publisher and distributor: Ifo Institute, Poschingerstr. 5, D-81679 Munich, Germany
Telephone ++49 89 9224-0, Telefax ++49 89 9224-98 53 69, e-mail ifo@ifo.de
Annual subscription rate: €50.00
Single subscription rate: €15.00
Shipping not included
Editors: John Whalley (jwhalley@uwo.ca) and Chang Woon Nam (nam@ifo.de)
Indexed in EconLit

www.cesifo-group.de

CESifo Forum

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State Export Credit Guarantees in a Globalised World

Introduction

Erdal Yalcin[1]

Global economic integration through international trade has steadily increased, along with the orderly elimination of trade barriers, for over half a century and it is by no means an overstatement to consider the increase in cross-border business as one of the major drivers of global economic growth and development. A common characteristic of emerging economies like China, Brazil or Turkey is the strong increase in their import and export activities accompanied by outstanding economic progress: open economies have improved their allocation of scarce resources, benefit from greater economies of scale, and are advancing at the same time thanks to international know-how and innovation spillover.

In light of this ongoing process of global economic integration, the importance of financial resources to firms' economic success seems incontestable and has been bitterly underlined over the last decade. The financial crisis in 2008/09 led to a collapse of credit markets, triggering one of the largest recessions in history. Due to the strong interdependence of nations *via* international trade, what started out as a regional financial liquidity shortage in credit markets snowballed into a prolonged slowdown in global economic growth. One key new insight gained from this crisis was that exporting firms are highly sensitive to credit constraints. Interestingly, prior to the crisis academic experts in international trade were not really aware of this sudden stylised fact. More importantly, they could provide no plausible explanation for why the drop in international trade was much sharper than that in national GDPs.

Different stakeholders, ranging from policymakers and lobby groups to experts in financial institutions, expressed understandable criticism about scholars' nescience in international trade and finance interrelationships. The economic crisis of 2008/09 illustrated that the academic community has a long way to go before it understands how international trade is shaped by international finance and an increasingly volatile economic environment. The crisis also demonstrated that the practical world of financial intermediaries is not perfect either. More specifically, financial markets are dysfunctional and this imperfection varies substantially across countries. It also emerged that a laissez faire approach may not have been the most efficient economic strategy for overcoming major collapses in the financial markets.

Differently stated, there appears to be a role for the state to play in at least mitigating imperfect financial or credit markets. One efficient public instrument for overcoming the weaknesses of financial intermediation cited above can be found in state credit guarantees. In the post-crisis years, academic attempts to understand the relationship between international trade, finance, uncertainty and the role of the state have redoubled. Indeed, a rising number of economic studies illustrate that public credit guarantees support firms in their bid to overcome financial constraints and operate profitably, particularly in cross border transactions.

However, several key fundamental questions much more widely discussed among practitioners than among scholars remain. How large should public support for internationally active firms become? And more importantly, given the increasing fragmentation of production – an ever larger share of the value chain within a production process is produced offshore across different countries – firms are confronted with new financial needs and challenges. How are cross border financial transactions and trade in goods and services affected by these developments? What are the new insights into the links between trade and finance in the light of globally organised value chains? How are entrepreneurs, financial institutions and governments dealing with these new challenges, or how should they approach them?

In cooperation with the German Federal Ministry for Economic Affairs and Energy, the Ifo institute organised a joint conference that brought together experts from financial institutions and international enterprises, representatives of public institutions and minis-

[1] Ifo Institute.

tries, and leading scholars to discuss the questions raised in international trade finance, identify new challenges and generate recommendations.[2]

This special edition of the CESifo Forum 2014 presents a collection of articles resulting from the conference called 'The State Export Credit Guarantees in Globalised World' that was held at the Ifo Institute in February 2014. In the first part of the special issue, five stakeholders from different institutions assess developments in global value chains and discuss the role and challenges for export credit agencies (ECA) from their point of view.

Davide Drysdale, Head of the Export Credits Division of the OECD Trade and Agriculture Directorate, discusses the varying scope of ECA support across countries based on his insider knowledge. *Kalina Manova* from Stanford University follows him with a recent empirical analysis in which the relevance of credit constraints along the global value chain are discussed and evaluated. Her research identifies important new interdependencies between cross-border production fragmentation and financial markets. *Marc Auboin* from the WTO's Economic Research and Statistic division takes a broader view by describing the efforts of the international community to support trade finance, particularly in times of economic distress, and the role of the WTO in this context. *Oliver Hunke* from the Federal Ministry for Economic Affairs and Energy illustrates how foreign content rules for German state credit guarantees are regulated and how potential changes may affect both globally integrated firms and national suppliers if existing regulations are relaxed due to the increasing internationalisation of production chains. *Beate Bischoff,* Head of Business Division Corporates at BHF-Bank AG, discusses the need for changes in ECA content regulations from a banker's perspective. Finally, *Andreas Klasen,* Managing Director of the official German export credit and investment insurance scheme, and Vice President of the Berne Union, the leading international association for the export credit and investment insurance industry, presents an economic analysis of major drivers of export credit guarantees and insurance.

In the second part of the special edition four experts present empirical analyses for countries with very specific characteristics. Using the case of Turkey *Banu Demir* from Bilkent University illustrates how trade finance in developing countries shapes export patterns and what role policymakers can adopt to overcome financial market shortcomings. *Harald Badinger* from WU Vienna and *Thomas Url* from the Austrian Institute of Economic Research provide an economic assessment of the determinants and effects of state export credit guarantees by the Austrian ECA. Interestingly, even in a country with a well-developed financial market, there is a need for public instruments that enable exporters to extend business in specific countries and sectors. *Karel Janda* from the Charles University in Prague extends the previous evaluation by analysing the effects of state guarantees in the case of the Czech Republic. A major focus of his analysis is on how the specific regulations of the Czech ECA may be responsible for commercial banks' reluctance to provide firms with trade finance. The last contribution by *Gabriel Felbermayr, Inga Heiland and Erdal Yalcin* presents the findings of a large evaluation study of Germany's export credit guarantee programme. Their empirical analysis intends to establish a causal relationship between the public finance instrument and export driven employment.

Export credit agencies have experienced a strong revival since the financial crisis. The following collection of articles covers a broad range of new economic insights concerning the role of state credit guarantees in the past and the future. It aims to facilitate an exchange between different stake holders, to gain a better understanding of the discussed public instrument, and to pave the way for improvements in the field of financial intermediation and international trade.

[2] The conference (State Export Credit Guarantees in a Globalized World. Practical and Political Challenges in Financing International Business) is available as a video stream in CESifo Groups' media library – http://mediathek.cesifo-group.de/iptv/player/macros/cesifo/mediathek?content=3170045&idx=1&cate gory =2141192207.

Global Value Chains and ECA Content Policies

David Drysdale[1]

Global value chains (GVCs) have become a dominant feature of world trade. As world markets have become increasingly integrated, businesses are spreading their chains of production across the globe. Instead of producing goods in locations near major suppliers or consumers, multinational firms are benefitting from the sharp falls in transport and communication costs over the past two decades to establish GVCs across several countries.

To begin providing the evidence needed to respond to the policy questions raised by the growing importance of GVCs for trade and investment, the OECD and WTO embarked on an initiative to measure trade in value added (TiVA) terms to provide an accurate view of its underlying economic importance. By identifying where value is being added, it is possible to estimate where income and jobs are created. In addition, it provides a new perspective on bilateral trade imbalances. The TiVA database was launched by the OECD and WTO in January 2013.

Today, success in international markets depends as much on the capacity to import world class inputs as on the capacity to export. One indication of such production fragmentation is the rising share of intermediate inputs in world trade. These inputs to the production process now represent 56 percent of trade in goods and 73 percent of trade in services.

In this context, why aren't all official export credit agencies (ECAs) liberalising their content policies to adapt to this new paradigm? As some of you know, the United States and Germany are on the conservative side when it comes to content policy. All official ECAs seek to maximise their own national benefit – usually linking support for exports to domestic employment. Some ECAs, like the United States, Ex-Im Bank, still limit support to pure national content – made in and shipped from United States; while others, such as Canada focus on national interest, a flexible concept that provides more leeway to support Canadian firms rather than just exports. Germany, while on the conservative end of the spectrum, has recently liberalised its content policies to a limited extent. I would say that US exporters would love to have the flexibilities that Germany has, but German exporters will probably tell you that they would like to resemble Canada or Japan.

What are the reasons for these different approaches in determining the scope of their ECA support? I see three main reasons for these differences: economic size; economic philosophy; and economic culture.

Economic size

The most obvious reason for rigid versus flexible content policies is economic size. The United States' GDP stood at about 16 trillion US dollars in 2012, while Canada's GDP amounted to about 1.8 trillion US dollars. Some US exporters, especially multilateral companies like GE, have long sought greater flexibility in Ex-Im Bank content policies. GE is a global competitor, with manufacturing facilities all over the world. Those opposing liberalisation, such as trade unions, point to the concern that loosening Ex-Im's content policies will encourage the outsourcing of production to foreign countries, only hurting US employment. Given the size of the US economy, US exporters can source from California to Florida, from New York to Texas – all large economies in their own respect (approximately 5.9 trillion US dollars in 2012 – that is 36 percent of the total US GDP.

By contrast, Canadian exporters have a smaller economy to source from. It is much harder for them in a world of global value chains to expect that the majority of exports from Canada can be 100-percent made in Canada – and the same goes for all of

[1] OECD.

the smaller members of the EU. Even Germany, the largest EU economy at 3.4 trillion US dollars, is still small compared to the United States. Thus it makes sense that most EU ECAs allow some content from other EU members to count as domestic content in their systems. As the whole of the EU is about the same size, economically, as the United States, just think if you had a single export credit agency in the EU. You could then source from all over the EU and may not have to worry about content to the same extent.

Economic philosophy

Some OECD countries provide export credit support to national companies based on them being 'national champions'. This is a form of national interest, as national champions are flag-bearers for their respective countries. To an extent, at least philosophically, it is a form of state capitalism, with the state standing behind its largest companies. These countries are more willing to support non-domestic content as part of exports by these champions. Bombardier would be a classic example of such a company. It makes airplanes with a tremendous amount of US content, yet EDC supports Bombardier's aircraft exports as if they were 100-percent Canadian.

By contrast, the US economy is more market capitalism focused, and the term national champion is a dirty word. A constant refrain in US politics is that the government should not pick winners and losers. Moreover, it is very difficult in an economy the size of the United States to have a single national champion in a particular sector where there may be several national firms competing in that sector. That is one reason why the government does not want to pick winners and losers.

Economic culture

Historically, Japanese ECAs have had one of the most liberal content policies of any ECA. I ascribe this to the concept of cultural economy – Japanese companies seek to maximise Japanese success. This is best described by the term Japan Inc. While I have no hard evidence of this concept, it has been my perception over the years that Japanese companies take Japanese economic benefit into account in their economic decision-making. By contrast, in the United States and more broadly in western countries, economic philosophy is more about the bottom line – economic decisions are based on profit maximisation.

Thus, in this context, the Japanese government can provide Japanese firms with greater flexibility in sourcing because there is a Japan Inc. mentality. For the same reason, the US government has a more rigid content policy, as US companies are more likely to outsource their supply chain if it stands to improve the bottom line.

I would also like to mention another element that is typical of many Asian countries like Japan, Korea, or China. They are all major importers of natural resources and provide export credit support to a lot of these types of projects. Therefore, they are very often looking at these projects as the offer-taker, rather than as the supplier, and that is why they are much more likely to be willing to provide more flexibility on content.

The OECD does not have any specific guidelines regarding content requirements. Each government establishes its own guidelines in this area, and they vary among ECAs. Nor is there a normative policy that all should apply. Each government decides the parameters of content policies based on its economic and political priorities. Of course, a competitive advantage can actually be gained from winning a deal via the application of a more liberal content policy, but perhaps at the expense of broader domestic economic concerns.

At this point I would like to briefly discuss the organisation of ECAs and their government oversight. In the United States, US Ex-Im has a charter that is reauthorised approximately every four years. It has a sunset clause stating that if Congress does not reauthorise it, they close. This means that Congress has to make a formal decision to continue Ex-Im, and can make changes to the Ex-Im charter at that time.

In the last reauthorisation, the export community felt that the export initiative on doubling exports in five years would open the door to pro-export attitudes, which means that Congress should change the content policies, allow more foreign content, and perhaps allow some special flexibilities in calculation of the content. For instance, in the United States, if you make a tractor, but the nuts and bolts are im-

ported from Mexico, you have to subtract those from the value of the US content. There is no incorporation rule.

The opposition to this push was surprisingly strong – not only from Labour, but also from both the Democrats and the Republicans. In the US political system you could say – stereotypically – that the Democrats are pro-labour and the Republicans are pro-business. But the Republicans were just as strongly opposed to any liberalisation – as tax dollars should only be used to support US jobs.

Firms and Credit Constraints along the Global Value Chain: Processing Trade in China

Kalina Manova[1]

What can we learn from China's experience as a linchpin in the global value chain? This article presents new research showing that financial frictions influence the organisation of production across firm and country boundaries. If you are credit-constrained, you might be stuck in the low value-added stage of the supply chain. Strengthening capital markets might thus be an important prerequisite for moving into higher value-added, more profitable activity. China's experience tells us that liquidity-constrained manufacturers might therefore benefit more from import liberalisation and from the fragmentation of production across borders.

The past 20 years of globalisation have witnessed a dramatic expansion in the fragmentation of production across countries. Firms today can not only trade in final goods, but can also conduct intermediate stages of manufacturing by importing foreign inputs, processing and assembling them into finished products, and re-exporting these to consumers and distributors abroad. While processing trade contributes just 10 percent of EU exports, at over 50 percent it has been a major driving force behind the rapid growth of Chinese exports (Cernat and Pajot 2012).

Global value chains are increasingly capturing the attention of both academics and policymakers because of their potentially wide-ranging implications (see Baldwin and Lopez-Gonzalez 2013). What are their welfare and distributional consequences? Will they reshape optimal trade policy and encourage coordination among nations in light of the stumbling Doha round? How do they affect exchange-rate pass-through and the transmission of supply-and-demand shocks across borders?

The answers to these questions crucially depend on how companies choose to position themselves along the global value chain and how this decision impacts profitability. In our recent work (Manova and Yu 2012), we examine matched customs and balance-sheet data from China to study these issues. We conclude that international production networks allow more firms to share in the gains from trade – firms that could otherwise not have exported at all. However, limited access to capital restricts manufacturers to low value-added stages of the supply chain and precludes them from pursuing more profitable opportunities.

Institutions matter: trade regimes in China

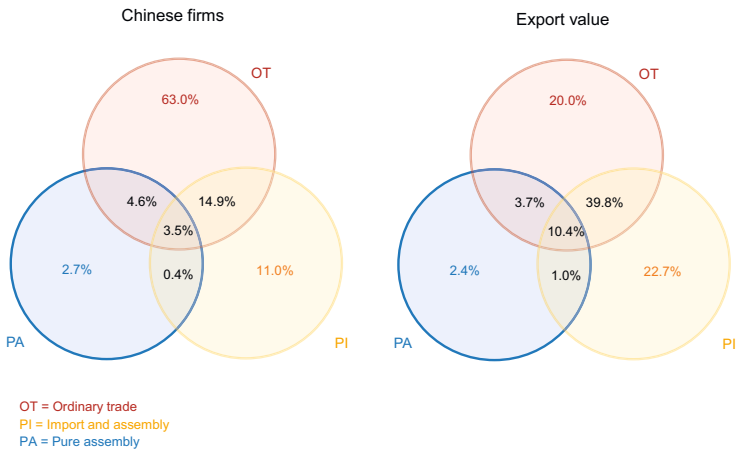
Two institutional features make China particularly well suited to this analysis. Firstly, since the 1980s, China has formally recognised a processing-trade regime that relieves materials imported for further processing and re-exporting from import duties. To claim this exemption, at the time of importing, firms must show proof of a contractual agreement with a foreign buyer for whom and according to whose specifications they will produce. Intended as a means of export promotion, this policy has been very successful: by 2005, 32.7 percent of exporters conducted processing trade and contributed 54.6 percent to total exports, making China a key link in global supply chains.

Secondly, within the processing regime, Chinese firms choose between two operating modes. Under pure assembly, they only incur the cost of domestic inputs and labour. Their foreign partner provides all foreign inputs at no cost and handles marketing and distribution abroad. Under import-and-assembly, the Chinese company sources and pays for all imported materials, but the arrangement is otherwise the same. The Venn diagrams in Figure 1 break down Chinese exports by trade regime in terms of number of firms and dollar value. Manufacturers clearly choose different ways to participate in international commerce, with about

[1] Stanford University. An earlier version of this article was published in VoxEU on 13 May 2013.

Figure 1

Distribution of Chinese firms and export value across trade regimes



Source: Manova and YU (2012).

25 percent active in multiple export regimes. What is the reason for this variation in trade strategies?

The attractions and drawbacks of processing trade

We show that performance varies systematically across companies undertaking different activities. Profits, profitability (profit-to-sales ratio) and value added fall as producers orient exports from ordinary towards processing trade, and from import-and-assembly towards pure assembly.[2] Increasing the share of ordinary trade in export revenues by 40 percent (one standard deviation) is associated with 6 percent higher profits and 4.3 percent extra value added. These numbers reach 10 percent and 8.5 percent for a comparable decline in the share of pure assembly in processing exports.

These patterns suggest that capturing larger segments of the global value chain is more profitable than specialising in fewer, lower value-added stages. Some binding constraint must therefore restrict certain producers to processing trade.

We posit that limited access to external financing presents an important obstacle to firms' expansion along the supply chain. Pure assembly demands less working capital than import-and-assembly because of the different payment terms for foreign inputs. Ordinary exporters require the most liquidity since they oversee production and distribution from beginning to end and sell under their own brand name. They thus bear the cost of import duties and marketing abroad in addition to the expense on domestic and imported inputs. While more profitable than processing trade, ordinary trade thus imposes a substantially heavier burden on the limited financial resources available to a company.

Financial constraints and firms' global-value-chain position

Manufacturers routinely rely on outside capital to meet upfront costs that cannot be covered out of retained earnings or cash flows from operations. Exporters, however, are even more dependent on external funding because they face additional trade-related expenses and greater transaction risk. In addition, cross-border shipping and delivery takes 30–90 days longer than domestic orders (Djankov *et al.* 2010). A very active market thus exists for the financing and insurance of international commerce, with as much as 90 percent of world trade estimated to depend on trade finance (Auboin 2009).

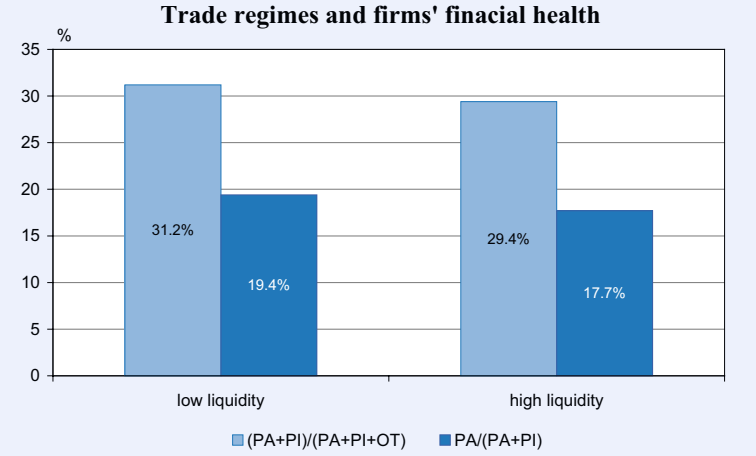
Credit constraints have indeed been shown to severely impede firms' export activity and distort aggregate trade, especially during crisis episodes (Berman and Héricourt 2010; Minetti and Zhu 2011; Iacovone and Zavacka 2009; Amiti and Weinstein 2011). Credit tightening during the financial turmoil of 2008/09 was a key driver behind the collapse in international trade (Bricongne *et al.* 2012; Chor and Manova 2012).

Given this evidence and the difference in liquidity needs across trade regimes in China, we investigate how credit conditions influence Chinese firms' export strategies. Exploiting multiple sources of variation in the data to establish causality, we consistently find that financial frictions force companies into the less profitable processing mode, and the least attractive pure-assembly regime in particular.

Our *first* result is that exporters with more liquid capital and less short-run debt pursue more ordinary trade

[2] Results based on regressions with province and industry fixed effects, such that identification comes from the variation across firms within narrow segments of the economy. We also condition on firm size and ownership type.

Figure 2



Source: Manova and Yu (2012).

than processing trade, and more import-and-assembly than pure assembly.[3] Figure 2 illustrates the average export composition of firms with liquidity in the top and bottom half of the distribution. The impact of financial health appears unrelated to firm size, productivity and ownership structure (private vs. state, domestic vs. foreign).

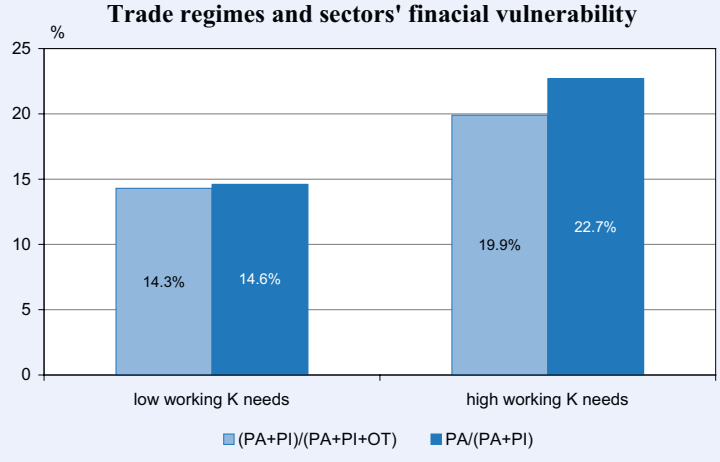
Our *second* result is that firms adjust their trade strategy across sectors and choose more processing trade, especially pure assembly, in sectors that are financially more vulnerable.[4] For technological reasons innate to the manufacturing process and exogenous to individual firms, industries vary in their working-capital requirements in the short run, in their reliance on external capital for long-run investments, and in their ability to raise outside finance using collateralisable assets (Rajan and Zingales 1998; Claessens and Laeven 2003; Kroszner, Laeven and Klingebiel 2007).[5] Exporters thus carefully allocate their limited financial resources across sectors and trade regimes to maximise total profits: in industries that need little outside finance, they optimally pursue ordinary trade despite the higher upfront costs; while the opposite is true of industries that rely heavily on external capital. Figure 3 reports the average export composition for sectors with financial dependence in the top and bottom half of the distribution.

Our *final* result is that the trade-regime choice by exporters is more sensitive to firms' financial health and to sectors' financial vulnerability when the exporter is located in a province with weaker financial markets and when the foreign buyer is in a country with stronger financial markets. In other words, it takes two to tango: constrained exporters select the less profitable trade regimes with lower liquidity needs when they have less access to capital domestically, but their foreign buyer can more easily secure financing.

Conclusions

Our results suggest that financial frictions influence the organisation of production across firm and country boundaries. Credit-constrained firms, and financially underdeveloped countries as a whole, might be stuck at low value-added stages of the supply chain and unable to pursue more attractive opportunities. Strengthening capital markets might thus be an important prerequisite for moving into higher value-added, more profitable activities. Our back-of-the-envelope calculations indicate that these effects can be sizeable. Improving all firms' financial health to that of the least constrained firm in our sample could in-

Figure 3



Source: Manova and Yu (2012).

[3] Results based on the same specification as in footnote 4. Liquidity = (current assets – current liabilities) / total assets, leverage = short-term debt / current assets.

[4] Results based on specifications with firm fixed effects, such that identification comes from the variation across sectors within multi-sector firms.

[5] These are proxied respectively by the inventories-to-sales ratio, the share of capital expenditure not financed from cash flows, and plant, property and equipment as a share of total book-value assets.

crease aggregate Chinese profits by 5.5 billion RMB (1.3 percent) and real value added by 15.2 billion RMB (0.7 percent), although these are probably lower bounds. A promising direction for future research is the potential for companies and entire economies to grow over time by starting with processing trade restricted to few assembly tasks and gradually expanding along the supply chain into more profitable activities.

Our findings also highlight the differential effects of trade policy and global value chains across heterogeneous firms. China's processing regime allows producers that would have otherwise been unable to pursue any cross-border operations to share in the gains from trade. Liquidity-constrained manufacturers may therefore stand to benefit more from import liberalisation and from the fragmentation of production across borders. Imperfect financial markets might thus justify some degree of government intervention in the regulation of international trade.

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Facilitating the Access of Trade Finance to Traders: The Role of the WTO

Marc Auboin[1]

Until the financial crises of the 1990s and that of 2008/09, trade finance had been taken for granted. However, the recent financial crisis revealed that trade finance markets can be subject to dislocation, making policy interventions necessary given the strong linkage between the availability of trade finance and trade flows. Following the G20 support 'package' implemented in 2009/10, conditions returned to normal in the main markets although not everywhere. The structural difficulties experienced by poor countries in accessing trade finance have been worsened by the banking crisis. In this context, it was important to foster dialogue with international prudential authorities to avoid 'unintended consequences' for trade finance. This article describes the efforts by the international community to support trade finance in difficult times, and the role of the WTO in this context.

The 'big trade collapse' and public support to trade finance in crisis

Finance is the lubricant of commerce. Most trade transactions are supported by a trade credit. A credit is required to bridge the gap between the time at which exporters wish to be paid (at dispatch, at the latest with the order, at the earliest), and the time at which importers will pay (at the earliest, on receipt of the merchandise). Hence, a large share (up to 80 percent) of the 18 trillion US dollars of annual trade revenue involves some form of finance (credit, insurance or guarantee). While the commercial risks involved in an international trade transaction seem, in principle, to be larger than in a domestic trade transaction (risk of non-payment, risk of loss or alteration of the merchandise during shipment, exchange rate risk), trade finance is actually considered to be a particularly safe form of finance, as it is underwritten by strong collateral and documented credit operations. According to the International Chamber of Commerce's *Trade Finance Loss Register,* the average default rate on short-term international trade credit is no more than 0.02 percent, of which 60 percent is recovered though the sale of the underlying asset, the merchandise.

Despite trade finance being a routine task, at the same time it is universal and vital for trading activities. Until the financial crises of the 1990s and 2008/09, trade finance had become easy to take for granted; but the crises created distortions in the relevant markets that made policy interventions necessary. In the heat of the 2009 financial meltdown, the collapse of worldwide trade was accelerated by the shortage of trade finance, linked to the temporary inability of private sector banks to respond to their customers' financing needs. Based on WTO proposals, the London G20 Summit took the initiative to muster 250 billion US dollars in additional short-term trade finance and guarantees. This was a most welcome development that helped restore confidence in the market. Large traders were able to benefit from rapid export credit support and risk-sharing mechanisms mobilised by international financial institutions: within a year of implementation, the initiative had helped to mobilise 170 billion US dollars in additional capacity, mainly from export credit agencies, of which 130 billion US dollars had been used. In the summer of 2009, it was felt that the outlook for global trade finance had improved, partly due to improvements in overall financial markets and partly to a recovery of trade.

During and after the financial crisis, academic work has highlighted the strong link between trade and trade finance. The 'trade finance' hypothesis has gained popularity among some economists in their search for plausible explanations for the 'big trade collapse' of late 2008 to late 2009, when global trade outpaced the drop in GDP by a factor that was much larger than anticipated under standard models. As summarised by Eichengreen and O'Rourke (2012), the roots of this collapse of trade remain to be fully un-

[1] World Trade Organisation.

derstood, although recent research has begun to shed light on some of the causes – see, in particular, Baldwin (2009). While most authors agree that the fall in demand was largely responsible for the drop in trade flows, the debate focused on the extent to which other potential culprits like trade restrictions, a lack of trade finance, and vertical specialisation may have played a role. The trade finance hypothesis is sustained by several empirical papers analysing the effect of trade finance on trade during the recent financial crisis – see also Chor and Manova (2012); Amiti and Weinstein (2011); Felbermayr, Heiland and Yalcin (2012); Auboin and Engemann (2014).

Structural difficulties in low income countries

The problems faced by traders in low income countries (LICs) in accessing affordable trade finance are to a large extent structural, but have worsened since the 2009 crisis. A recent survey conducted by the Dutch Institute CBI (2012) revealed that a majority of SME exporters within Africa reported an increase in trade finance costs over the last three years, and that access to trade finance, one of the main obstacles to their trade, had become more difficult. A WTO-OECD also concluded that a lack of access to trade finance was a key element in the inability of low income countries to participate in global value chains.

The contraction of the global financial industry since 2009 has exacerbated the situation. Capital for lending in LICs has become scarcer and the selectivity of risks greater, so negative expectations regarding the cost of doing business in poorly (or non-)rated countries translate either into higher costs for traders locally, or simply in less finance available. For example, leading consulting firms active in trade finance have indicated that the regular import loans charged on non-sovereign African risks are still well over 10 percent per annum for at least a third of African countries, and for around a further 20 countries in the rest of the world.

The international response

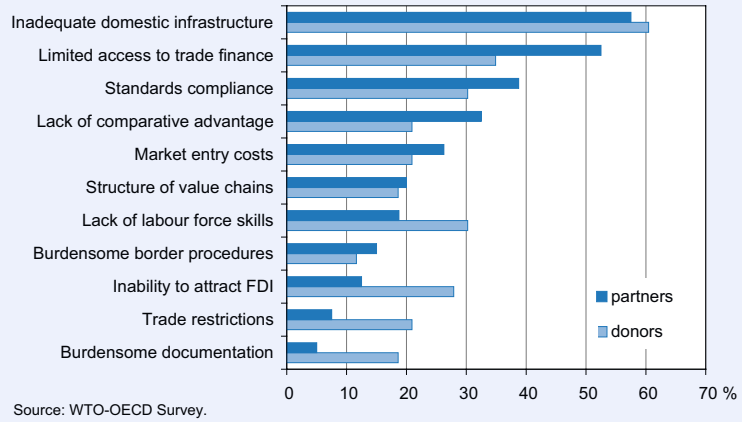
In 2011, the Director-General of the WTO and President of the World Bank, with the support of the Heads of Multilateral Development Banks, drew the international community's attention to this problem affecting specifically low income countries. The G20 Seoul Summit Document indicated that: "to support low income countries (LIC) capacity to trade [...], we note our commitment to […] support measures to increase the availability of trade finance in developing countries, particularly LICs. In this respect, we also agree to monitor and to assess trade finance programs in support of developing countries, in particular their coverage and impact on LICs, and to evaluate the impact of regulatory regimes on trade finance" (Fighting Protectionism and Promoting Trade and Investment, paragraph 44).

The WTO reviewed the efforts already deployed by regional development banks and the World Bank Group – through the International Financial Corporation (IFC), its private sector arm – to support trade finance. This effort was not insignificant. Between 2008 and 2012, the total volume of trade supported by existing, so-called trade finance facilitation programmes increased by 150 percent, to a total of almost 25 billion US dollars. The support of multilateral development banks and that of the IFC is therefore very important for trade in developing and low income countries (see Box 1).

The G20 adopted the recommendations of the WTO Report asking regional development banks and the World Bank group, which have benefited from recent recapitalisations, to expand as a matter of priority their coverage of low-to-middle income countries (also including significant traders like Bangladesh, Pakistan, Nigeria, Sri Lanka, Kenya), and to further

Figure 1

Partner and donor country views on main barriers to firms entering value chains, 2013



Source: WTO-OECD Survey.

Box1

Trade finance facilitation programs (TFFPs)

The expansion of trade finance facilitation programmes and similar schemes do not cost the taxpayer any money. These schemes are risk mitigation instruments that are run on a private-sector, demand-basis, with a focus on clients in developing countries, particularly the poorest. All institutions that operate such programmes are running net operating profits on them, while serving the wider purpose of facilitating trade in places of the word where private markets would not operate. These programmes strengthen financial and trade inclusion in low income countries. In effect, trade finance facilitation programmes provide risk mitigation capacity (guarantees) to both issuing and confirming banks, to allow for the rapid endorsement of letters of credit – a major instrument used to finance trade transactions between developing country players, and between developed and developing countries. The guarantee provided by the multilateral development bank ensures that the bank (typically the bank of the exporter) accepting to confirm a letter of credit (typically issued by the bank of the importer) will be paid even if the issuer fails to pay. The guarantee would ensure that the exporting bank is paid. Such guarantees are rarely called in, but reduce the risk aversion of conduction trade operation in low income countries – as they close part of the 'confidence gap' between the existing level of risk and its perception. Demand for these programmes increased during the 2009 financial crisis and has not fallen since. The Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, the Islamic Development Bank, and the IFC are operating relatively similar programmes. The African Development Bank opened a programme in early 2013, and has already financed over 600 million US dollars in trade transactions in Africa.

expand risk limits to allow for greater support to countries in which local financial institutions cannot support trade and traders cannot afford credit conditions. Two priority regions were clearly set out: Africa and Asia. With support from the WTO, Asian Development Bank and the IFC, the Executive Board of the African Development Bank approved the creation of a permanent facility for trade finance in February 2013, with a risk capacity of 1 billion US dollars. The first transactions were signed on the margin of the African Development Bank in May 2013. Other steps have been taken, such as expanding the EBRD's trade finance facilitation program to countries in the middle-east (so-called MENA countries), and further extending the IFC's own programme to cover other low-income countries. All in all, roughly 30 billion US dollars in trade transactions were supported by these programmes in 2013. Although this may not seem a large amount, the average transaction was of less than 350,000 US dollars, meaning that more than tens of thousands of trade transactions that would not have taken place otherwise were supported in that year.

Avoiding the unintended consequences of Basel III on trade finance

Traditionally, trade finance – mainly letters of credit and other self-liquidating instruments of payments for trade – has received preferred treatment on the part of national and international regulators on the grounds that trade finance was one of the safest, most collateralized, and self-liquidating forms of trade finance. This was reflected in the low credit conversion factor (CCF) determined under the Basel I framework for the capitalisation of these instruments, which was set at 20 percent, i.e. five times lower than any on-balance sheet loan.[2] However, as the banking and regulatory communities moved towards internal rating based and risk-weighted assets systems under the successor Basel II framework, issues regarding maturity structure and country risk emerged.

With the collapse of trade in late 2008 and early 2009, the regulatory treatment of trade credit under Basel II became an issue and was discussed by professional banking organisations, regulators and international financial institutions. A sentence made its headway into the communiqué of G20 Leaders in London in April 2009, calling upon regulators to exercise some flexibility in the application of Basel II rules, in support of trade finance. Moreover, in the context of prudential re-regulation under Basel III, there were calls for trade finance, which had suffered casualties by contagion from other segments of the financial industry, not to be penalised. The unintended consequences of increased prudential regulation were to be avoided, particularly with respect to the ability of developing countries to access trade finance at an affordable cost. The banking community was asked by the Director General of the WTO, Pascal Lamy, to provide evidence of the high level of safety and soundness of its activities by collecting statistical information.

In parallel, the G20 asked at the end of 2011 that the WTO and World Bank, on the one hand, and the Basel Committee on Banking Supervision (BCBS), on the other, engage in a dialogue with a view to improving the common understanding of trade finance, and

[2] The credit conversion factor (CCF) is the share of the asset's face value taken into account for capitalisation purposes. A 20-percent CCF for letters of credit means that only one fifth of the letter of credit's face value would be subject to the capital ratio.

identifying any possible unintended consequences of prudential regulation. This dialogue proved extremely useful. Prudential regulators have been able to improve their grasp of the workings of trade finance and to verify, thanks to the data collected by ICC under the 'pilot' trade finance register, the low-risk character and absence of leverage of the industry. The aggregate data delivered by ICC covered nine major international banks, over five million transactions, and revealed less than 1,150 defaults.[3] ICC was able to participate in discussions with the Basel Committee alongside the WTO and the World Bank.

Three positive modifications in favour of trade finance

Since then, the BCBS has made three revisions reflecting the low level of risk of trade finance, and improving its regulatory treatment.

On 25 October 2011, the BCBS agreed to modify two of its Basel II rules as far as short-term, self-liquidating trade finance instruments were concerned, to reduce the excessive risk weighting on low-income countries (which proved to be no more risky than other countries), and to allow for capital requirements to be matched with the effective product maturity (hence waiving the one-year maturity floor applying to letters of credit and the like). Both measures are of great importance in removing obstacles to the provision of trade finance in low-income countries. This decision is explained in the document *Treatment of Trade Finance under the Basel Capital Framework* of the BCBS, available at http://www.bis.org/publ/bcbs205.pdf.

On 6 January 2013, the new Basel III guidelines on liquidity (concerning the liquidity coverage ratio, LCR) proved favourable to short-term, self-liquidating trade finance instruments. In its decision (http://www.bis.org/press/p140112a.htm), the LCR was defined as the ratio of the 'stock of high-quality liquid assets' to 'total net cash outflows over the next 30 calendar days'. It is meant to ensure that banks have enough liquid assets (i.e. 100 percent of net cash outflows) for a 30-day liquidity stress period. Previously, the liquidity guidelines assumed that trade finance exposures experienced a run-off rate equivalent to corporate exposure (up to 50 percent) during a liquidity stress period and required a proportionate buffer of liquid assets. The revised LCR relaxes the outflow assumptions for a number of bank liabilities, including those arising from trade finance. The Committee allows national regulators to set very low outflow rates (between 0 and 5 percent) for contingent funding obligations from trade finance instruments – significantly below its previous level. This implies that banks will be allowed to hold fewer liquid assets against contingent liabilities and committed funded facilities arising from trade finance, thereby increasing the availability of trade finance.

On 12 January 2014, the BCBS modified its 2011 rule regarding the leverage ratio on trade letters of credit and other self-liquidating trade-related instruments, to reduce it from a 100-percent CCF to a 20-percent CCF (as for capital purposes). In its 2011 initial decision on the leverage ratio, the BCBS added a flat, non-risk weighted, 100-percent CCF for leverage on all off-balance sheet items regardless of their risk level – thereby also affecting trade letters of credit. One point made by the WTO has been the absence of leverage involved in trade finance transactions, due to the one-to-one relationship with merchandise trade. Moreover, contingent trade finance obligations, such as letters of credit, are off the balance sheet essentially for process reasons. This argument was accepted by several interlocutors, within and outside the BCBS. The 2014 modification was hailed by the Director-General of the WTO "as being of particular significance for the availability of trade finance in the developing world, where letters of credit are a key instrument of payment. This is good news for developing countries, for the expansion of their trade and for the continued growth of South-South trade flows".[4] All in all, the situation on the regulatory front is looking better than it did a few years ago, thanks to the institutional dialogues initiated by the WTO and the Basel Committee, and the data support provided by ICC. There is no doubt that such initiatives contribute to improving the policy coherence between the prudential and central bank community on the one hand, and the trading community on the other.

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[3] Further details about the ICC trade finance register can be found in ICC Global Survey 2013: Rethinking Trade and Finance at www.iccbwo.org.

[4] The entire quote can be found at: http://www.wto.org/english/news_e/news14_e/dgra_17jan14_e.htm.

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Export Credit Guarantees in a Globalised World

Oliver Hunke[1]

Introduction

On 24 January 2014 Sigmar Gabriel, the Federal Minister for Economic Affairs and Energy, announced that the federal government provided export credit guarantees – also known as Hermes cover – worth 27.9 billion euros in 2013. Small and medium-sized enterprises (SMEs) accounted for around 70 percent of the companies applying for cover under the scheme. Emerging markets such as Turkey (2.47 billion euros) and Russia (2.38 billion euros) were once again the main recipient countries of the exports covered. In total, 79 percent of the volume insured was destined for emerging markets. With a plus of 580.9 million euros, the scheme once again closed with a surplus for the federal budget.

Studies conducted by the Ifo Institute show the positive effects of Hermes cover for policyholder firms in terms of total turnover and employment. During the financial crisis, the positive effects of the guarantees were particularly high, demonstrating that Hermes cover had an important stabilising effect on the German economy.

The Hermes cover scheme has not always been evaluated so positively. Immediately prior to the financial crisis, the importance of Export Credit Agencies (ECAs)[2] had been declining in comparison to the expansion of world trade and global capital flows (Klasen 2011). Indeed, it had even been questioned whether state-related agencies should continue to offer export credit guarantees to protect exporters from the risk of non-payment in the future at all. It had been argued that private export credit insurers would be able to cover almost all types of risks in almost all markets. Moreover, the increasing market for credit default swaps would offer further possibilities for protection. Therefore, a state-supported scheme and thus state intervention in the private market were deemed virtually unnecessary. It was thought that ECAs were facing sharply decreasing market shares; and assumed that nearly all types of risks and markets would soon be covered by private insurers and commercial banks – leaving the ECAs with only extremely risky markets and/or very long credit periods.

This attitude towards ECAs changed substantially, however, with the recent financial crisis. Suddenly, ECAs experienced a renaissance. They became one of the main vehicles for implementing the decision taken by G20 governments to provide 250 billion US dollars in support of trade finance. ECAs expanded their operations in order to help banking systems provide liquidity and restore lending (Auboin 2009). They stepped in to fill the gap left by private export finance markets in supporting international trade flows (Lamy 2010) and thus played a crucial role in keeping export finance viable (Janus 2013). And even after the crisis, the financial instability of a number of EU countries, as well as the Arab Spring with its related political instability, have shown that ECAs still have a role to play.

In order to assure the viability of the instrument, however, constant adjustments are necessary to account for the changes in the export and finance industry. A particular concern that has increasingly been voiced and discussed is whether the Hermes rules on the inclusion of foreign content are still adequate in times of increasingly globalised production and growing international competition. According to the rules for Hermes cover, supported exports should predominantly consist of German content if they are to be eligible for cover. With the exception of the United States, the state-supported schemes of other exporting nations are far more flexible on foreign content. Nevertheless, the economic effect of relaxing the Hermes rules on foreign content remains unclear. Cooperation between academics and practitioners could

[1] German Federal Ministry for Economic Affairs and Energy. The author wishes to thank the team of Euler Hermes and PriceWaterhouseCoopers for their invaluable input. Special thanks go to Martina Höppner, Head of the Economic Research Unit.

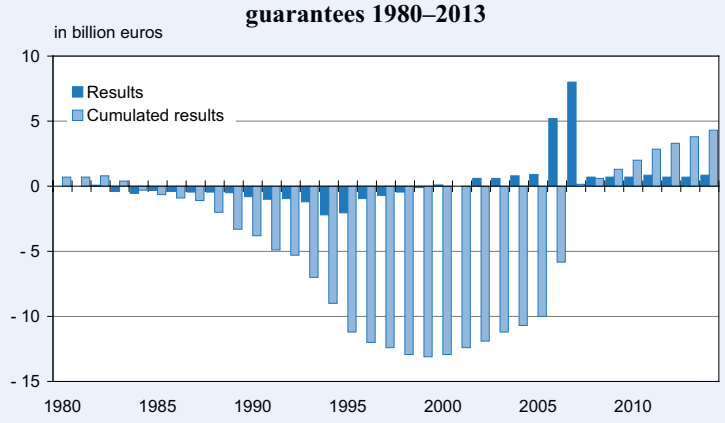
[2] Export credit agency is the common term for all state-supported schemes/institutions established to promote exports.

help to shed more light on the question of whether and how the instrument should best be adjusted in order to remain viable in a world characterised by global value chains.

This article aims to give further insight into the scheme of German export credit guarantees and its development over time – particularly during the financial crisis. Finally, upcoming challenges will be addressed with a specific focus on the question of whether the inclusion of foreign content should be facilitated.

Figure 1

Annual results and results accrued of the federal export credit guarantees 1980–2013



Source: Federal Ministry for Economic Affairs and Energy.

Germany's federal export credit guarantee scheme

The purpose of the federal export credit guarantees scheme is to support the activities of German companies abroad by protecting exporters and banks against the country and buyer risks involved in export transactions. Through this scheme, the federal government assumes the risks of non-payment for political or commercial reasons. The objective is to promote German exports in order to secure employment in Germany. The scheme helps to support companies in accessing difficult markets and maintaining exports in times of unfavourable conditions. Particular emphasis is placed on the support of SMEs, which account for 70 percent of all companies receiving cover. The scheme is available for companies based in Germany exporting predominantly German goods and services, as well as for banks financing such exports. The eligibility for support and the acceptability of the risk related to a specific export transaction are the two main criteria for granting cover. Cover decisions are taken by an Interministerial Committee, a body consisting of the Federal Ministry for Economic Affairs and Energy, the Ministry of Finance, the Federal Foreign Office and the Ministry for Economic Cooperation and Development as deciding parties. Experts of the German export industry and banking sector and representatives of the consortium handling the scheme are advisory members to the Interministerial Committee.

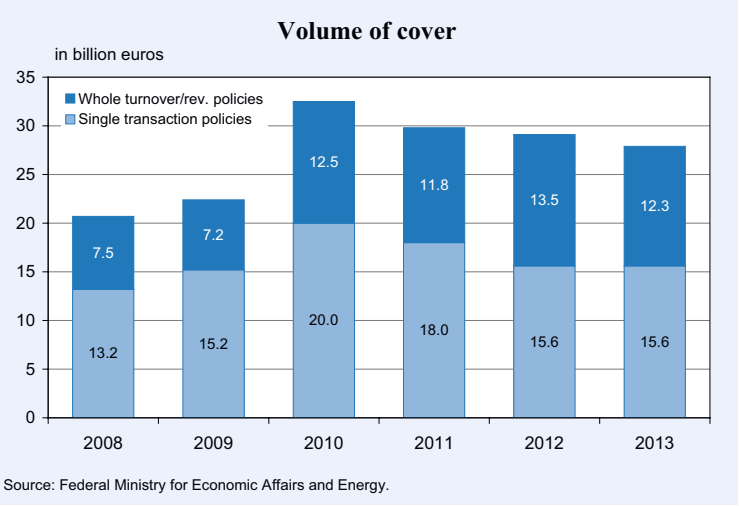
The scheme is conducted as a public private partnership and managed by a consortium of Euler Hermes Aktiengesellschaft and PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft (PwC) on behalf of the federal government. It was established in 1949 based on the Law for the Assumption of Security Instruments and Guarantees. Budgetary responsibility for the scheme lies with the federal government. Currently, cover amounting to a statutory limit of up to 145 billion euros is available. While not every year in the history of the scheme has been profitable, the accumulated results amounting to 3.6 billion euros as of December 2013 show that it has proven self-sustaining in the long run.

Besides the requirement of financial self-sustainability, subsidiarity is another basic principle for the scheme and, indeed, for all ECAs. The objective is to ensure that state-supported export schemes do not interfere with the private market. According to the principle of subsidiarity, ECAs are only allowed to offer cover where the private insurance and financing markets are not available or are dysfunctional. This is particularly true for transactions with risky markets and/or extended credit periods; or for large amounts where ECAs are regarded as insurers of last resort and only step into the breach when private insurers do not offer sufficient cover (Klasen 2011).

In order to ensure fair competition and a level playing field for exporters on an international level, export credit agencies in all OECD countries and selected additional nations[3] cooperate on the basis of the OECD 'Arrangement on Officially Supported Export Credits', commonly known as the 'OECD Consensus', which

[3] The Participants in the Arrangement are currently: Australia, Canada, the European Union, Japan, Korea, New Zealand, Norway, Switzerland and the United States, as well as Brazil for the aircraft sector. Additional countries have chosen to adhere to the principles of the Arrangement without being official participants.

Figure 2



Source: Federal Ministry for Economic Affairs and Energy.

was established in 1978. These ECAs have decided upon a number of agreements regarding various issues such as minimum advance payments and minimum interest rates, maximum credit periods, minimum premium levels and environmental guidelines. The OECD rules ensure that member ECAs do not interfere with functioning markets and maintain WTO-conformity. In the EU, the OECD Arrangement has been transformed into EU regulation and is therefore binding.

Development of business

Demand for export credit guarantees in Germany remains high, albeit at a lower level than when it reached its peak in 2010 (the 2013 figure was 14 percent lower than in 2010).With 27.9 billion euros of newly covered volume, 2013 was nevertheless the fourth strongest year in the history of German export credit guarantees.

As in previous years, the BRIC countries and Turkey were among the top ten countries for which cover was granted, with Turkey and Russia leading the league (India ranked 4th, Brazil 5th, China 6th). Not surprisingly, the BRICs (with the exception of Brazil) also feature among the top ten countries for which mainly short-term cover has been granted. Total outstanding risk currently amounts to 87.7 billion euros.

Hermes cover during the financial crisis

Due to their countercyclical nature, export credit guarantees proved their capability as an effective instrument against market failure (Klasen 2011). With the support of their respective governments and based on their longstanding experience in facilitating international trade, ECAs were able to rapidly expand their operations when needed during and after the financial crisis. There was a significant shift in market composition as a result, with private insurers' share of short-term credit limits declining from 85 percent prior to the crisis to 72 percent in 2010 (Morel 2010). It should, however, be acknowledged that those ECAs fared best that had relevant products (e.g. cover for short-term transactions or direct lending) in place, which only needed to be expanded in volume. Those ECAs, by contrast, that needed to develop new products (mainly those ECAs that used to offer cover for medium- and long-term lending only) faced greater challenges in adjusting to the new market conditions (Bank of International Settlement CGFS Paper 2014).

The German export credit guarantee scheme has traditionally focused on offering pure cover facilities only.[4] In contrast to some other European ECAs, it did, however, continue to offer cover for short-term transactions for all but the EU and OECD core countries. From the outset, the German scheme was thus comparatively well-equipped to expand operations as this became necessary.

At an early stage of the financial crisis, the German government focused on measures to support the financing of export transactions. Based on the so-called *Konjunkturpaket II* (Economic Stimulus Plan), which was adopted in January 2009, a number of concrete, temporary measures were introduced in order to facilitate export financing, including:

- Re-introduction of cover for short-term transactions for all EU and OECD countries based on the respective decision by the European Commission;
- Increase in the percentage of cover for supplier credit guarantees from 85 percent to 95 percent,

[4] ECAs can be classified as those offering insurance only (pure cover) such as the German, Dutch or Spanish ECAs, and those offering both cover and direct lending like the ECAs of Canada or the United States. In some countries like Japan or Korea, two institutions exist: one offering cover and the other one offering lending facilities.

Table 1

Development of business during the financial crisis

	2008	2009	2010	2011	2012
German exports (in billion euros)	984.1	803.3	952.0	1,061.2	1,095.8
Covered volume as % of total exports	2.1	2.8	3.4	2.8	2.6
Number of applications	13,519	28,498	26,212	15,965	16.560
Covered exports for EU countries (in million euros)	795.9	1,991.5	5,583.6	1,873.3	1,448.2

Source: Federal Ministry for Economic Affairs and Energy

while at the same time facilitating the handling of assignment of receivables;

- Securitisation Guarantee for the KfW refinancing programme of 1.5 billion euros annually, enabling banks to take part in the refinancing programme of the KfW banking group to obtain long-term refinancing with congruent maturity for buyer credits covered under a Hermes guarantee from the federal government.

As shown in Figure 2 and Table 1, despite a general decline in German exports during the financial crisis, covered exports increased substantially. The increase in the covered volume as a percentage of total exports from 2.1 percent in 2008 to 3.4 percent in 2010 shows the countercyclical development of Hermes cover particularly clearly. Deeper insight into demand for Hermes cover is gained when looking into the change in the numbers of applications over the years. From 2008 to 2009 the number of applications more than doubled (change of 110.7 percent). While applications for single transactions increased by 11.3 percent, the number of applications for whole turnover[5] cover rose by 129.8 percent. The strong focus on countries where risk was considered to be marketable before the crisis becomes evident when considering the increase in covered exports to EU countries, which more than doubled from 2008 to 2009 and almost tripled in the year thereafter.

To sum up, although the increased provision of Hermes guarantees was not able to prevent the contraction of German exports, such guarantees did fill a substantial gap left by the private market.

New challenges for the scheme – inclusion of foreign content

With the relevance of state export credit guarantees in general – and Hermes cover in particular – firmly established, constant adjustments of the instrument to account for changes in the export and finance industry are increasingly important. Of particular concern is the question of how to account for increasingly global value chains. Ongoing internationalisation, the increasing necessity of having a local presence, growing international competition and the pressure on exporters to cut costs, and growing demand by foreign buyers to source locally (which is even required by national law in certain countries) all put pressure on export credit agencies to respond to these changes.

The current regulations on foreign content under Hermes cover were last modified in 2008, when the rules were made more lenient. According to today's system, the inclusion of foreign content for short-term transactions, i.e. transactions with payment terms of up to two years, is relatively ample, as up to 100 percent of foreign content can be included unless capital goods are exported. For the latter, specific reasons have to be given if more than 49 percent of the total contract value is foreign.

For medium and long-term transactions, i.e. transactions with payment terms of two years or more, the German scheme is more restrictive regarding the inclusion of foreign content – in terms of both foreign deliveries from third countries and of local costs incurred in the recipient country. It should, however, be underlined in this context that products with a German Certificate of Origin are considered to be 'purely German' – even if they increasingly tend to contain foreign elements. For all transactions where no overall German Certificate of Origin is available, a three-tier system of permissible foreign content is applicable. Specific rules for the inclusion of local costs apply as determined by the OECD Consensus.

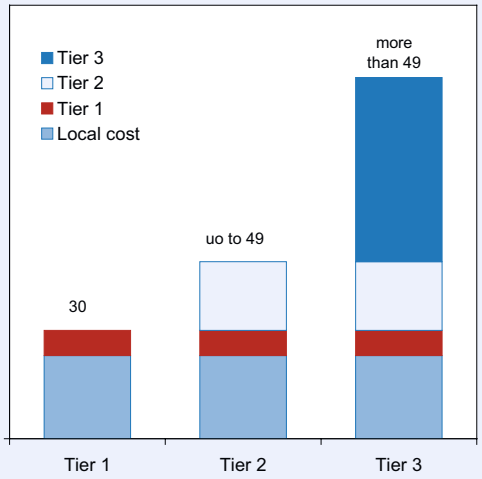
According to the OECD Consensus, a maximum of 30 percent of the export contract value, equivalent to 23 percent of the total contract value of local costs, can be included. According to the German three-tier system, in the first tier up to 30 percent of the total

[5] The whole turnover policy allows insuring short-term receivables from multiple transactions with foreign buyers in various countries.

Figure 3

German three step model of foreign content regulation

permitted foreign content share as % of covered order value



Source: Federal Ministry for Economic Affairs and Energy.

contract value of foreign goods and services (including local costs) can be accepted without any obligation to provide further reasons. The second tier entails rules for transactions for which the total amount of foreign content to be included amounts to up to 49 percent of the total contract value. For example, deliveries from direct subsidiaries of the German exporter classify for this tier. In the third tier, the inclusion of foreign content in excess of 49 percent is possible on a case-by-case basis. In this instance, the exporter must explain in detail why such supplies are crucial.

Compared to other ECAs, the German approach is relatively strict, with only the American US Ex-Im applying stricter rules (a maximum of 15 percent of foreign content for medium/long-term transactions). At the other end of the scale, the Belgian, Swedish and Canadian ECAs, for example, base their decision of granting cover on the respective 'national interest' – without even considering where the goods delivered were manufactured. Several other ECAs have elaborated solutions in between these extremes such as the Swiss SERV (accepting 70 percent of foreign content if the risk of the transaction is acceptable and charging a higher premium), the Finnish Finnvera (accepting a max. of 90 percent of foreign content for transactions with less risky countries) or the French Coface (accepting 50 percent of foreign content in general, but up to 80 percent for SMEs). When comparing these approaches, the very different sizes and diversifications of the respective economies, and thus the number of potential companies to source from, should be kept in mind. Finding the most suitable approach for a specific country is therefore more complex than a 'copy-thy-neighbour' approach.

A closer examination of Hermes-covered transactions shows that between 2007 and 2012 around 25 percent of all covered transactions included foreign content, with the bulk of these transactions containing no more than 30 percent of foreign content. On average, only one percent of transactions p.a. included more than 50 percent of foreign content. One reason for these relatively modest figures is certainly the acceptance of the German Certificate of Origin as proof of national content. The possibility of reinsurance also deserves a mention. In these cases, a higher percentage of foreign content than usual is accepted, provided that the ECA of the country of origin of the foreign goods grants reinsurance. Moreover, the possibility of parallel insurance, i.e. seeking cover from different ECAs for deliveries from various countries, can be applied. In fact, partial rejections of application due to excessive foreign content are extremely seldom. The question nevertheless remains as to what extent self-selection prevents exporters with high foreign content from applying for cover in the first place.

Given that the more flexible inclusion of foreign content has been named as one of the major challenges by experts of the German exporting community, it can be assumed that self-selection is an issue. The reasons for advocating a more flexible approach that have been put forward are diverse and reach far beyond the pure argument of cost advantages. It is certainly true that some companies use internationalisation to cut costs, and that this could endanger less skilled jobs, particularly in Germany. At the same time, this approach may be necessary in order to ensure the respective firms' survival and may lead to the preservation of more skilled jobs in Germany, since these jobs – particularly jobs in areas like research and development, for example, but even in services related to exports – may well not be transferred to low-cost countries. Furthermore, multinational companies in particular have organised their value chains in ways that frequently leave them with no choice but to source particular parts from particular places of production (e.g. Airbus or car manufacturers). Other companies underline that they need to be present in different markets to be close to their customers and to adjust to different markets' needs. In emerging markets in particular, it is no longer sufficient to offer products and services designed for the

industrialised world, while local companies provide better-adjusted offers for local needs at lower prices. Moreover, in some markets local production is actually required by law, leaving companies little choice but to produce – at least partially – in the respective market. In general, there are a number of valid arguments that explain why certain companies are encountering difficulties with the current national content rules. In this context, it should be underlined that most exporters are not asking for a revolution of the German approach on foreign content, but rather for the relaxation of the current three-tier system.

On the other hand, the interests of German subcontractors must not be neglected: relaxed Hermes rules on foreign content may lead to German subcontractors running the risk of losing out to international competitors in the future. This might lead to a negative impact on employment in Germany and could thus harm the political acceptance of any content policy changes.

To sum up, the broader economic consequences of a potential change in the three-tier system remain difficult to evaluate. While a relaxation would certainly be beneficial to globally integrated companies, subcontractors currently benefitting from national content requirements might lose out (although it can also be argued that subcontractors would also lose out if their main contractors become uncompetitive). The net effect of any change of instrument thus remains unclear. Moreover, even assuming that the net effect of a change of policy was positive (which still needs to be demonstrated), the question of how to adjust the instrument in the most appropriate way remains open.

Conclusion

The responsibility for adjusting the German export credit guarantee scheme to account for changes in the export industry clearly lies with policymakers. In order to assume this responsibility, advice and support from both the exporting community and academia are invaluable. Both offer support in identifying relevant trends and changes, making it possible to keep the scheme viable.

As to the particular question of changing the rules for foreign content, the needs of the exporting community, i.e. a relaxation of the rules, are clearly voiced. The net effects of internationalisation in general and a potential adaptation of the scheme in particular nevertheless remain unclear. Academic research – especially studies showing the mechanisms at work – could shed light on these effects and is thus crucial to any decision upon changes.

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ECA-cover in Germany: Does Foreign Content Policy Need to Be Reconsidered?

Beate Bischoff[1]

Via state-backed Export Credit Agencies (ECA) countries promote national exports by providing insurance coverage to companies involved in export transactions and the banks who finance them. ECA-cover is mostly used for capital goods exports to emerging markets with high country risk, where the private market is not able to assume the financing volumes and tenors requested. ECAs are bound to a set of rules established among the OECD countries – hence called the OECD-consensus – in which basic patterns such as maximum financing tenors for export credit insurance are agreed upon in order to avoid undue competition between countries. The overall aim of state-backed export credit insurance is to secure employment in the respective home country by allowing export oriented companies to grow internationally by entering into difficult foreign markets.

For ECAs, the notion of national export used to be synonymous with the national origin of the goods exported. However, as a consequence of the ongoing globalisation of production patterns and trade flows, the need to include certain elements of foreign content in an export project has become evident over time.

Companies are facing increased global competition in pricing, as well as technological know-how. Many companies have shifted production to subsidiaries in foreign countries. Moreover, many importing countries request the inclusion of local content in projects. To offer a competitive contract price, it is often mandatory for an exporter to include deliveries from third countries into a project, be it from its own foreign subsidiary or from foreign suppliers. This is especially the case in the construction of huge industrial plants in the petrochemical sector, for example. Typically, the high-end engineering will be done in Germany, whereas huge parts of the capital goods involved will be sourced at competitive pricing in third countries and the local construction work will be entirely handled by local firms.

Hence the necessity for ECAs to adopt rules that allow for the inclusion of certain foreign and local content in their export cover policies. It is important to note that the OECD rules provide a common framework for local content, whereas for foreign content they do not. It is thus the responsibility of the respective countries to define a foreign content policy for their export credit insurance schemes.

The results vary largely. The approach adopted by countries differs due to their economic size, philosophy or culture. In small countries no project can realistically be sourced from the national industrial base alone. Considerations of organised labour may be dominant in some countries, pointing to the fact that national jobs will be hurt by encouraging production elsewhere. In other countries, the state backs its national champions as a matter of industry policy. Consequently, looking at ECA policies on foreign content in the OECD, there is a wide span from strict definitions of national origin to very liberal interpretations of national interest.

In this context Germany tends to settle at the strict end of the scale. Fundamentally, as far as capital goods exports are concerned, the German ECA Hermes grants export insurance coverage for goods for which a German certificate of origin is issued. In the past, however, Hermes has been prepared to support the exporting industry in its request for greater flexibility in foreign content policy to strengthen the competiveness of German exports. As early as 2008 Hermes modified the rules governing the inclusion of foreign content, and amended these rules again at the end of 2011.[2]

[1] BHF-BANK AG.

[2] In its treatment of foreign content the German ECA distinguishes between short-term trade transactions and the export of capital goods. For short-term trade transactions, it is possible to allow for 100 percent of so-called transit goods. Transit goods usually comprise of raw and basic materials, agricultural produce, fertilizers, commodities and consumer goods. The credit period usually extends to 180 days, and in all events is no longer than 360 days. For the export of capital goods, a much more complicated and restrictive set of rules for foreign content apply – see Hermes Cover Special, March 2012, Inclusion of Foreign Content in Hermes-cover.

A three-tier system exists, which varies in the percentage of foreign content that can be included in insurance coverage and the necessity of providing explanations and justifications. The first tier refers to a foreign content of up to 30 percent, which is accepted automatically. The second tier allows for the inclusion of foreign content of up to 49 percent. If the foreign supplier is a direct subsidiary of the German exporter, approval will be given automatically. If this is not the case, i.e. if foreign content comes from a third-party supplier, the exporter has to provide convincing arguments and approval is then optional. The third tier refers to foreign content above 49 percent. A much more detailed explanation must be given and approval is granted on a case by case basis with the sole involvement of the Hermes Inter Ministerial Committee (IMC).

In the three-tier system favourable treatment has been granted to supplies from direct foreign subsidiaries of German companies, acknowledging the shift in global production patterns. Supplies from the EU countries also benefit from a positive bias in the calculation of foreign content. The three-tier system has been welcomed by the export industry as an important move towards making export insurance more flexible in terms of the global sourcing of equipment. It is considered to have a rather technical imprint, however, which is reflected in a nine-page foreign content programme flyer. It certainly lacks the much desired automatism of the inclusion of higher proportions of foreign content. There is no guideline as to exactly what types of 'explanation' should be submitted, leaving approval optional at best for second tier projects; and on an even stricter case-by-case basis for third-tier projects. From an industry point of view, it could be argued that one cannot properly rely on obtaining approval for projects with high foreign content, thus making sound and competitive project planning difficult.

Important parts of German industry advocate opening up foreign content policy in a more general manner. Whereas it could be argued that the present definition of German origin considers the inclusion of foreign content to be rather an exception to the rule, a more general approach would be to consider the fulfilment of German interest in making a project eligible for Hermes-cover. A similar approach has been adopted by a number of other ECAs, although structures vary from country to country. It has been put forward that these countries' more liberal policies on foreign content provide a competitive edge for the respective national exporting industry and put German companies at a comparative disadvantage. Thus, losing out export projects to neighbouring competitors will ultimately put German jobs in danger.

Merely adapting another country's ECA scheme on foreign content to Germany seems difficult, however, because countries differ widely in industrial patterns and policy rationale. In countries with a small or less diversified industrial landscape, ECAs may want to diversify the risk they insure. By building up a portfolio, concentration risk on certain industrial segments and countries covered can be avoided. Generous ECA principles on foreign content may attract exporting business by incentivising foreign companies to shift their sourcing, at least partially, to a country, making the project in total eligible for ECA cover. Asian countries notably have sound industrial policy motives and strongly back their national industry champions, often linking export insurance coverage with a wider political motive such as the securing imports of natural resources. The United States, at the opposite end of the scale, has the strictest interpretation of all countries on the question of national origin. However, American industry in general is less dependent on exports of capital goods than, for instance, Germany.

Germany has a large and very heterogeneous industrial and exporting basis, ranging from SMEs to large DAX corporates. Its exports come from all sectors: commerce and trade, ship building and aircraft, energy, construction, capital good manufacturing and large plant engineering. Export destinations are worldwide, which Hermes-insurance reflects by covering over 150 countries. Clearly, German ECA policy in general and foreign content policy in particular, has to consider the manifold interests and needs of the German corporate and industrial landscape. Taking into account this plurality, Hermes will be cautiously considering each move for its viability for a large group of industrial players. Moreover, for Germany as a matter of policy, it is very important to ensure that any Hermes-cover principle supports employment and, moreover, that particular attention is paid to the SME sector.

The German ECA cover instrument is based on the notion of German origin of goods, to be evidenced by a German certificate of origin. It could, however, be argued that this scheme provides less and less informational value in a globalised world. In fact, research on

input-output data suggests that of every euro exported from Germany, only 60–70 cents are of true German origin. This figure surely varies across sectors, but the underlying pattern is clear. What exactly is of German origin, then, and what is the true value added to an export project in Germany? From this perspective, the issuance of a German certificate of origin for an individual export project may be an indication of the national value added and a feasible way of demonstrating eligibility for support under the export credit scheme. However, it is no longer the only indicator for the much sought-after impact on employment that ECA-cover for a project targets.

Without necessarily abandoning the current system that relies on the examination of a single project's national and foreign content, it could be worthwhile discussing an add-on approach that takes a wider perspective. In the ECA-cover context, the overall aim of national job securement will, in most cases, not be directly related to one individual export project, but rather to the successful export performance of a company over time. The proportion of foreign content is very likely to vary from project to project. The aggregate of foreign content in companies' projects over one year, for instance, might well be below a level considered critical by the German ECA.

Conclusion

Not regulated by the OECD consensus, foreign content policy is defined by each national ECA. In recent decades almost all ECAs in OECD countries have substantially enlarged foreign content acceptance, including the German ECA Hermes. With ongoing and deepening globalisation in production and trade, it has become more difficult to quantify the true national value added in an export project. Both from a practical, competitive and an academic point of view, there is a need to reconsider the viability of German foreign content policy in its current imprint.

To date trade finance in general and ECA-cover policies in particular have been subject to little academic research, although they are vital activities for export-oriented nations. Empirical data and quantitative evidence is relatively scarce. Interest in research on trade and export related matters seems to be growing, however, and its methodological competence can add much value to the discussion of ECA-cover fundamentals.

Export Credit Guarantees and Demand for Insurance

Andreas Klasen[1]

Introduction

Government financing instruments like state export credit guarantees have successfully strengthened international trade over the last ninety years. They play a significant role in promoting exports, both in highly industrialised and in developing economies (Klasen 2011). Together with private insurers, government export credit agencies (ECAs) accounted for a record 11 percent of global trade in 2013. ECAs give evidence of strong support for insuring exporters against losses due to buyers' insolvencies in export markets and political risks. This particularly applies to exports to emerging economies, where ECAs fill the gap left by private insurers or banks.

The willingness to pay for certainty is well documented in business and economic literature. Insurance is both a traditional and up-to-date instrument for risk-averse individuals, and risk aversion is considered as the main rationale for demand. Recognising that risk aversion as the sole motive does not adequately explain companies' decisions to purchase insurance, several scholars have provided a positive theory based on evidence that firms purchase substantial insurance amounts (Mayers and Smith 1987 and 1982; Main 1982). This theoretical framework has been extended and tested by a number of authors with empirical studies on corporate demand (e.g. Jia, Adams and Buckle 2012; Krummaker and Schulenburg 2008; Regan and Hur 2007; Hoyt and Khang 2000). Krummaker (2011) also provides a qualitative approach discussing motives influencing demand.

In the export credit guarantee context, scholars have argued that insurance is an essential tool for exporters (see e.g. Felbermayr, Heiland and Yalcin 2011; Coppens 2009; Abraham and Dewit 2000). In addition to factors derived from individual export transactions, demand is driven by insurance services, liquidity and balance sheet protection. However, empirical research has never been undertaken into demand for state export credit guarantees associated with firm-specific factors.[2] No empirical study to date has connected existing theories on corporate insurance demand with export credit insurance.

This research aims to discover significant factors in export credit guarantee purchase following a quantitative methodology and an analytical survey research design. It examines factors such as risk aversion, the existence of bankruptcy costs, financing needs and risks related to foreign buyers and countries. This article provides empirical evidence from Germany to test microeconomic factors based on existing theory. It is organised as follows: firstly, theories regarding demand for corporate insurance and state export credit guarantee purchase are discussed, and hypotheses are developed. The section 'Empirical analysis" describes the data and development of variables. In the 'Results' section, empirical evidence from correlation as well as multivariate regression analyses is presented and summarised. The last section concludes and discusses limitations, as well as contributions to knowledge and practice.

Corporate insurance demand

Insurance demand has become a major research area over the last couple of decades. This includes the vital role played by firms' purchase of insurance as a substantial aspect of corporate risk management. Looking at influencing factors for corporate insurance demand, relevant determinants are discussed in the following sections.

[1] PricewaterhouseCoopers, Hamburg, and Berne Union, Berne. The author appreciates helpful comments provided, in particular, by Peter Galvin, Jackie Harvey, Martina Höppner, Simone Krummaker, ThuyUyen Nguyen and Dimitrios Pontikakis.

[2] Several authors have investigated the role of ECAs during the last couple of years. Scholars have concentrated on the programmes in general or in terms of their economic, legal, regulatory or environmental aspects.

Risk aversion and shifting

Although there seems to be no rationale for risk neutral legal entities to purchase insurance (Modigliani and Miller 1958; Markowitz 1952), a number of authors describe risk aversion and shifting as significant for companies where the owner's risk aversion is a relevant motive (Doherty and Smith 1993; Meyer and Power 1983). This applies to smaller or privately-held companies for which the owners bear unlimited liability. As the owner tends to be the relevant decision-maker in closely held enterprises, s/he will bear the risk with private assets. By contrast, investors holding a broad and well-diversified portfolio are neutral with regard to firm-specific risks. As a result, one determinant affecting companies' insurance demand is the structure of ownership. It is hypothesised that companies with ownership structures affected by manager-owners or closely held purchase more state export credit guarantees than other firms.[3]

Bankruptcy costs

The existence of bankruptcy costs incentivises companies to mitigate risks. Like hedging, insurance can help to lower the probability of incurring transaction costs by reducing companies' financial up- and downturns (Smith and Stulz 1985). The direct and indirect costs of bankruptcy can induce companies to purchase insurance against risks (Hoyt and Khang 2000; Core 1997). Warner (1977) gave evidence that financial distress costs are, in general, not proportional to firm size. Mayers and Smith (1982) argue that expected bankruptcy costs are less than proportional to firm size due to the relatively higher direct costs of bankruptcy. The relevance of firm size has also been discussed with regard to state export credit guarantees (García-Alonso, Levine and Morga 2004). This is consistent with the objective of several ECAs, for example in Germany or the Netherlands, to support small and medium-sized enterprises. A number of studies also associated insurance demand and bankruptcy costs with financial ratios (e.g. Regan and Hur 2007). Smaller companies and firms with worse financial ratios such as lower liquidity are expected to have higher demand.

Insurance services

Insurance companies have specific knowledge and are well-versed in risk analysis. Providing real services for their customers, they have a comparative advantage concerning both the development and the application of risk management, and have mechanisms to control adverse outcomes (Hoyt and Khang 2000).[4] Insurance companies are able to realise an increase in efficiency, which also applies to the processing of lawsuits, as well as to the enforcement or settlement of claims (Mayers and Smith 1982). In addition, insurance providers such as export credit agencies regularly adopt a systematic and state-of-the-art approach to the assessment and monitoring of risks. This includes the assessment of country risks and foreign buyers' financial ratios. Insurance services therefore provide additional arguments for corporate insurance demand. It has been hypothesised that smaller firms are not able to realise these comparative advantages. Furthermore, Regan and Hur (2007) argue that firms that have experienced an insured or insurable loss have a higher incentive to insure. Companies with higher claims are expected to purchase more state export credit guarantees than other firms.

Agency conflicts

Scholars have also linked agency conflicts to corporate insurance demand. Firstly, these conflicts are caused by a non-linearity of rights or claims for payment (MacMinn 1987). This is because risk positions with regard to expenses are shifted between shareholders and outside creditors.[5] Corporate insurance or hedging is able to solve the underinvestment and the asset substitution problems (e.g. Smith 1986). Secondly, agency conflicts can arise from the different interests of shareholders and managers (Han and MacMinn 2006). In contrast to shareholders' risk neutral behaviour, managers are risk-averse and tend to operate self-interestedly at the cost of shareholders. Furthermore, managers will try to maximize expected revenues in a specific financial year and will neglect companies' long-term perspective to increase firm value. Although it is difficult to measure this effect, several authors have discussed that financial ratios and growth rate are possible factors (see e.g. Zou and Adams 2006; Yamori 1999). This research hypothesises that the EBIT-to-equity ratio is related to the amount of export credit purchase. The same applies to the exporter's growth rate.

[3] Furthermore, firm size has been connected to risk aversion and shifting. Compared to larger corporations, fairly small companies have only a limited number of shareholders. This leads to a relatively lower level of diversification regarding equity structure and can also lead to a risk-averse attitude on the part of the company.

[4] This is one of the main differences to other risk mitigation instruments such as hedging.

[5] Firms would not even carry out an investment project with a positive net present value if the return is not sufficient for uncertain debt redemption due to the underinvestment problem. While outside creditors would benefit from a return on the investment project, shareholders would have to bear the investment costs.

Tax treatment

Prior research demonstrated that tax effects are of particular importance to demand for corporate insurance. Mayers and Smith (1982) and Main (1983) mention the insurance-related provisions of the tax code or the relationship between interest rates and tax liabilities. It has also been shown that a convexity implies that companies' expected tax liabilities are higher than the tax liabilities connected with the expected pre-tax income resulting from statutory progressivity.[6] Yamori (1999) argues that highly profitable corporations purchase insurance to reduce the current tax burden, even with a linear tax rate. This is also discussed in a German context with an incentive to insure if a company's pre-tax income is falling in a convex portion due to negative profits. It is hypothesised that companies with higher tax payments purchase more export credit guarantees than other exporters.

Financing

Financing of the specific export transaction is a further determinant influencing companies' decision to purchase export credit insurance. Zou, Adams and Buckle (2003) argue that insurance enables companies to realise financial advantages such as more consistent cash flows. This especially applies in the export credit guarantee context. ECAs help companies to secure cash flows and find adequate financing for exports. This particularly holds true for supplier credit cover, a facility often extended to the exporter. Insurance increases the likelihood that exporters will receive financing from commercial banks and can mobilise additional funds otherwise not available (Bischoff and Klasen 2012). Several scholars have discussed the idea that supplier credit cover and the necessity of safeguarding liquidity by means of state export credit guarantees offers a relevant advantage. Cash flow is expected to be negatively related to the amount of export credit insurance purchased. However, it must be stated that previous analyses of the impact of hedging or insurance purchase on liquidity and cash flow yield mixed results.

Foreign trading partner

Regan and Hur (2007) describe the export share of a company as relevant to its purchase of insurance. They add export as a further determinant in existing corporate insurance demand theory. This argument is in line with research into export credit agencies. The mitigation of risks linked to foreign buyers and countries is a main rationale for exporters' demand. Companies purchase export credit cover to protect themselves against a potential loss due to payment risks associated with the foreign trading partner (Ross and Pike 1977). Although there is a close relationship between the specific export transaction and the decision to purchase export credit guarantees, demand can also be connected with the company's export share. Felbermayr, Heiland and Yalcin (2011) give evidence that there is a relationship between the export quota and export credit guarantee utilisation. This research hypothesises that companies with a higher export share will purchase more export credit guarantees than other exporters.

Empirical analysis

Data

The data used in this research are drawn from several sources. The *Dafne* database and the *eBundesanzeiger* database were used for the majority of company-based data. In addition, figures were supplemented with data from companies' websites or received by using questionnaires distributed by telephone. Other data were collected from the German export credit agency. Due to several data restrictions, the data to be used in this research are the financial figures from 2010. These limitations again reinforce the importance of this research. The sample population comprises German exporters from the manufacturing industry using the official export credit guarantee scheme with premiums paid in 2010. The final sample size for correlation and multivariate regression analyses consists of 258 companies. All variables are measured as of the end of the calendar year with values reported in euros as in the respective annual reports.

Measurement of variables

The dependent variable in this research is export credit guarantee demand *(INSDEM)*. The amount of export credit insurance purchased by an exporter is represented by the ratio of export credit insurance premiums to insurable revenues. With this approach, the research follows prior studies by Regan and Hur (2007), Zou and Adams (2006), and Hoyt and Khang (2000). Export credit guarantee premiums in Germany are

[6] Regan and Hur (2007) give several arguments, including the fact that premiums reduce current tax burdens. They state that depreciation is a further motive to purchase insurance.

Table 1

Descriptive results

Variable	Mean	St. Dev.	Skewness	Kurtosis	Min	Median	Max
INSDEM	0.448	1.236	6.593	53.226	0.002	0.095	12.709
SIZE	126.155	239.322	5.219	37.667	0.202	45.459	2371.499
EMPLO	567.480	1024.819	4.823	28.765	4.000	258.000	8553.000
LIQUI	2.824	2.195	2.573	9.057	0.620	2.200	15.270
CLAIM	0.021	0.114	7.825	70.888	0.000	0.000	1.266
LEVER	35.076	20.255	0.135	0.033	– 29.970	35.116	93.380
MONIT	27.762	79.829	4.460	42.884	– 287.090	23.740	811.600
GROWT	18.391	25.678	2.306	11.829	– 48.358	18.391	194.009
TAX	3.135	7.327	5.093	30.964	– 5.125	1.161	58.931
CASHF	5.843	7.825	5.365	57.937	– 16.050	4.835	92.260
EXPOR	58.320	24.998	– 0.254	-1.055	5.000	60.000	100.000
N	258						

Source: Own calculation.

calculated on an annual basis and contain administrative fees such as application fees and issuing fees. Premiums are either based on a percentage of the amount to be insured or on a specific risk horizon where the maximum exposure limit in combination with risk-related factors is also taken into account.[7] Insured revenues are represented by the profit and loss statement figure for total revenues multiplied by the export quota. Like some independent variables, the variable for export credit guarantee demand *(INSDEM)* is positively skewed (Table 1). In addition, the frequency distribution has a larger peak value than a normal distribution because of a high kurtosis. Natural logarithms are applied to remove a positive skew with regard to the dependent variable.

The independent variables are ownership, firm size, number of employees, liquidity, paid claims, leverage, monitoring, growth, tax payments, financing and export quota. The definition for ownership *(OWNER)* in this research follows a distinction between joint-stock companies *(Aktiengesellschaften)* and other companies using a dummy variable.[8] Firm size is measured by the sum of all assets of the company defined as any items of ownership convertible into cash. This approach is consistent with prior research (Regan and Hur 2007; Mayers and Smith 1990). The measurement of firm size *(SIZE)* is the natural log of total assets. As studies have shown that other stakeholders like employees are relevant for the insurance decision, the number of employees is a possible measurement for the stakeholders' fraction of claims (Mayers and Smith 1982). The variable representing the number of employees *(EMPLO)* is measured as the natural log of the number of year-work-units. With regard to bankruptcy probability, the measurement for liquidity *(LIQUI)* is the natural log of the current ratio. This is traditionally used in balance sheet analyses to examine a firm's ability to comply with its obligations and resources to pay its debts over the following year. Consistent with Krummaker and Schulenburg (2008), claims frequency is regarded as a significant factor in terms of insurance services. Claims ratio *(CLAIM)* is represented by annual indemnifications from the German ECA and the annual export turnover. Due to agency theory and underinvestment, leverage, monitoring and growth are expected to play an important role in the insurance purchase decision. The debt-to-equity ratio is a well-established financial parameter indicating financial leverage *(LEVER)*. Monitoring *(MONIT)* is measured by the quotient of earnings before interest and taxes and shareholder equity. Following Hoyt and Khang (2000), growth is included as a third measurement. In this study, growth is calculated as the percentage of growth in turnover based on the figures in 2009 and 2010 *(GROWT)*. As mentioned above, tax consideration is a further motivation for the purchase of insurance. The presence of tax preference items such as tax-loss-carry-forwards and investment tax credits described by Zou and Adams (2006) is relevant for German exporters. In addition, they might have a convex tax function *de facto* due to a pre-tax income in the expected value of a convex partition. As specific loss probability was not available, this research follows Yamori (1999) to a large extent by calculating tax measurements as taxes on income in relation to turnover *(TAX)*. As it is impossible to include specific financial figures for individual

[7] Insurance for single transactions is payable upfront in the year where the cover is granted, and monthly payments for revolving cover were transformed into annual payment figures.

[8] Non-incorporated firms *(Personengesellschaften)* and limited liability companies *(Gesellschaft mit beschränkter Haftung)* are typically held by few shareholders who are mostly owner-managers, meaning that the owner assumes the risk personally and with his personal wealth.

export transactions in this research due to the specification of the conceptual model, the firm's cash flow is expected to influence export credit guarantee demand. For measurement, the financial ratio of the cash flow deriving from net revenues is calculated representing financing *(CASHF)*. As there is an indication for size-related and distortive effects, score alteration has been applied for cash flow, as well as monitoring and tax payments. No other violations of the OLS assumptions are detected. Finally, export turnover in relation to the turnover is used in this research *(EXPOR)*. Table 1 reports the descriptive results of the dependent variable and the predictors before logarithmic transformations and score alteration.

Results

Correlation

Simple correlation coefficients were applied for export credit insurance and all predictors using Pearson correlation.[9] The relationship between the dependent variable and ownership *(OWNER)* can be tested by a point biserial correlation analysis. The relationship between export credit insurance demand and the other significant variables was also analysed by using the Pearson product-moment correlation coefficient. The results in Table 2 show significant correlations at the p<0.05 level or below with regard to export credit insurance demand (log*INSDEM*) and six predictors.

The correlation analysis indicates that there is a significant and negative relationship between export credit insurance demand and the exporter's ownership structure *(OWNER)* as well as the exporter's firm size (log*SIZE*), number of employees (log*EMPLO*) and cash flow *(CASHF)*. In addition, there is a positive relationship between the dependent variable and tax payments *(TAX)*, as well as export quota *(EXPOR)*.[10] Furthermore, there is only one relationship between the independent variables indicating the problem of multicollinearity. Due to a significant and high correlation coefficient and because (log*INSDEM*) and firm size have a stronger correlation, the third independent variable (log*EMPLO*) will be excluded in the regression model. The tolerance indicates that there is no high correlation with other independent variables and therefore no high possibility of further multicollinearity.

Multiple regression

A multiple linear regression model is used to investigate the association of the dependent variable with ownership, firm size, tax payments, financing and export quota. The standard multiple regression model used in this research is an ordinary least squares (OLS)

Table 2

Correlation coefficients

	logINSDEM	OWNER	logSIZE	logEMPLO	logLIQUI	CLAIM	LEVER	MONIT	GROWT	TAX	CASHF	EXPOR
logINSDEM	1.000											
OWNER	–.274**	1.000										
logSIZE	–.487**	.332**	1.000									
logEMPLO	–.484**	.285**	.842**	1.000								
logLIQUI	.020	.087	–.000	.026	1.000							
CLAIM	.057	.044	.032	.054	–.048	1.000						
LEVER	–.051	.146*	–.014	–.043	.585**	–.082	1.000					
MONIT	.031	–.059	–.074	–.015	.051	–.199**	.018	1.000				
GROWT	.050	–.101	–.119	–.143*	–.080	.006	–.020	.145*	1.000			
TAX	.347**	–.102	–.357**	–.347**	.212**	.064	.186**	.136*	–.089	1.000		
CASHF	–.296**	.110	.133*	.151*	.259**	–.143*	.260**	.312**	–.017	.053	1.000	
EXPOR	.340**	.049	–.216**	–.194**	.056	.097	.045	.010	.026	.219**	–.112	1.000
N	258											

* p<0.05, correlation significant at the 0.05 level (2-tailed).
** p<0.01, correlation significant at the 0.01 level (2-tailed).

Source: Own calculation.

[9] In order to ensure no violation of the assumptions of normality, linearity as well as homoscedasticity, preliminary analyses were undertaken.

[10] In addition, there are several non-significant correlations at the p<0.05 level or below with regard to export credit insurance demand (log INSDEM) and the remaining predictors. The results also reveal that the majority of the independent variables are not correlated with each other.

Table 3

OLS multivariate regression results

Variable	*R*	*B*	*β*	*t*-ratio	sr^2
Ownership	– 0.274**	– 0.754**	– 0.142	– 2.689	– 0.167
Firm size	– 0.487***	– 0.350***	– 0.295	– 5.180	– 0.310
Tax	0.347***	0.117***	0.192	3.573	0.220
Cash flow	– 0.296***	– 0.072***	– 0.227	– 4.505	– 0.273
Export	0.340***	0.014***	0.216	4.173	0.254
N = 258 R^2 = 0.390 Adj.-R^2 = 0.378 *F* (5, 258) = 32.191*** Significance (*1-tailed*) **p<0.01, ***p<0.001					

Source: Own calculation.

model testing the significant factors with regard to the relationship between export credit insurance and the company's firm-specific characteristics. This is shown in the following model:

$$(1)\ \log INSDEM = \beta_0 + \beta_1 (OWNER) + \beta_2 (\log SIZE) + \beta_3 (TAX) + \beta_4 (CASHF) + \beta_5 (EXPOR) + e$$

The findings described in Table 3 indicate that all five independent variables significantly contribute to export credit insurance. It also indicates that ownership has the weakest influence over export credit insurance demand having a *β*-value of – 0.142. Firm size is also found to be negative and statistically significant. For the size of the exporter being represented by total assets of the company, the standardised regression coefficient accounts for – 0.295. Showing the highest standardised coefficient, firm size seems to have the strongest influence in the model. The coefficient on the variable for tax payments is positive and significant with a value of 0.192. The influence of cash flow and export quota reveal that companies with lower cash flow have a higher demand, and the export quota has a positive influence on export credit insurance demand.

Specification tests and regression diagnostics ensured that there was no violation of the assumptions of best linear unbiased estimators.[11] Multicollinearity was also not indicated, as all variance inflation factor values are below two. In addition, the validity of the model was proven with the cross-validation method by using the adjusted R^2 and by randomly splitting the data set.

[11] This included further robustness checks and an assessment of the assumptions of best linear unbiased estimators. These assumptions include a normal distribution of the residuals, homoscedasticity, an expected mean value of the residuals equal to zero and a lack of autocorrelation.

Conclusion

Several important findings emerge from this research. As an overall result, there is evidence that five firm-related factors significantly influence state export credit guarantee demand. The findings of the empirical estimation of the multiple linear regression model indicate that export credit insurance is valued by German exporters in the manufacturing industry. Insurance is regarded as an important component of risk-averse behaviour and of transferring potential bankruptcy costs. In addition, there are indications that it is a source of real services and reduces the tax burden. Furthermore, the purchase of export credit insurance demand is relevant for financing transactions and for risks related to foreign buyers in risky countries. Export credit agencies, policy makers and exporters can use the results reflecting the correlation and the multiple regression outcomes from this research. This model is based on the existing theory and reflects the empirical evidence regarding the impact of significant firm-based factors. Being cross-validated, the model can be generalised for the wider population.

Limitations

There are a number of limitations to this study: firstly, the research is based on data for the German manufacturing industry with time-specific data from 2010 only. This might have an impact on demand as state export credit guarantees play a crucial role in strengthening a recovery from economic crises.[12] A second limitation is a certain overlap between supplier credit and buyer credit cover. In addition, factors mainly associated with the specific export transaction were not available because of the firm-based model approach. Finally, the interdependencies between the different

[12] This applied, for example, during and after the 2008-09 global financial and economic crisis with impacts in 2010.

factors influencing export credit insurance demand have not been analysed.

Contributions

In several important ways, the results of this research extend findings from prior studies. Firstly, this research offers the first empirical analysis of export credit insurance demand. It furthers our understanding of the different factors driving demand by providing a comprehensive insight into the relevant determinants indicated having an impact. Secondly, it conceptualises the determinants revealed to be key drivers for insurance demand. This confirms existing evidence from authors such as Regan and Hur (2007), Zou and Adams (2006), Hoyt and Khang (2000) and Meyers and Smith (1990). Thirdly, there was previously no clear evidence on the theoretical discussions and results arising from a different context with regard to financing and risk related to foreign trading partners. This research now adds empirical evidence for both factors in the export credit insurance context.

This research has also implications for a number of parties involved in state export credit guarantees. This specifically includes ECAs, as well as policy makers and authorities. They might consider evaluating whether their strategic aims and policies are in accordance with relevant factors for exporters to apply for insurance cover. This includes the question of whether there should be a stronger focus on closely held corporations. It is worth assessing whether insurance products, cover policies and conditions are adequate to accommodate demand from companies that might not have highly professional and large corporate finance departments. This is in line with the question of whether small firms' needs are fulfilled. As there is empirical evidence that smaller companies purchase more export credit insurance than larger exporters, cover policies should be customised to meet the demand. Further considerations to simplify products and offer specific cover solutions for small and medium-sized companies might be necessary. As firm size is also relevant to the transaction costs of bankruptcy and insurance services, it might be necessary to further investigate the potential consequences for export credit agencies. This applies, in particular, with regard to real services. Export credit agencies should evaluate whether an additional allocation of resources to claims administration, loss control and other functions can be expanded in order to better support exporters. From an export credit agency's perspective, tax motives might not be pivotal. However, the results with regard to financing are relevant concerning cover policies and product offerings. This study provides empirical evidence that financing is a relevant factor for the purchase of insurance. As export credit insurance provided by governments supports the company in securing financial resources from commercial lenders, the product has to be appropriate in order to meet demand for financing and refinancing purposes. Finally, the results for the risk related to foreign buyers also reveal that it is essential to concentrate on support for protection from losses with challenging buyers in risky markets. It might be worth exploring whether companies with a higher export quota and more transactions have different needs to other companies. Although the German products of the whole-turnover cover and whole-turnover cover light seem to be an ideal insurance service for export-focused companies, there might be additional stimuli to use these results.

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Trade Financing: Challenges for Developing-country Exporters

Banu Demir[1]

Payment methods (financing terms) in international trade

International trade is costly and risky. Shipping goods across borders takes longer than shipping domestically and thus requires more working capital. Shipping longer distances also increases the risk of damage, adding to insurance costs. In an international trade transaction the exporter faces the risk that the importer might default, and the importer faces the risk that the exporter might fail to meet the product quality specifications set out in the contract. Such risks and costs are further heightened in light of the fact that international trade involves partners located in different countries with different jurisdictions. This makes conflicts both harder and more costly to resolve.

The following examples illustrate the importance of default risk for international trade transactions.[2] An interesting anecdote involves an Istanbul-based producer of textiles, which exported knitted dresses to an importer located in Italy. The freight forwarder broke the rules of the contract and delivered the goods to the importer before the payment was made. Upon receiving the shipment the importer claimed that the goods were not in accordance with the descriptions and specifications in the order and thus refused to pay. The exporter filed a lawsuit against the freight forwarder in Turkey, and the latter against the importer in Italy. The Italian court decided that the importer should make the payment to the exporter. But the importer claimed it did not have the means to do so, as it was liquidating. The Turkish court, on the other hand, decided that the freight forwarder should make the payment to the exporter. The exporter received the payment, but five years after the date of the shipment. It is worth noting that the exporter had guarantee/insurance provided by the Turkish Exim bank. The Exim bank, however, refused to cover the exporter's losses because non-payment is a business dispute.

In another dispute, a Gaziantep-based producer exported yarn to a Greek importer. Before the full payment was settled the importer had sold the good to a retailer in Greece and received complaints about the quality of the yarn. The importer then requested the exporter to compensate for the loss incurred by the Greek retailer. The importer informed the exporter that if it did not compensate the retailer for the losses, it would file a lawsuit. Given the threat posed by the importer, the Turkish exporter decided to offer a discount on the outstanding balance.

In each transaction, trade partners have to decide who bears the risk. Financing/payment terms in international trade fall under three broad categories. Under open account (OA) terms, goods are shipped and delivered before a payment is made by the importer. Under cash-in-advance (CIA) terms, the payment is received before the ownership of the goods is transferred. If a transaction is on letter of credit (LC) terms, the importer's bank commits to make the payment to the exporter upon the verification of the fulfilment of the terms and conditions stated in the LC.[3] Each payment method places the financing burden on a different actor: the entire burden is on the exporter in a transaction on OA terms, and on the importer in a transaction on CIA terms. LC is the safest financing instrument for both trade partners: the exporter obtains a bank guarantee to secure payment, and the importer is protected against potential losses arising from exporter misbehaviour. Nevertheless, LC is a costly instrument as banks levy fees and charges for issuing LCs.

[1] Bilkent University, Ankara. I would like to thank Beata Javorcik for providing comments on an earlier version of the article.

[2] I would like to thank Hakan Guraksu, a specialist in international private law, for sharing these anecdotes.

[3] Another widely-used payment method in international trade is documentary collection. If a transaction takes place on documentary collection terms, the exporter's bank is authorised to collect the payment on behalf of the exporter. Since the bank acts only as an intermediary, without any obligation to make the payment in case of default, a documentary collection is very similar to OA terms.

There is a recent, but growing body of academic literature on the choice of financing terms in international trade. Papers in this literature such as Antràs and Foley (2013), Eck *et al.* (2012), Engemann *et al.* (2011), Schmidt-Eisenlohr (2013) show that institutional quality and financial sector efficiency are important factors in determining the choice of financing terms. In particular, a transaction is more likely to occur on CIA terms if the importer is located in a country with weak enforcement (low institutional quality) and/or with low financing costs (efficient financial sector), and on OA terms if the exporter is located in a country with weak enforcement and/or with low financing costs. If both trade partners are located in countries with weak enforcement, then the transaction is more likely to occur on LC terms. These theoretical predictions, which also receive empirical support (see, for example, Antràs and Foley 2013; Demir and Javorcik 2014), have important implications for developing countries. Given their relatively weak institutions, exporters located in such countries are likely to bear the financial burden associated with their international trade transactions. Therefore, access to cheap trade finance is particularly important for exporters located in developing countries.

The relative risk associated with each financing term is an important determinant of the choice of financing terms. One should expect trade partners to choose the financing term that minimises the default risk. Furthermore, the choice should minimise the potential losses that would result from a breach of the contract. In the two cases described at the beginning, a dispute arose from non-payment as the importer claimed that the goods shipped were not in accordance with the contract and/or the exporter had shaved the quality of the goods. Resolving such disputes takes time as verifying/refuting what is claimed is, at best, difficult. Another difficulty arises in identifying the law applicable in the event of a dispute. Such uncertainty adds to the risks associated with an international trade transaction. One way to deal with such uncertainty is to harmonise international sales law across countries. To achieve this goal, the Convention on International Sales of Goods was signed in Vienna in 1980. This treaty, also known as the Vienna Convention, came into force in 1988. As of 26 September 2013, 80 countries have ratified the Vienna Convention.[4] Its benefits can be expected to grow even further as more countries ratify the convention.

[4] http://www.cisg.law.pace.edu/cisg/countries/cntries.html.

The choice of financing terms in international trade also depends on the availability of working capital. Ideally, the party that can access financing more cheaply should finance the transaction. Trade partners may rely on their internally generated capital or seek external financing to finance their international trade transactions. Auboin (2009) estimates that 80–90 percent of global trade relies on some form of trade finance. Thus, the availability of trade finance becomes a vital determinant of international trade flows. The literature, for instance, identifies a shortage of trade finance as one of the drivers behind the Great Trade Collapse (e.g. Amiti and Weinstein 2011; Chor and Manova 2012; Felbermayr *et al.* 2012).

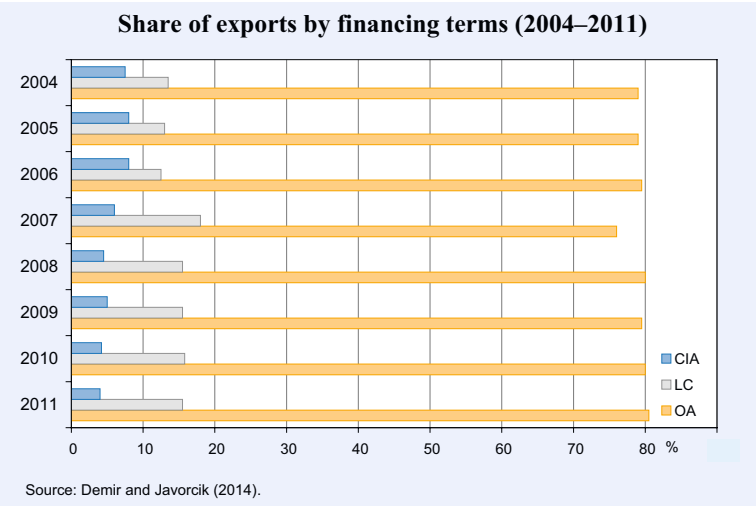
This note provides some stylised facts on the use of financing terms in international trade based on a recent study by Demir and Javorcik (2014). They use data on the universe of Turkish exports disaggregated by financing terms over the period 2004–2011. The patterns observed in the data may shed light on the factors determining the short-term financing needs of exporters and importers. Moreover, the focus on an emerging market may help design policies to effectively promote international trade in such countries.

Stylised facts on the use of financing terms

We know very little about the relative use of financing terms in international trade. In 2008/09, the International Monetary Fund (IMF) and the Bankers' Association for Finance and Trade, merged with the International Financial Services Association, (BAFT-IFSA) jointly conducted a series of surveys of commercial banks located in developed and developing countries on their perception of the use of bank-intermediation in international trade. The results of the surveys show that OA and LC terms each account for about 40 percent of international trade transactions, and the rest is accounted for by CIA terms (IMF 2011). Although the patterns presented by the IMF/BAFT-IFSA surveys are valuable, they are based only on the perception of commercial banks. In general, detailed data on the use of financing terms are not available, and the lack of data has limited our ability to understand and evaluate the importance of this issue for international trade.

Evidence based on actual trade flows, compared to our perception of banks/firms, is more informative to understand the use of financing terms in international

Figure 1



Source: Demir and Javorcik (2014).

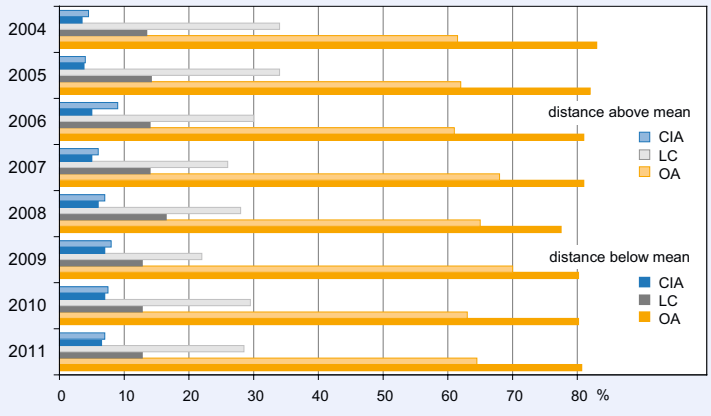
trade. For this purpose, information on the break-down of trade flows by financing terms is needed. Such detailed information, however, is seldom available to researchers. Antràs and Foley (2013) present some patterns of the use of financing terms for a single US-based exporter of frozen chicken products. In another study, Demir and Javorcik (2014) use a unique dataset that provides a break-down of the universe of Turkish manufacturing exports across financing terms during the period 2004–2011. The dataset also provides information on the destination and product composition of exports.[5]

Turkish data show that over 80 percent of Turkey's annual manufacturing exports are financed on OA terms, which are followed by LC and CIA terms (see Figure 1). Under LC terms the exporter receives the payment only after the documents are cleared by the importer's bank at the destination, requiring the exporter to pre-finance the transaction. This implies that over 90 percent of Turkey's exports require pre-financing on the exporter's side. In other words, Turkish exporters usually bear the financing burden of the international transactions they engage in.

In the data, we observe that trade partners are less willing to accept the financing burden of the transaction the further they are located away from each other. To the extent that distance increases the risks associated with an international trade transaction, this observation is not surprising. Working capital needs may also be expected to increase with time between production and delivery of goods – which increases with bilateral distance. Figure 2 shows that the share of Turkish exports on OA terms is consistently lower to countries located further away from Turkey over the sample period. This is mirrored by an increase in the share of exports on LC terms. The observation is consistent with the view that trade partners, when facing heightened risks, prefer to shift these risks to banks. In other words, they prefer to rely more on formal forms of financing.

We might expect default risks to be higher for new trade relationships. Although the Turkish dataset does not allow us to track trade relationships, it allows us to identify new products. A new product is defined as an HS10 product that has been exported from Turkey to a particular destination for the first time in the last three years. Assuming that an established relationship between a Turkish seller and a foreign buyer is less likely to be observed in such cases, it would be reasonable to expect less OA/CIA financing and more LC financing when exporting new products. Figure 3 shows evidence that supports this view. The figure shows the breakdown of exports across financing terms for old

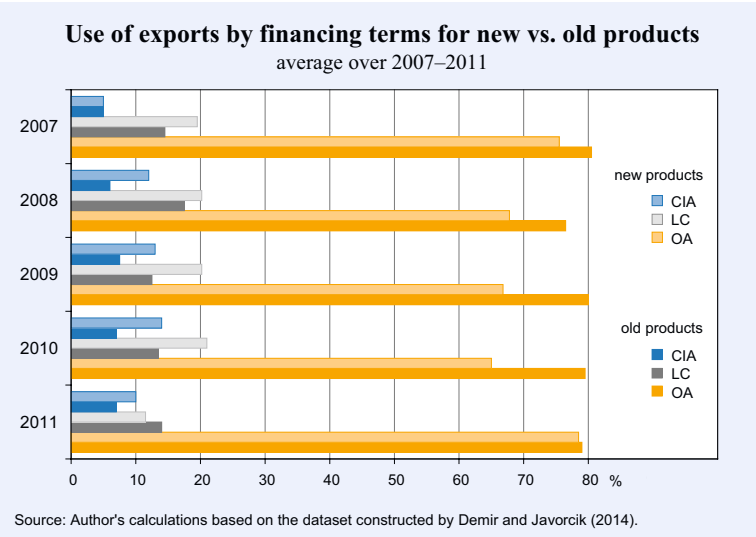
Figure 2



Source: Author's calculations based on the dataset constructed by Demir and Javorcik (2014).

[5] The classification is 10-digit Harmonized System (HS).

Figure 3



Source: Author's calculations based on the dataset constructed by Demir and Javorcik (2014).

and new products.[6] The share of exports on LC terms is higher for new products compared to old products. The interpretation is similar to that of distance: when they face heightened risks, trade partners prefer to shift the risks to banks.

Another pattern observed in the data is that Turkish exporters are more likely to finance an international trade transaction the more competitive the destination market is – measured in terms of a destination market's access to foreign suppliers.[7] Figure 4 shows that the share of exports on OA terms is higher to destinations that have better access to foreign suppliers. Assuming that buyers have greater bargaining power in such markets, they can more easily shift the financing burden and risks to sellers. This observation may suggest that exporters located in emerging markets might have additional trade financing requirements when exporting to more competitive developed markets.

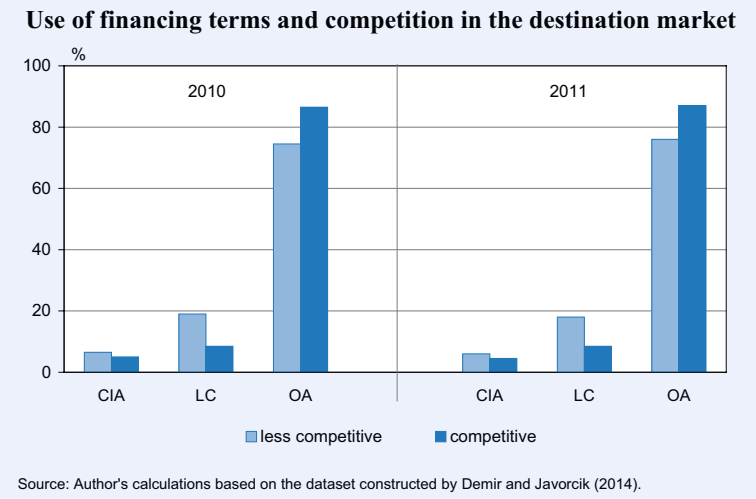
OA appears to be the dominant financing term in all industries, but less so in metals and mineral products. Figure 5 presents the average share of each financing term in Turkey's exports in metals/minerals and in other industries over the period 2004–2011. The distribution of exports across financing terms within an industry is fairly stable over time. In almost all industries, OA terms account for the largest share of industry exports. In two industries, namely metals and mineral products, the share of LC-based exports is quite significant at around 30–40 percent. Two possible explanations for such a pattern are provided by Antràs and Foley (2013) and Demir *et al.* (2014). Firstly, given the fixed cost associated with obtaining an LC, it should be easier for importers to cover such costs for large transactions. Since transaction sizes are usually larger in metals/minerals, it is not surprising to observe a higher share of LC-based exports in these industries. Secondly, goods shipped in metals/minerals are easier to collateralise than those shipped in other industries. Thus banks might be more willing to issue/confirm LCs as potential losses, which, in the event of default, can be recovered more easily.

To sum up, detailed data on the use of financing terms in Turkey's exports transactions show that (i) over 90 percent of exports require pre-financing by the exporter; (ii) more risky transactions – those shipped to longer distances or involving new products – are more likely to occur on letter of credit terms; (iii) exports to more competitive markets are more

[6] New product is defined as an HS10 product, which is exported to a country in year t, and not between years t and t-3.

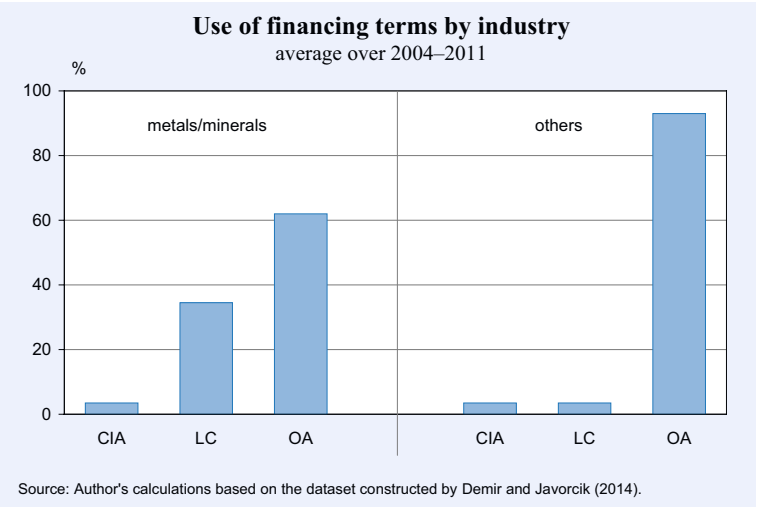
[7] Market competition is measured in terms of a destination market's access to foreign suppliers. Competitive markets are defined as those with a market competition measure above the sample mean, and less competitive markets are those with a measure below the average – see Demir and Javorcik (2004) for more detailed information on the construction of the market competition measure.

Figure 4



Source: Author's calculations based on the dataset constructed by Demir and Javorcik (2014).

Figure 5



Source: Author's calculations based on the dataset constructed by Demir and Javorcik (2014).

likely to occur on open account terms; and (iv) there is considerable variation in the use of financing terms across industries; e.g. the share of LC-financed exports is ten-times larger in metals/minerals than in other industries.

The patterns presented in this article underscore the role of financial markets in facilitating international trade, especially in developing countries. In particular, the goal of these countries to diversify exports both in terms of products and destinations, i.e. towards developed country markets, calls for additional trade financing. Given their shallow financial markets, access to trade finance still remains a challenge for such countries. One possible remedy would be to extend short-term credit lines to exporters through Exim banks, with a view to meeting their working capital needs. Another remedy would be to create new instruments linked, for instance, to LCs, which can be used by beneficiary exporters to obtain short-term financing in their home countries. Bankers' acceptance is one such instrument. However, these instruments are seldom used because of their complexity and inconvenience.

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Users and Effects of Austrian Export Credit Guarantees

Harald Badinger[1] and Thomas Url[2]

Introduction

Export and import transactions are usually based on trade credit rather than cash payments. The exporting firm may offer open account finance and thus extend credit directly to the importer. In this case the exporter bears the credit risk and the burden of providing liquidity to the counterparty. In 2008, this form of trade finance covered between 38 and 45 percent of global merchandise trade. Alternatively, firms may use bank-intermediated trade finance. A common instrument is the letter of credit, which is equivalent to a guarantee by a foreign private bank to pay the amount invoiced after delivery of the good. In 2008 bank-intermediated trade finance covered about 35 to 40 percent of global merchandise trade. Exporters are able to make advance payments for about one-fifth of international trade (Asmundson *et al.* 2011).

In general, cross border trade credit is more risky than domestic trade credit because firms assume additional macro-level risks by crossing national borders, e.g. exchange rate fluctuations, political risks, and counterparty risks resulting from difficulties in gathering information about distant trading partners and enforcing repayment in a foreign jurisdiction. During a financial crisis such frictions edge up as the credibility of foreign trading partners or banks erodes due to elevated asymmetric information. A recent World Bank study reports substantially higher costs, and even a lack of trade finance, after the onset of the financial crisis in the second half of 2008, particularly for small and medium-sized exporters located in emerging markets (Chauffour and Farole 2009).

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Public export credit guarantees are designed to relax the financial constraint arising from cross border activities of exporting firms. The Austrian export credit agency (Oesterreichische Kontrollbank – OeKB) receives and handles all applications for guarantees on behalf of the Austrian government. Various types of guarantees cover single business cases or provide lump-sum coverage for deliveries to a pre-specified importing firm or to a set of importing countries. The guarantees by the OeKB are fully backed by the Austrian government. In 2012 new commitments totalled 5,140 million euros or 4.2 percent of merchandise exports. Due to obvious opportunities for insurance fraud only extra-firm exports are eligible for public export credit guarantees, i.e. deliveries to own subsidiaries will not be covered by the OeKB. Underwriting is conditional on a positive effect of the underlying transaction on the Austrian current account. This target is supposed to be fulfilled if 60 percent of the value added originates from domestic activities. The underlying export activity is also subject to an environmental impact assessment according to the OECD Common Approaches on Environment and Officially Supported Export Credits if the project's revenue exceeds 1 million euros. Furthermore, technical constraints on the terms of payment, the credit-worthiness of the importing country and the size of the project reduce the coverage ratio.

On an international level OECD agreements restrict the terms of export credit guarantees to promote a level playing field for firms (Knaepen 1998 and EU Council Directive 98/29/EC). As a result, export credit guarantees are limited to non-marketable risks, i.e. to higher-risk export markets, comprising essentially of emerging and developing countries, or to open account terms with payment periods of more than two years. The protection against losses from non-payment is subject to insurance premiums that are supposed to cover the expected loss from underwriting.

The restrictions on coverage are well communicated to firms before they get into contact with Austria's export credit agency. Small projects with revenues of up

to 0.5 million euros that fulfil all of the requirements receive a guarantee without further assessment. Projects with an export volume above this threshold are passed on to the advisory board at the Austrian ministry of finance. The board finally decides whether a project will improve the Austrian current account and fulfil environmental standards. In 2012 the board received 786 applications and rejected none of them. In previous years only a few cases have been rejected by the board.

While the provision of public guarantees is highly restricted by international agreements and European directives nowadays, they are still an important policy tool for mitigating the negative trade effects of financial constraints arising from market failures such as asymmetric information. The use of export credit guarantees has surged after the financial market and economic crisis. Following the G20 decision from 2 April 2009 new commitments by export credit agencies expanded between 30 and 50 percent up to mid-2009, increasing the share of covered world trade from 8 percent in 2008 towards 9 percent by mid-2009 (G20 2009; OECD 2009; Asmundson *et al.* 2011).

The increased use of export credit guarantees raises the question of their effectiveness as a tool for promoting international competitiveness and export activities. While there is some evidence of their export enhancing effects at the industry level (Moser *et al.* 2008, for Germany; Egger and Url 2006, for Austria; Abraham and Dewit 2000, for Belgium), there is virtually no evidence of the trade effect of public export credit guarantees based on firm-level data. One notable exception is Felbermayr *et al.* (2012). They use public export credit guarantees extended to individual German exporters over the period 2000 to 2010 and find positive effects on German exports.

This article presents empirical results on the determinants and effects of export credit guarantees by the Austrian export credit agency (Badinger and Url 2013). Our findings suggest that large firms with a high risk exposure and high R&D intensity are more likely to make use of public export credit guarantees. On the other hand, being part of a foreign multinational enterprise (MNE) dampens usage. Moreover, export credit guarantees have sizeable, economically and statistically significant effects on additional extra-firm exports, ranging from some 80 to 100 percent.

Export credit guarantees, financial constraints and exports

Funatsu (1986) and Ford *et al.* (1996) prove that a profit maximising firm facing uncertainty about the repayment of trade credits will choose a lower output level as compared to the level chosen under revenue certainty. This result holds for both risk-neutral and risk-averse firms, but the output reduction will be bigger for risk-averse firms. Difficulties in contract enforcement are an example of revenue uncertainty, which is growing in the distance between exporter and importer and causing significantly lower trade volumes (Anderson and Marcouiller 2002; Berman *et al.* 2012).

Public export credit agencies may overcome this quantity restriction by providing export credit guarantees, thereby promoting trade that might otherwise not occur due to a lack of finance. Export credit guarantees can hence be informally thought of as a reduction in fixed trade costs related to market entry and in the costs of financing trade credit, which would imply an increase both at the extensive and the intensive margins of international trade in standard new trade theory models with heterogeneous firms (Melitz 2003). An explicit treatment of credit constraints within a heterogeneous-firms model is given by Manova (2013).

Overall, there are strong theoretical reasons, along with some empirical evidence, to suggest that public export credit guarantees help to overcome market failures related to asymmetric information by providing insurance where no private markets exist. They thereby mitigate financial constraints, facilitate the provision of trade credit by exporters to their customers, and reduce uncertainty, such that one would expect an effective system of public export credit guarantees to promote international trade both at the extensive and intensive margin.

Data and descriptive statistics

The data are from a survey among Austrian firms conducted in June 2009 and refer to activities in the last completed business year of the respective firm at that date. The questionnaire asks (among other things) for general management ratios, employment figures, measures of human capital, research and development activities, measures of export activity, and information on the use of export guarantees.

Parts of the firms' identities were provided by the OeKB, the Austrian export credit agency. Those firms represent the OeKB's recent users of export credit guarantees. To this set of firms' (users) we added a control group of firms not using export credit guarantees, which were matched by firm size (based upon the number of employees) and kind of activity (NACE1) to the user-firms. The questionnaire was then sent out to 832 firms by the Austrian Institute of Economic Research on behalf of the Ministry of Finance. A reminder specifically targeted at firms active within classifications that showed low response rates during the first four weeks of the survey helped to achieve a balanced sample.

A total of 252 firms responded to the questionnaire, of which 221 firms indicated export activities. About half of the exporting firms (104) acknowledged at least a one-time use of export credit guarantees in the past. Thus more than one third of the total universe of guarantee-users completed our questionnaire. This group is matched by an equal sized group of non-users. Due to incomplete answers we can only use 178 observations in the econometric analysis of the determinants of export guarantees.[3] Table 1 provides a list of the key variables and summary statistics.

Average sales amount to 101 million euros, but this measure is clearly upward biased, as can be seen by the comparatively low median value of 28.8 million euros. Hence, most of the firms in our sample belong to the group of small and medium-sized enterprises. Around half of the firms used export credit guarantees (D^G) in the recent past and some 30 percent belong to a foreign multinational enterprise (D^{MNE}). Average spending on R&D as a share of sales (*RD*) amounted to 5 percent in our sample. This value exaggerates R&D activity because the median in the sample is at 2 percent. The variable *RISK* is a firm-specific revenue risk from providing international trade credit by aggregating country specific credit rankings, from the Institutional Investor for the year 2008, into regional risk measures, namely for three groups: i) industrialised countries (EU27, NAFTA, USA, CAN, and NZL), ii) Southeastern Europe and Commonwealth of Independent States (CIS), and iii) the rest of world. These regional risk measures are then combined with firm-specific information on export shares to these three regions to obtain a firm-specific risk measure. The indices are rescaled such that our risk measure is defined over a range from -1 to 0 and increasing in risk.

A rough look at the data shows that firms with high export volumes are above average users of export credit guarantees. In the survey their exports accounted for 62 percent of the total export volume declared. Higher revenue risk is positively correlated with export credit guarantee usage. On the other hand, Austrian subsidiaries of a multinational enterprise (MNE) tend to use export guarantees less often; and account for only a quarter of MNE-subsidiaries in the

[3] In the analysis of the trade effects of export guarantees, which is more data-demanding and uses a larger set of variables, the sample is further reduced to 71 firms.

Table 1

Table 1 Summary statistics of the key variables

Variable	Mean	Median	Max.	Min.	Std. Dev.
Exports	70563	15783	1888733	16	182090
D^G	0.49	0.00	1.00	0.00	0.50
SALES	101331	28794	1888733	615	230564
D^{MNE}	0.29	0.00	1.00	0.00	0.45
RISK	– 0.46	– 0.53	– 0.63	– 0.07	0.18
RD	0.05	0.02	0.73	0.00	0.09
Correlations					
	Exports	D^G	*SALES*	D^{MNE}	*RISK*
D^G	0.10				
SALES	0.88	0.09			
D^{MNE}	0.30	– 0.10	0.35		
RISK	0.06	– 0.23	0.10	0.03	
RD	– 0.01	0.07	0.01	– 0.05	0.12

Notes: Statistics based on a sample of 178 Austrian firms. Variable definitions: firms' sales and exports are given in 1,000s of euros. D^G is a dummy variable, taking a value of 1 if the respective firm has used an export credit guarantee in the recent past. D^{MNE} is a dummy variable, taking a value of 1 if the respective firm is part of a foreign multinational enterprise. *RISK* is a firm-specific index of revenue risk in exports, which is defined over a range from -1 to 0 and increasing in risk. *RD* is the ratio of expenditures for research and development to sales.

Source: A survey conducted by the Austrian Institute of Economic Research (WIFO) among Austrian firms.

sample use Austrian export credit guarantees. This is also reflected in the unconditional correlations in Table 1.

Users of export credit guarantees

The descriptive statistics are instructive and are also confirmed in a more rigorous statistical analysis, using probit and least squares regressions. Larger firms (in terms of sales) are more likely to make use of export credit guarantees. Since the use of export credit guarantees is associated with fixed costs in terms of effort, administrative procedures, and the costs of obtaining information, it is plausible that these costs are less relevant for larger firms. The estimation results suggest that doubling firm size increases the probability of export credit guarantee usage by some 13 percentage points.

Being part of a foreign MNE reduces the likelihood of export credit guarantee usage by 29 percentage points. We interpret this finding as evidence that being part of a foreign multinational enterprise (MNE) reduces the need for (and thus the likelihood of) using export credit guarantees due to improved access to information on foreign markets and trading partners.

Finally, higher revenue risk is associated with a higher likelihood of making use of export credit guarantees. Specifically, an increase in *RISK* by one standard deviation increases the likelihood of export credit guarantee usage by 13 percentage points. This also reflects, to some extent, that the use of export credit guarantees is legally restricted by OECD agreements and EU law for most exports into the lowest-risk region of industrialised countries.

A wide range of further variables from the dataset were explored. Of these variables only the research and development ratio (*RD*) turned out to have a significant effect; results indicate a positive effect on the likelihood of using a guarantee amounting to 0.87 percentage points for a 1 percentage point increase in the R&D ratio. A possible interpretation would be that technologically more advanced firms have a higher success ratio in attracting export credit guarantees.

Export credit guarantees and exports

Having provided an assessment of the determinants of export credit guarantee usage, we go on to estimate the effect of export credit guarantees on export performance, using a gravity type equation. The dependent variable is the (the natural log of) firm i's extra-firm exports, i.e. total exports, excluding intra-firm trade in the form of exports to their own subsidiaries. In the most parsimonious specification, firm size (*SALES*) is included as single explanatory variable; with the dependent variable defined as (extra-firm) exports of a particularly firm (located in Austria) to the world, firm-invariant variables specific to the country of origin (Austria) and the 'country' of destination (the world) are captured by the constant. Moreover, firm-invariant but industry-specific variables are controlled for by seven industry dummies at the NACE-1 digit level (and, alternatively, 21 dummies at the NACE-2 digit level).

Estimates are based on a sample of 71 exporting firms, for which data on the regressors, the instruments, as well as exports to non-subsidiaries (required to calculate extra-firm trade) are available. Least squares estimates point to a significant and sizeable effect of guarantees on export performance, amounting to some 100 percent. This is also confirmed in two-stage least squares estimates, using D^{MNE}, *RISK*, and *RD* as instruments.

Another interesting result emerges from the estimation for exports to each of the three regions (industrialised; Southeastern Europe; rest of world) separately. We find that the effect of export credit guarantees is insignificant for exports to the group of industrialised countries (EU27, etc.), but becomes significant at the 5 percent level for the second region (Southeastern Europe and CIS) with a coefficient of 0.64. It is highest for the third region (rest of world), with a coefficient of 0.83 (statistically significant at the 1 percent level). This reflects the fact discussed above that the use of export credit guarantees is highly restricted for exports to the EU, but also to other OECD countries through international agreements and EU law. Moreover, it suggests that the effect of export credit guarantees is larger for exports to countries associated with higher credit risk.

Overall, our results show a statistically and economically sizeable effect of export credit guarantees on extra-firm export performance, ranging from 100 to 130 percent, i.e. conditional to other explanatory factors already including size, firms using a guarantee export twice as much or even more compared to non-users. In light of our cross-sectional specification, these estimates should be regarded as long-run equi-

librium effects of export credit guarantees. Moreover, if we account for the fact that exports to firms other than own subsidiaries (used in the regression) amount to 80 percent of total exports in our sample, the implied effect of export credit guarantees on total exports ranges from 80 to 100 percent.

Our results are consistent with Abraham and Dewit (2000) and Felbermayr and Yalcin (2014) who find a trade stimulating effect of Belgian and German public export credit guarantees, respectively. Moreover, our estimates are in line with findings based on macro-panels like Egger and Url (2006) or Moser *et al.* (2008), showing a more than proportional effect of export credit guarantees on export volumes. Our firm-level approach has pros and cons relative to previous studies based on aggregate trade data. On the one hand, we learn something about the selection of firms into export promotion schemes in Austria, a developed country, and we are able to make use of firm-level micro-data. On the other hand, the data in our sample is less detailed on export destination countries and the volume of export credit guarantees granted in a given country-year pair. It is thus reassuring that the identified export effects are in a similar range.

Conclusions

In this paper we analyse the effects of export credit guarantee usage on trade in a cross-section of Austrian firms in the year 2008. From a theoretical perspective, export guarantees are expected to foster trade by reducing revenue uncertainty and by improving access to external finance, i.e. making it easier to use cross border trade credit as collateral for bank credit.

Our results show that large, stand-alone domestic firms (which are not part of a foreign MNE) with high R&D intensity and high risk exposure are most likely to make use of public export credit guarantees. Using export credit guarantees has a sizeable, economically and statistically significant effect on extra-firm exports, ranging from about 100 to 130 percent. Given the other explanatory factors in the model, firms using guarantees tend to export twice as much or even more than non-users. Related to total exports, i.e. including intra-firm trade, this amounts to additional exports compared to non-users of between 80 and 100 percent. Our result is in line with findings based on macro-panels, showing a more than proportional effect of export credit guarantees on export volumes.

While the point estimates should not be overemphasized, the results clearly show that export credit guarantees, have a non-negligible effect on the integration of the world economy. Moreover, our results indicate that export guarantees are a particularly effective instrument for mitigating slumps in international trade during times of increased uncertainty and mutual distrust. Finally, the results suggest that the Austrian system works well in bolstering export performance. A full assessment of the export credit guarantee system, however, would have to include the programme costs arising from the state-backed guarantee that substitutes for the solvency capital private insurance companies would have to assign for each underwriting. The OECD agreement eliminates incentives to offer indirect subsidies through premiums below the expected value of losses. Consequently, the Austrian export credit guarantee system is balanced in the long run. Nevertheless, market distortions may well result from the non-profit strategy of export credit agencies and the cost advantage of state guarantees over the provision of solvency capital by private investors. On the other hand, the export-promoting effect of guarantees certainly has positive repercussions for output, employment, and general tax revenues. While a full assessment of all these effects is beyond the scope of this paper, a more comprehensive assessment of the costs and benefits of public export credit guarantees offers an interesting avenue for future research.

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Export Credit Agencies in the Czech Republic and Their Market Power

Karel Janda[1]

Introduction

This paper introduces Czech export credit agencies as a representative example of the approach to state export credit guarantees adopted in the so-called Visegrad Group of EU member states, which includes the Czech Republic, Hungary, Poland and Slovakia. While Janda, Michalikova and Psenakova (2013) provides more detailed information about international trade and state export credit guarantees in the entire Visegrad, this short paper focuses solely on the Czech Republic.

Institutional arrangements of state export credit guarantees are usually based upon one of the following three models: (i) export insurance company only, (ii) Eximbank providing both export insurance and direct credit, and (iii) two separate institutions, one providing insurance and the other providing direct credit. All three institutional models are frequently used by many countries, as shown by Nakladal (2013). Among OECD countries, the first model with an insurance company only is used in Denmark, Italy, the Netherlands, New Zealand, Portugal, Greece, Britain, Spain and Switzerland. The Eximbank model is used in Australia, Belgium, Canada, Mexico, Romania, Slovakia, Taiwan, Turkey and the United States. Finally, the model with a separate bank and insurance company is used in three Visegrad countries (the Czech Republic, Hungary, and Poland) and in Bulgaria, France, Germany, Japan, Luxembourg, Norway, South Korea and Sweden. This country-listing shows that the post-socialist OECD countries generally prefer those models in which export credit insurance is complemented by the provision of direct export credit.

Export credit agencies (ECAs) worldwide differ not only in terms of the institutional model adopted, but also according to their type of ownership (public, private), their legal form and their relation to the government budget. In terms of the relation to the government budget, we can distinguish between (a) ECAs closely connected to the government budget with a low degree of independence in their decisions and risk management and (b) ECAs more loosely connected to the government budget, which are obviously more independent in their operations. Czech ECAs – Czech Export Bank (CEB) and export insurance companies (EGAP) – are highly independent ECAs.

The independence of Czech ECAs is highlighted by Czech legislation, which explicitly provides for the separation of the government insurance company EGAP from commercial export insurance; and offers all Czech commercial banks the opportunity to provide export credit insured by EGAP. In other words, Czech legislation clearly emphasises that the CEB does not have any monopoly power on using government supported export credit insurance provided by EGAP.

As shown in the previous discussion of the three most common institutional models of export credit support, all models always include an export insurance company. This shows that institutions like EGAP are clearly distinguished from commercial insurance companies. However, the fact that many countries do not provide direct export credit through Eximbank or through a separate export bank indicates not only that the CEB may not be an indispensable component of government export credit policy, but also that some of the export credit provided directly through the CEB could have been channelled through Czech commercial banks. After providing a brief description of the Czech export credit system, this paper therefore focuses on discussing possible reasons why the CEB retains its key position in the provision of EGAP insured credit; and why the commercial banks have not been able to secure a bigger part of this potentially important and profitable market.

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Czech export strategy

The export credit support in the Czech Republic is conducted according to the Export Strategy of the Czech Republic 2012–2020, adopted by the Czech government in March 2012. It describes the visions and activities of the state to promote and develop Czech exports. It follows on from the Czech Export Strategy 2006-2010 and its extended update for the year 2011. Its primary vision is to promote the Czech Republic as one of the 20 most competitive countries in the world by 2020.

The strategy identifies some of the major obstacles facing Czech exports. These barriers include high dependency on EU markets, a failure to adjust to world market trends, the weak utilisation of EU funding by Czech exporters, and a separation of a role of export agencies financed by the state (see also Janda, Michalikova and Skuhrovec 2013; Janda, Michalikova and Psenakova 2013).

The Czech Export Strategy is divided into three pillars: (1) export information (to build a so-called Export Intelligence providing easier access to information resources and databases, internalization), (2) export development (export education, consulting and financing), and (3) the development of business opportunities (building a network of exporters and their partners, marketing and lobbying activities, business policies). The major targets of the Czech Export Strategy to be achieved by 2020 include:

- Increasing the number of total Czech exporters by 15 percent, of SME exporters by 50 percent, and of overall exports by 25 percent per capita,
- Diversifying exports, especially into countries beyond the EU's borders,
- Shifting major Czech export items into a higher value-added sector, accompanied by more proactive innovation efforts.

This strategy explicitly distinguishes between two groups of countries according to their ability to grow and absorb foreign export, as well as their compatibility with Czech exporters. The most important group of so-called priority countries consists of Brazil, China, India, Iraq, Kazakhstan, Mexico, Russia, Serbia, Turkey, Ukraine, the United States and Vietnam. The second group (in order of importance) features the so-called countries of interest including Angola, Argentina, Australia, Azerbaijan, Belarus, Egypt, Ethiopia, Chile, Ghana, Croatia, Israel, Japan, South Africa, Canada, Colombia, Morocco, Moldova, Nigeria, Norway, Peru, Senegal, Singapore, United Arab Emirates, Switzerland and Thailand. The activities of the Czech export-promoting institutions described in the next section primarily focus on the priority countries, with a slightly lower level of exposure for the countries of interest.

Czech export promoting institutions

The Czech Export Strategy is supported by the three specialised export-promoting institutions: the Czech Export Bank (CEB), which specialises in export financing, especially to less developed and risky countries; the Export Guarantee and Insurance Corporation (EGAP), which provides insurance against political and non-marketable commercial risk; and CzechTrade, which provides export information and consulting services.

Czech Export Bank

The CEB was established in July 1995 as an important part of a government export-promoting programme. The Czech government directly owns 80 percent of shares in the CEB. The votes corresponding to these 80-percent of shares are divided among 4 relevant ministries, whereby the Ministry of Finance has the main decisive power with 52 votes out of 100. The Ministry of Industry and Trade has 30 votes, followed by the Ministry of Foreign Affairs with 12 votes and the Ministry of Agriculture with 6 votes. The remaining 20 percent of CEB shares are indirectly owned by the Czech government through EGAP. Since the CEB is fully owned by the Czech government, it does not belong to any bank group. This distinguishes it from all major Czech banks, which are owned by an international banking group. On its incorporation, the CEB had a registered capital value of 1.5 billion Czech korunas (59 million euros), which was subsequently increased to 4 billion Czech korunas (158 million euros).

The CEB was created to offer complementary products to Czech commercial banking products. Thus the CEB was to specialise in exporters unable to obtain the financing that they required from Czech commercial banks. That means export financing with a state guarantee for countries in which Czech commercial banks prefer not to invest because of their higher

riskiness. The CEB's goal is to increase the competitiveness of Czech exporters abroad (OECD 2011; CEB 2013).

CEB clients mostly use export buyer credit and export supplier credit. They deal especially with long-term credits with a maturity period of over five years. In both 2011 and 2012 just over 95 percent of the loan principal portfolio of the CEB had a repayment term of over five years. Exports from the Czech Republic are oriented towards countries with close geographical or political relations with the Czech Republic, primarily the EU countries. Those countries are evaluated as less risky according to a quarterly classification published by the OECD. However, most of the new CEB contracts are located in higher risk countries with a classification of 3 or more, where OECD country risk classification ranges from 0 (no risk) to 7 (very risky). The risk structure of the CEB's new commitments in 2012 according to this OECD country risk classification is as follows: 14 percent in class 0; nothing in classes 1 and 2, 36 percent in class 3 and 50 percent in classes 4 and higher.

Export Guarantee and Insurance Corporation

The Export Guarantee and Insurance Corporation (EGAP) primarily insures bank loans due in over 2 years that are intended to finance the export of energy, machinery and technological systems, investment projects, transport constructions and investments, usually to countries where the political, economic and legal environment increases the risk of default. The EGAP's services complement the range of commercial credit insurance products and fill a gap in the market. The EGAP therefore acts as a standard export credit insurance company in the role of a government instrument to promote exports. The EGAP is, according to its rules, obliged to provide insurance services to all exporters of Czech goods, services and investments, irrespective of their size, legal form and volume of insured exports.

The EGAP was established back in June 1992. Like the CEB, it is also entirely owned by the Czech government and its capital is worth 1.3 billion Czech korunas (51 million euros). As with the CEB, the Czech Ministry of Finance holds the majority of votes (520 votes), with the remainder distributed among the Ministry of Industry and Trade (468 votes) and the Ministries of Foreign Affairs and Agriculture (156 votes respectively). The EGAP owns 20 percent of CEB shares and a 34 percent stake in KUPEG.[2]

The EGAP is a typical ECA and, according to its rules, provides state support only for products and territories where no commercial market insurance is applicable. This implies that the EGAP insures mid-term and long-term credits in more risky territories. The most common EGAP insured credit is the export buyer credit with a maturity period of 2 years or longer, according to the OECD Arrangement. The EGAP cooperates with almost all Czech commercial banks, however, with the CEB as its main partner. Both institutions also work with foreign banks to finance Czech exports (EGAP 2013).

One of the fundamental principles stipulated in the OECD Consensus, which the EGAP and other insurance companies providing insurance for export credit risks must adhere to, is the principle of self-financing their activities, which is intended to apply to the long term and is measured on this basis. This indicates that the Czech Republic should not subsidise the operations of the EGAP insurance company on a long-term basis, since this would make it an illegal support. From the very beginning of its existence, i.e. since 1992, the EGAP has fully covered all of its operating expenses, including payments of claims to clients, from revenues generated by its own activities. The EGAP functions as a self-sufficient, yet targeted and *de-facto* non-profit tool of state support for exports in the long term. Obviously, like other ECAs all over the world, the Czech government continues to provide backing just in case large scale defaults etc. should occur, as the EGAP would not be able to satisfy the insurance claims out of its own budget and reserves.

CzechTrade

The Czech Trade Promotion Agency, or CzechTrade, was founded by the Czech Ministry of Industry and Trade in May 1997. Its objective is to promote Czech exports by improving its competitiveness in foreign markets. CzechTrade has a network of eight managers operating in different regions in rural areas outside of Prague. They closely cooperate with the Czech Chamber of Commerce, the EGAP and the CEB. There are 33 permanent CzechTrade offices abroad on four dif-

[2] KUPEG is the biggest domestic risk insurance company and was created outside the EGAP by separating commercial insurance from government-supported core insurance business. KUPEG insures various kinds of commercial risks, usually for a short-term period.

ferent continents. CzechTrade promotes exports, especially in markets outside the EU (CzechTrade 2013).

CzechTrade provides various services for potential exporters, including consulting, information, export assistance and export education. It organises lectures and seminars, publishes export manuals and other publications, provides contact information for potential clients, market research, marketing in foreign markets, etc.

Market power of the Czech Export Bank

As already mentioned above, the Czech system of the government support of export credit is based on the model of two separate independent ECAs (the CEB and the EGAP). The CEB was set up in 1995, three years after the establishment of the EGAP. Given the transition situation in the Czech trade and banking sector in the mid-1990s, the establishment of the CEB was a logical and fully justified decision on the part of the Czech government. At that time the majority of the Czech commercial banks were not focused on developing departments dedicated to export financing. Moreover, the on-going transformation of essentially all major Czech exporters meant that their credit and performance risk was quite high, and they were not sufficiently attractive for many Czech commercial banks.

Together with the privatisation of Czech banks in the late 1990s and their gradual acquisition by well-established international banks, the quality of these Czech banks improved. Their internal processes, their rating and the portfolio of the services that they offered to their consumers also improved and broadened. The majority of Czech banks, however, did not establish export financing departments until the advanced stages of economic transformation. A number of Czech commercial banks nevertheless currently already boast a significant amount of experience with export financing. Moreover, the rating of these banks is comparable with the rating of the Czech Republic, which means that the share of the export financing market held by Czech commercial banks can be expected to rise. This hypothesis is supported by a comparison of the CEB's high 54 percent share of EGAP's outstanding commitments as of 31 December 2012, with a lower (31 percent) share of newly EGAP insured export credit provided during the year 2012 (EGAP 2013).

The dominance of the Czech Export Bank in the export financing insured by the EGAP falls into line with state policy goals to support the competitive environment in Czech export financing and to provide EGAP export insurance to all Czech banks, and not only to the CEB. A number of possible explanations for the Czech Export Bank's dominant position in the Czech export finance market are discussed below.

The CEB's most obvious advantage is its ability to provide long-term credits at fixed interest rates. The CEB is essentially the only Czech bank that uses the fixed Commercial Interest Reference Rate (CIRR). Czech commercial banks provide almost all of their long-term loans under the variable rates derived from LIBOR or EURIBOR. This is because the costs of fixing the long-term interest rates of loans provided in a foreign currency are relatively high for the bank and, therefore, the resulting interest rate would be too high to be competitive. Should Czech commercial banks wish to use the interest rate support provided by the Czech government, they have to ask the administrator of this interest rate support (namely the CEB) for refinancing credit. Arranging this refinancing credit takes some time and a significant administrative effort on the part of the commercial bank.

Since the CEB is owned by the government, there tends to be a lack of strong incentives for and/or pressures to achieve high profitability. As a result, this lower pressure on profit may lead to lower profit margins on CEB credit contracts than is the case for private contracts. In other words, the CEB may be offering lower interest rates and/or better conditions for debtors than commercial banks.

Whereas the CEB tends to be less profit-oriented, its management is likely to be interested in maximising its size as measured by the volume of credit provided. In connection with the CEB's lower risk aversion, this may lead the CEB's management to reject many possible syndicated credit contracts in favour of credit types provided entirely by the CEB. This may, in turn, result in a much higher share of CEB credit in export credit markets compared to the scenario whereby the CEB invites commercial banks to participate in syndicated credit or other joint credit arrangements.

However, there are also a number of other factors supporting the dominant position of the CEB. One of them is insufficient legislation. The OECD Consensus provides only general statements about the comple-

mentary role of ECAs in the export finance market, which is similar to its treatment of export credit insurance. Yet, unlike export credit insurance, the export credit provision is not covered by EU legislation in sufficient detail. The absence of specific rules and laws promoting export finance competition gives the CEB a significant advantage over commercial banks.

An additional factor supporting the CEB's strong position in Czech export financing is lobbing by big exporters. The profit maximising commercial bank may easily justify the rejection of export credit if the risk is too high relative to the expected return. It is far harder for the CEB to reject such high risk loans: since its mission is to promote Czech exports, it is more vulnerable to lobbing by big exporters. These big exporters lobby the CEB's major shareholders (e.g. Ministry of Finance and Ministry of Industry and Trade) to support riskier credit. Should an exporter be afraid that a commercial bank could reject its project as excessively risky, it prefers to go directly to the CEB. This notion of risk applies not only to risky territories, but also to project financing (financing through special purpose vehicle) connected with commercial risks. The CEB has a lower aversion to risk than commercial banks. Its shareholders do not require any long-run profitability and short-run losses are considered natural. The CEB is therefore more willing to provide risky loans than commercial banks.

Another reason for the CEB's heavy involvement in some risky countries is its ability to finance large projects worth hundreds of millions of euros without needing to cooperate with other banks. The majority of the commercial banks in the Czech market would not be willing to extend such large loans and would search for partners to share these loans with them.

Unlike commercial banks, the CEB is also not subject to the internal limit of territorial credit exposure. As of 30 June 2013, the total value of the CEB's product portfolio (2.9 billion euros) was distributed in the following way: Russian Federation 42 percent, Turkey 17 percent, Slovakia 15 percent, Azerbaijan 8 percent, Georgia 7 percent, Ukraine 3 percent and Bulgaria 3 percent. The total share of all other 18 countries covered in the CEB's portfolio is 5 percent; and none of these countries has an individual share of 3 or more percent of CEB's total product portfolio (Bakajsa 2013). Almost half of the CEB's portfolio is in the Russian Federation and the CEB does not apply conservative portfolio risk management. This difference between the CEB's portfolio management and that of commercial banks is clearly understandable and appropriate given the CEB's goals and mission. In addition to territorial limits, commercial banks may be restricted by exposure limits related to industry and to the Czech government. For example, as long as their internal limit of exposure to the Czech government is binding, the increase in the volume of credit insured by the Czech government agency EGAP has to be compensated for by the sale of Czech government bonds.

At times the CEB may profit from strategic competitive considerations on the part of commercial banks. Many commercial banks use a number of internal restrictions in their operations that do not apply to the CEB. Some commercial banks do not provide credits for some industries (like nuclear energy or weapons, for example), while many commercial banks do not want to finance some risky debtor, even with credit insurance provided by the EGAP. In many cases commercial banks follow a certain blacklist of countries or individual borrowers in a stricter way than the Czech government and the CEB. Such internal restrictions mean that bank staff may be obliged to reject potential borrowers and advise them to ask the CEB for a loan, instead of advising them to go to another commercial bank. This is because the CEB only provides export financing, so any given commercial bank that is not able to provide export financing may lose only this specific export contract, while retaining the client for general banking purposes. Should the client be directed towards some other commercial bank, on the other hand, there is a danger that this client could switch some or all of its banking operations to that bank.

Similar strategic reasons may lead to an increase in the CEB's portfolio should banking group exposure limits be binding in a particular case. Since the Czech commercial banks generally belong to some larger international bank group, the provision of a large credit by a Czech bank may occasionally violate a group-wide exposure limit with respect to some country or subject. In such cases, commercial bank staff may again be likely to direct rejected debt applicants to the CEB, instead of to some other commercial bank.

The simplicity and speed of loan approval is another factor that gives the CEB an advantage. Essentially all Czech banks are foreign-owned and each large loan, usually exceeding the credit limit by some tens of mil-

lions of euros, has to be approved by the appropriate body of the bank in question located outside the country. Together with the previously mentioned pooling of credit risk among several lenders, this gives CEB loans clear advantages from the borrower's point of view. The speed and convenience of dealing with a single financing institution based in the Czech Republic is one of the CEB's key competitive advantages.

The role of the CEB as an experienced incumbent in the Czech export credit market constitutes another key advantage. In many cases, it takes over a year to finalise the arrangement of major credit transactions. Personal contacts and a track record of smooth cooperation among lenders and borrowers are very important. The experience of CEB staff members in relevant markets in many countries is also a key asset both for exporters and export insurers (EGAP).

The incumbent advantage of CEB is also relevant in the case of some financial covenants to existing credit contracts. These covenants do not allow the debtor to significantly increase its indebtedness without prior approval from the bank providing the previous credit to which these covenants were related. Therefore, as long as some party in the contemplated export credit contract is already related to the CEB through some of these covenants, it is quite likely that this new contract will be financed through the CEB, rather than through any other bank.

While debtors in many developed market economies do not really care whether they are dealing with a private or a government-sponsored bank, many clients from developing countries clearly prefer to deal with a government-owned bank. Should the debtor be some government agency, any part of government or any public institution, the CEB is often assessed as an official export bank of the Czech Republic. In some cases debtors explicitly require the involvement of a government institution, like the CEB, in the investment process.

A misperception of the CEB's role also provides it with a competitive advantage. Some small exporters may think that the CEB is much better suited to export credit financing than commercial banks. They expect the CEB to provide better and cheaper services than any commercial bank. In some cases customers do not distinguish between the services of the CEB, the EGAP and the subsidy programmes operated by other Czech public institutions.

Conclusions

This analysis primarily focuses on a brief institutional description of the Czech export credit support system and on several selected policy issues addressed in terms of the Czech Republic's institutional setup. However, the export credit policy lessons dealt with in this paper are much more general; and are also relevant to other post-socialist new EU member countries, as well as essential to any country in which the export credit support has an institutional setup similar to that of the Czech Republic. Since this paper focuses on Czech export credit support, we do not provide a general discussion of the economics of credit guarantees and trade finance. An up to date review of these topics is provided by Felbermayr and Yalcin (2013) and by Auboin and Engemann (2014).

This paper offers a detailed discussion of possible explanations for the CEB's strong position in the direct financing of Czech exports as compared to the much weaker position of Czech commercial banks. It also shows that the CEB's advantage is based not only on the low profit margin argument, but also on a number of more complex reasons. One of the CEB's major strategic advantages is its specialisation in export finance, which allows commercial banks not to view the CEB as a competitor in their general banking business. Another key advantage of the CEB is its clearly defined role as a Czech government-owned export bank aimed at promoting Czech exports, as opposed to other Czech banks, which are almost always part of some bigger international banking group and aim to maximise their profits.

As long as no European legislation is introduced to restrict the role of government export banks (similar to regulation of the role of government export insurance companies), the CEB and export banks in other EU countries are very likely to retain a significant share of direct export financing, despite the potential ability of commercial banks to play a more active role in this market segment.

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The Role of State Export Credit Guarantees for German Firms

Gabriel Felbermayr, Inga Heiland and Erdal Yalcin[1]

German state export credit guarantees, also known as Hermes coverage, are made available to German exporters if the private financial markets fail to provide the required instruments to firms wishing to insure their claims on foreign customers. In particular, this is the case when production and payment events are separated by long time spans, when project volumes are very large, or when the customers are located in countries with high levels of specific risk. The Ifo Institute has examined the employment effects of export credit guarantees issued by the Federal Republic of Germany. Major findings with respect to the induced employment effects and a causality analysis are summarised in this article.[2]

German exports have displayed steady growth over the past 10 years. In 2010, exports as a share of the total GDP of the Federal Republic amounted to about 40 percent. Export growth is increasingly driven by large emerging countries such as Brazil or China. These countries are characterised by substantial risks for exporting firms.

From 2000 to 2007, the share of exports covered by German state export credit guarantees fell from 3.3 percent to about 1.8 percent. However, the share more than doubled to about 3.4 percent by 2010, despite the fact that exports in 2010 were only equal to those measured in 2007. This fact illustrates that, in the financial crisis, exports fell dramatically while the volume of export credit guarantees actually expanded. From 2000 to 2010 the relative importance of single-project coverage increased from about 52 percent to 62 percent of the total underwritten coverage.

Eastern Germany as a share of total German exports has steadily increased in recent years to reach a level of 8.4 percent. This positive development has been accompanied by an increase in state credit guarantees for exports from Eastern Germany. However, the coverage ratio (guarantees relative to exports) has remained at a low level since exports have exhibited particularly dynamic growth.

While the latter descriptive statistics are derived from aggregate industry data, similar patterns are extracted from survey data, which is available at the Ifo institute. Accordingly, in the last five years, exports as a share of total revenues have increased substantially amongst surveyed firms. Export-dependent employment has evolved in a very similar fashion in most industries. Large emerging countries have become increasingly important for a growing number of firms. Relative to OECD countries, those emerging markets feature higher economic risks.

An increasing number of German firms have used Hermes guarantees in the past few years. They cite the coverage of export credit default risk – caused by political and economic risks – as the main reason for seeking coverage. The share of exports covered (coverage rate) is above average in small and medium-sized companies. A larger share of small firms say they use Hermes guarantees to create new jobs. Medium-sized and large firms using federal guarantees state that they use the guarantees primarily in order to secure existing jobs; a smaller share indicates that they use them to create jobs.

The firms surveyed indicate that export credit guarantees do not only have a one-off effect, for instance when the firm enters a new market. Guarantees also have a sustained effect on exports as they help firms to create a beach-head in the foreign market. The firms state that a share of exports would also have been covered without federal guarantee. On average,

[1] ifo Institute.

[2] Felbermayr, G., E. Yalcin and I. Heiland (2013), *Beschäftigungseffekte der Exportkreditgarantien der Bundesrepublik Deutschland (Hermesdeckungen)*, ifo Forschungsberichte 63, Munich.

61 percent of all covered exports occur due to the availability of coverage. 37 percent of small firms claim that covered export transactions would not take place without the coverage. That share is smaller for the group of medium-sized and large enterprises (about 27.5 percent). Across size classes, the share of firms that use federal guarantees, but would not actually need them to carry through the covered exports, amounts to about 11 percent.

During the financial crisis of 2008/09, federal export credit guarantees played a more important role for about 38 percent of all surveyed firms. Firms say they primarily used guarantees to secure existing jobs or to mitigate crisis-induced job losses. Those employment effects appear stronger in the group of small and medium-sized firms as compared to large enterprises.

The role of Hermes for employment in Germany

In the period 2000 to 2009, on average 141,000 workers were directly or indirectly affected by Hermes guarantees. In 2010 that number increased significantly to 240,000 as coverage volume also expanded very strongly. On average, the creation of one job at a directly related firm (the contracting party of Hermes) is accompanied by the creation of 1.44 jobs in supplier firms based in Germany; and the creation of about 1 job in supplier firms based in foreign countries. This latter finding reflects the strong degree of vertical international integration of the German value chain, particularly in near European countries.

Around 45 percent of all affected jobs are situated in the machinery sector, which is the largest affected industry. The second most important sector is chemistry (23 percent), followed by the ships and airplanes sector (10 percent), metallurgical products (10 percent) and land-born vehicles (6 percent). Hermes guarantees play a particularly important role for exports to Asia, as about 48 percent of all affected employees work for firms exporting to Asia. As a general fact, emerging countries are of particular importance. On average, about 61,000 workers are affected by guarantees extended for exports into those countries.

Differentiating according to firm size, the results suggest that the majority of affected workers (70 percent of total) work in large firms. 22 percent work in medium-size firms while 8 percent are workers in small firms. This reflects the distribution of coverage across size classes.

Employment effects: assessment by surveyed firms

According to survey respondents, about 61 percent of all exports can be attributed to Hermes guarantees. Taking into account the heterogeneity of responses across industries, it follows that about 56 percent of all affected workers occupy jobs that have been created by Hermes guarantees. In the years 2000 to 2009 this amounts to about 79,000 jobs, while in 2010 the number of created (or sustained) jobs amounts to 137,000. The effectiveness ratio (coverage in euros per newly created job) lies between 230,000 and 250,000 and displays a slightly negative trend over time. This trend signals an improvement in effectiveness over time.

Looking at the distribution of newly created jobs across industries, the majority of jobs created are located in the machinery industry. In 2007, for instance, 31,000 jobs were created or sustained in this sector. The chemical industry created about 17,000 jobs (23 percent of the total), the ships and airplanes industry created around 9,000 (12 percent of the total), and the metallurgical industry created about 7,000 (9 percent).

Asia stands out as the destination country with the largest share in newly created employment. Covered exports into this region amounted to about 38,000 new jobs per year. In general, emerging markets play an eminent role; covered exports into those markets amounted to about 29,000 jobs per year.

Causality analysis

The key scientific challenge in the completed Ifo study is to draw a careful distinction between correlation and causality. The simultaneous incidence of high coverage ratios and high exports does not necessarily signal that federal coverage has actually caused the exports, or that the latter would not have occurred in the absence of the guarantees. It is very possible that other characteristics such as destination markets or exporters led to such a positive correlation. For the economic policy evaluation of export credit insurance, it is of paramount importance to control for those band-wagon effects. To achieve this, as many

determinants of export success as possible on the firm or on the sector level need to be taken into account.

For the first time, Ifo's study uses modern econometric methods to show that Hermes export credit guarantees lead to additional exports and to extra jobs in Germany. This result is robust across three different data sets that differ substantially with respect to the level of aggregation (sector *versus* firm level). It is confirmed using very different econometric procedures (linear parametric methods *versus* non-parametric matching models). However, on the sector level, there are important differences between the econometric results and the descriptive analysis based on the survey.

Findings based on official industry export data

Hermes coverage increases German exports. As expected, accounting for as many other determinants of exports as possible reduces the estimated effect of export credit guarantees on employment. In 2007, aggregate German exports were higher than in the counterfactual of no Hermes coverage by about 0.39 to 0.45 percent. In the preferred scenario, we find a causal effect on employment of about 62,000 to 72,000 jobs for 2007. In 2000, that effect was substantially lower (almost 40,000 jobs).

Hermes coverage has a particularly strong export-enhancing effect if country risk in the destination markets is particularly high or the enforceability of property rights is particularly low. On average, the effect of Hermes on employment remains positive across all risk categories. The external financial demand of firms (yearly industry averages) interacts with the extent of foreign sales in a statistically and economically significant manner. This suggests that financial market imperfections matter for the financing of exports. Hermes helps to reduce those frictions. This effect is particularly clear-cut in the event of the financial crisis of 2008/09.

About 70 percent of all Hermes-induced employment effects are achieved by exports to OECD member states; about 30 percent fall on the rest. The BRIC countries (Brazil, Russia, India, China) account for about a quarter of the total effect; taking into account other emerging markets such as Indonesia, Mexico, South Africa, or Turkey, the share increases to about 40 percent. The employment effects are concentrated in markets with medium or above-medium per capita income levels. Geographically, Europe (including Russia) and Asia dominate the picture.

By far the largest employment effect is achieved in the machinery sector, where up to 26,000 jobs (48 percent of the total) are created. The sector with the second largest job creation is the aviation sector, where about 12,000 jobs (22 percent of the total effect) are created. The absence of a statistically measurable employment effect in the automotive industry, where single-project finance is rare, is due to the incomplete allocation of coverage to destination countries and sectors.

Findings based on firm-level data: Ifo survey data

Hermes export credit guarantees have an export-enhancing effect. This result turns out robust and statistically significant when all firms in the data are considered, as well as when the sample is split to accommodate East-West or firm-size related differences. Moreover, the analysis makes the relevance for exports of financial market frictions very visible. Hermes guarantees tend to have a stronger export-enhancing effect with small and medium-sized companies as compared to large firms. Interestingly, and in contrast to the above finding, the sensitivity of small and medium-size companies to a credit market squeeze is smaller than with large firms. The decline in exports during the financial crisis is less pronounced in the sample of small and medium-sized firms as compared to large firms.

Using modern econometric methods on the basis of Amadeus firm-level data, the study directly estimates the employment effects of Hermes without dealing with the exact channel through which Hermes affects employment (presumably exports). Although the firm-level approach differs in methods and data quite dramatically from the sectoral approach, the obtained results are comparable: the number of jobs created by Hermes is estimated at about 71,000. About 50 percent of all newly created jobs are located in small and medium-sized companies. By contrast, small and medium-sized companies amount to about 30 percent of total coverage. This shows that the effectiveness of Hermes coverage is particularly pronounced within this segment of firms. Regarding the sectoral distribution of employment effects, the applied micro-econometric approach confirms the results obtained above. The largest share of total job creation falls on the ma-

chinery and the metallurgy industries. For the sectors 'chemical products' and 'automotive', no statistically significant employment effect of Hermes can be found. This is despite the fact that the firm-level analysis incorporates all different Hermes instruments (in contrast to the sectoral analysis that focuses on single-project guarantees).

Concluding remarks

The existing data in Germany does not allow us to investigate whether the incidence of Hermes coverage has a positive causal effect on the probability of firms' successfully entering foreign markets, so that exports remain higher even when the coverage is no longer available. If this is the case, then the employment effects reported in this study are to be interpreted as lower boundaries of the true effect. This study also focuses on the aspect of employment. It does not account for the effects of Hermes coverage on the level of wages, hours worked by employee, the profitability of firms, or the government's tax revenues. Economic theory suggests that, if Hermes is indeed successful in reducing the negative impact of financial frictions, it should also positively affect those other variables. In turn, this suggests that the employment effects computed in this report constitute only one – albeit an important – part of the overall welfare-increasing effect of export credit guarantees.

The Future of the Euro: The Options for Finland

Vesa Kanniainen[1]

Introduction

The European Monetary Union (EMU) was a political project from the outset. The uncertainty factors involved were disregarded, even though many economists, especially in the United States, warned of the risks involved. Unfortunately, their fears have become a reality. The EuroThinkTank of Finland, a working group representing consisting of economists, experienced professionals in the financial sector and a statistician, undertook to analyse the underlying reasons for the economic and political crisis afflicting the eurozone and to assess the future of the euro. The group specially focused on the options available to Finland, a small euro member. The think-tank members were united by a sense of disappointment with the economic development of the eurozone, the rhetoric nature of the policy on the euro and the lack of diversity in the argumentation related to the assessment of its performance.

The report raised the following questions:

(i) Why is the eurozone in crisis? What is the magnitude of the welfare losses the crisis has led to?
(ii) Do the political union, banking union and fiscal union represent solutions that promote democracy, economic efficiency and the general welfare and security of the eurozone's citizens?
(iii) Is a full-blown federation a better option than the current trend towards a weak federal state, or are we heading for the re-adoption of national currencies?
(iv) What are the options available for Finland?

[1] University of Helsinki. This article is based on a book published on 7 May 2014 by the Libera Foundation. To produce the book, the Finnish EuroThinkTank worked in the facilities of the University of Helsinki and its members were Vesa Kanniainen (Chairman), Jukka Ala-Peijari, Elina Berghäll, Markus Kantor, Heikki Koskenkylä, Pia Koskenoja, Elina Lepomäki, Tuomas Malinen, Ilkka Mellin, Sami Miettinen, Peter Nyberg and Stefan Törnqvist.

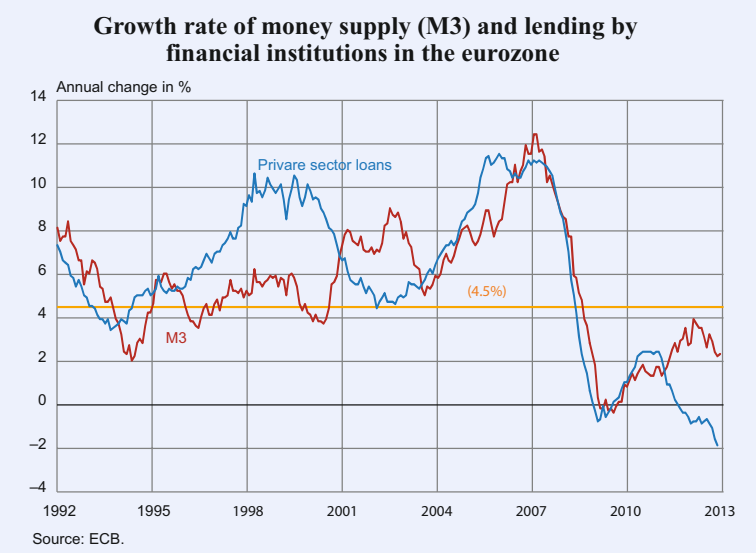
The think tank held that the foreseen political union including the banking union and fiscal union will push the eurozone towards a sort of practical federal state, referred to as the 'weak federation'. It has also transpired that conflicts of interest between individual member states cannot be overlooked in the assessment of the future evolution of the eurozone. States facing a sovereign debt crisis demand that their problems be resolved through solidarity, while member states that have put in a better performance in looking after their public finances object to joint liability.

The report conveyed a message to Finland's political decision makers: Finland has a range of options, including the current 'driftwood option', a unilateral return to the Maastricht Treaty (Maastricht 2.0) with an option to abstain from a further step towards integration, and Fixit, an immediate return to the national currency.

Why the euro crisis?

The reasons behind the euro crisis have been extensively discussed by economists. The book authored by the EuroThinkTank of Finland reviewed those reasons, including labour market mechanisms and the resulting current account problems. Moreover, a lot of attention was devoted to the financial issues, i.e. excess liquidity created in the eurozone. The purpose of the monetary union was to integrate the eurozone's financial systems, improve their efficiency and to create favourable conditions for risk diversification. This did not materialise. True enough, progress was made with integration, but cross-border financing contributed to debt bubbles. As banks with distorted balance sheets became increasingly dependent on short-term borrowing instead of traditional deposits, they also became more exposed to disruptions. Most importantly, the debt markets were fuelled by cheap money, for which favourable conditions were created by the key central banks, the ECB included. During the euro's lifetime, the financing base of the banking sector crumbled and its size relative to the production capacity of the eurozone grew out of proportion. Large banks became oversized banks.

Figure 1



The book took the view that to understand the creation of excess liquidity, a closer examination of the ECB's monetary policy is required. In many cases lax monetary policy often underlies credit expansion. The crisis originating in the United States in 2008 can be traced back to lax monetary policy coupled with failed housing market policy and, in particular, shadow banking operations. There were also regulatory failures in the supervision of the markets and financial institutions. The ECB's monetary policy in the 2000s, the years leading up to the euro crisis, was also lax. According to the chart below, the M3 money supply in the eurozone grew by 106 percent during 2001–2008, while the average annual growth rate should have remained at 4.5 percent according to the first pillar of the Maastricht Treaty.

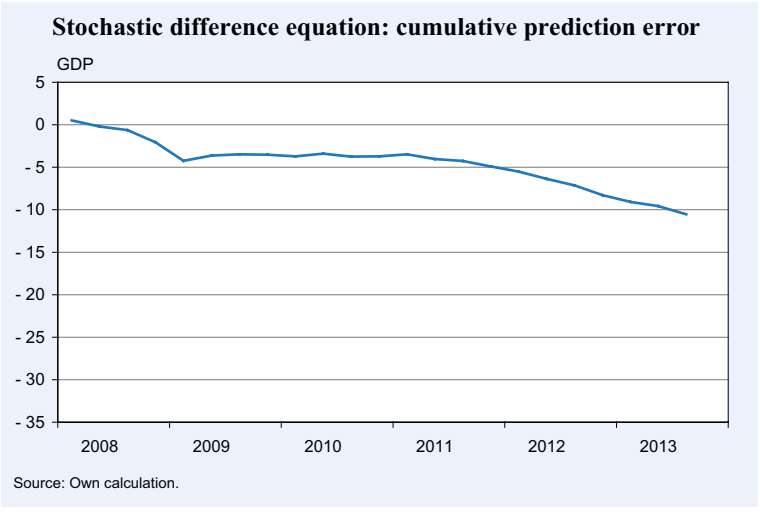
In the 1990s, the monetary authorities on both sides of the Atlantic were perhaps thinking that the stance of monetary policy with low interest rates is sound enough as the rate of inflation is under control. What this view fails to take into account is the fact that the rate of inflation was down because of the globalization process based on low-cost production in the developing countries. Underlying the easy accumulation of debt was the evolution of the European bond market. Central to these developments were the arrangements made by Eurobanks and the ECB, which gave added impetus to the growth of debt.

Several handicaps have been identified in the development of the EMU. The most fundamental one, however, is of a political nature. The leaders in the eurozone did not show strict commitment to the jointly designed rules of economic policies. The economic relations between the US Federal Government and the states, on the contrary, have been governed by a strict no-bailout policy since 1840. The Fed does not hold bonds issued by the states in its portfolio.

The welfare loss of the euro countries

An argument can be put forward that the eurozone would have tumbled into difficulties even without the shock originating in the United States. The book provides a statistical assessment of the potential size of the cumulative welfare loss incurred by the euro members. It is based on the evolution of the eurozone's GDP relative to the recovery of a reference economy, the United States. While the statistical link between real growth in GDP in the United States and the EMU was extremely strong up until the end of 2007, it has broken since then. The assessment was made using several statistical models based on one-step forecasts. In a sense, the cumulative welfare loss measures the distance by which actual GDP has fallen behind potential GDP. The idea is that the US

Figure 2



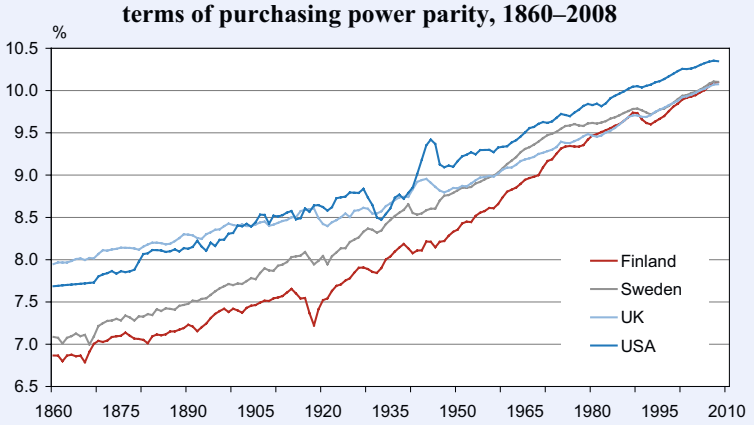
GDP serves as a surrogate variable for a larger set of phenomena affecting GDP in the eurozone.[2]

The following models were used:[3]

- Stochastic difference equation: the actual evolution of the eurozone's GDP was explained by its built-in delay structure and the actual evolution of the US GDP.
- VAR model: actual real GDPs of the eurozone and the United States in inter-dependency.
- VARX model: eurozone's and Finland's GDP were explained by US GDP in addition to the built-in delay structures.

Figure 3

GDP per capita growth rates in UK, USA, Sweden and Finland in terms of purchasing power parity, 1860–2008



Source: Bolt and van Zandern (2013).

The results are summarised as

(i) Using the stochastic difference equation, the difference between the prediction yielded and the actual GDP produced a cumulative prediction error of – 10.5 in the prediction period after 2007 IV. This shows how much the volume index of the eurozone GDP falls short of what was predicted by the model by 2013 III.

(ii) In the VAR model, the cumulative prediction error yielded by the VAR model was – 11.4.

(iii) In the VARX model, the prediction error was – 9.8.

The claim that poorer performance in crisis management as compared to the United States is due to the eurozone itself – its inherent structural flaws and/or policies – is plausible. This view is supported by several observations:

(i) Before the US-induced economic shock, developments in the eurozone followed the economic development of the United States quite closely. From 1999–2008, the real rate of growth in both regions was 2.3 percent.

(ii) Although the United States succeeded in getting back on the growth track fairly quickly after the 2008/09 economic crisis, the eurozone has failed to do so.

(iii) The stagnation in the eurozone is not due to other developments in the global economy. No shocks have been sent to the eurozone by the world economy that can explain the halt of the region's economic growth.

Economic history suggests that even a minor difference in growth rate may, with time, lead to a dramatic cumulative loss. Figure 3 illustrates the real per-capita growth in GDP from 1860–2004 in Britain, the United States, Sweden and Finland. A significant observation is made: by the year 1985, the world's wealthiest nation (Britain) slips to the last place with the lowest income level in this group posting a total per-capita income that is only two-thirds of that of the United States. This dramatic cumulative welfare loss is a result of the difference in the average growth rate between the United States and Britain – a mere 0.4 percentage points per year. The key question in evaluating the crisis facing the monetary union is the effect of the new EMU institutions on economic growth and the wellbeing of citizens.

Plans for an extended integration in the EMU

Germany is emerging as a key player in the long-term evolution of the EU institutions. The body politic in Germany wishes to turn the monetary union into a political union. According to German political think-

[2] The models were estimated using observations from the period 1995 I–2007 IV. All the time series used in the models consisted of seasonally adjusted quarterly GDP time series (in levels). After estimation, the models were used to generate a statistical prediction showing how GDP would have been expected to develop if the laws operating prior to the euro crisis had applied during the period 2008 I–2013 III covered by the prediction. The predictions were single-step predictions formed by inserting the actual values of the GDP variable to be predicted in the estimated model equation in an effort to ensure that the prediction is as sound as possible in terms of its statistical properties.

[3] The models were subjected to diagnostic validation and the adequacy of the model with respect to the remainder term is determined in the 'Hendryan' (Hendry 1959) spirit of statistical deduction.

ing, supported by all major parties, the political union would consist of a banking union, a fiscal union and an economic union. Through its current account balance, Germany funds other euro members. The estimated cumulative surplus of the current account already exceeds 1,000 billion euros (see de Macedo and Lempinen 2013). Germany also benefits from a weak euro relative to the country's competitiveness. It has been estimated that if Germany had its own currency, its value against the US dollar could be as high as 1.60 whereas the euro-dollar exchange rate now trades at around 1.38 (March 2014).

Is a currency union viable without a political union? There are no examples in world history of successful currency unions between independent states. All successful common currency mechanisms that have been in operation for any longer periods of time have been either federal states or confederacies (Bordo and Jonung 1999). The IMF has, however, suggested that a full-scale implementation of a banking and fiscal union would save the euro and secure stability in the eurozone (see IMF 2013a and 2013b). The ambition to develop the eurozone's economic and monetary union into a fiscal union is expressed in the report 'Towards a Genuine Economic and Monetary Union' published on 5 December 2012. It was signed by the President of the European Council; the Chairman of the European Commission; the President of the Eurogroup; and the President of the ECB.

The objective of the road map is to establish a community-level financial policy based on joint liability in order to manage economic disruptions. It would be based on increasing community-level decision making. It is foreseen to lead to growing coordination of the economic policies of the member states, specifically in taxation and efforts to address unemployment. To strengthen the fiscal capacity of the EMU, plans are in place to introduce a community-level unemployment security system to replace equivalent national schemes. Money to finance the common funding scheme would be raised from national sources. Community resources would be strengthened by issuing community-level bonds. The ultimate goal of the fiscal union is seen in the creation of the European Ministry of Finance.

The roadmap for the fiscal union highlights the short-term stabilisation needs of the monetary union. In a federation, it would be natural for the community to take care of the stability policy. If responsibility for the monetary policy were to rest with the ECB, evidently the responsibility for financial policy and macro-economic stabilisation would fall on the Commission and the European Parliament (or an equivalent agency to be created for the euro countries). A fiscal union would be tasked with producing public goods (security, social services) and certain private goods (health care, education), to create a social assistance system (unemployment benefits), establish a just income transfer system, and manage the stabilisation policy. Fiscal federalism as an economic architecture should be evaluated in terms of whether it increases economic efficiency. The EuroThinkTank's book reviewed such a plan.

The alternative futures of the EMU

Conflicting interests

The eurozone's growth prospects are so bleak that its welfare losses relative to normal economic development and growth may well persist for a long time to come. From the point of view of the future of the monetary union, what is decisive, however, is what happens to the large euro members. Italy, Spain and France are facing major problems.

The economic crisis in the eurozone has also led to divergence of the member states' interests. Southern members hold that they are entitled to income transfers from northern members. The former advocate Eurobond-based joint liability in financing budget deficits, re-distributing the cost of over-indebtedness, managing the potential support measures required by Eurobanks, and putting in place a joint deposit insurance.

The possible futures

The current state of the eurozone, often referred to as the EMU-2, means a departure from the Maastricht Treaty ('Maastricht 1'). The principles of 'no bailout' and the non-involvement of the ECB in supporting any individual country have ceased to apply. Most likely, the current situation, EMU-2, is just an intermediary phase. It has become evident that the Commission and the ECB will, in accordance with their respective missions, step by step take measures that will willy-nilly steer the development of the Union towards deepening integration and centralised decision-making.

It appears that the entire eurozone has only two stable options that do not involve any internal tensions regarding the further development of the system:

(i) A strong federation consisting of the 18 euro members.
(ii) A return to national currencies, meaning the type of EU membership similar to that of Sweden and Poland.

However, each individual country can determine the preferred level of integration for its own part. If this happens, a part of the eurozone may evolve into a federation whose currency is used by a group of member states content with a lower level of integration.

Consequently, the member states have four options:

(i) Membership of a weak euro federation (like today; most likely just a temporary solution).
(ii) Membership of a strong euro federation (likely outcome of the planned development of the EMU over the long term).
(iii) Keeping the euro, but staying outside of any alliances.
(iv) Adoption of a national currency or exit from the euro.

EMU-2 as a weak federation

Based on EMU-2, the eurozone would evolve into a temporary federation of independent states which would, step by step, be strengthened by new decisions. The banking and the fiscal union may just be enough to restore permanent stability to the finances of the member states and banks. This time around, the member states might actually stick to the agreements made. In case of a new financial crisis, the last resort would again be the ECB's extreme monetary policy measures.[4] The capacity of the weak federation to generate welfare may be compromised.

Ample evidence shows that regulators repeatedly fail to prevent banking crises. This creates pressures to introduce joint liability sooner or later. Financial policy guidance and control are based on the restrictions imposed by regulators instead of continuous and flexible assessment made by the markets, i.e. market discipline. Economic history lends no support to the notion that banking crises could be prevented by supervision. Instead, banking crises can only be averted through the introduction of the right incentives within the banking system itself.

A strong federation as the true political union

There are well-functioning federations in the world such as the United States, Germany and Switzerland. Invoking the example of the United States, one could argue that the main task of a strong federation is to produce public goods (national security, foreign policy and a free internal market as a minimum), provide social security for citizens and assist the member states in the event of asymmetric shocks. Characteristic of a strong and successful European federation is that it would work in largely the same way as existing federations.[5]

The EMU's prospects for becoming a successful federation appear quite bleak, and for a long time to come. The applicable criteria could be outlined as follows:

– Sufficient symmetry of the member states' economic performance.
– Reduced significance of asymmetric shocks.
– Compatibility of the labour market mechanisms with the monetary union.
– Adoption of a credible budgetary discipline at the national level.
– Sufficient similarity in terms of political culture and values.
– Willingness to relinquish national sovereignty in favour of a federation.

Due to the present-day economic asymmetry between the member states, we are far from achieving a federation based on the EMU and turning it into an economic and political success.

In principle, a strong euro federation can be operationally efficient. Most likely, such a structure could only develop on a voluntary basis and, even in the best case scenario, over a very long period of time. Until that scenario materialises, the eurozone will – almost by definition – operate inefficiently, while at the same time probably undermining income generation. For a fairly long time, the eurozone would be in the same position as Britain was early in the previous century – the rest of the world outgrows it before the burden of the past can be shed.

[4] In extreme cases, this could mean financing the public debt of the member states thorough the ECB.

[5] Of course, the US evolution into a federation was a long process.

Return to national currencies

It is not possible to predict the EMU's performance over the next 10 to 20 years. Despite the current political commitments, a disintegration of the EMU cannot be excluded in the light of economic history.

Nor is it impossible for the monetary union to be dismantled partially: one or several of the crisis-affected countries could exit the EMU. The question is whether such an exit is in the best interest of the country involved. For example, Greece cannot have any strong incentive to leave the euro for as long as it can expect assistance from other member states. According to public sources, Italy, a country with a diversified production sector, considered leaving the euro in 2011.

Looking at the situation from another standpoint, there may be a natural explanation why the euro politicians have not allowed Greece to exit. In the light of economic history, it may be argued that Greece would, in fact, be already on a positive growth path if it had pulled out of the EMU and thus allowed its currency to depreciate. The latest case supporting this view is the successful recovery of Iceland based on its own currency following an out-and-out collapse of its economy. From this perspective, funding to Greece has been continued in order to secure the unity of the eurozone.

In practice, the return to national currencies could be implemented through a basket currency or individual exits. Nordvig (2014) has proposed a so-called ECU-2 basket (Euro 2.0 redefinition), which would mean backtracking the same steps taken when the euro was originally adopted. The euro would be legally defined as a basket currency largely in the same way as the ECU was defined before 1 January 1999 at a 1:1 exchange rate relative to the euro. In the basket currency, the national currencies would be adopted by each member state side by side with the euro. Initially, they would be valued at a 1:1 exchange rate relative to the euro and one another. The rates would subsequently be floating and hence, be determined by supply and demand. Euro-denominated contracts would continue to be euro-denominated contracts, except that now, they would exist in the ECU-2 context. The basket euro could continue to exist forever or, only during a transition period, and for as long as any euro-denominated contracts are outstanding. The legal uncertainty could perhaps to a large extent be handled by the ECU-2 model.[6]

This step would admittedly have its own consequences, but the disruptions to the financial and banking system would be moderate and a far cry from the threat scenarios so frequently espoused.[7] The currencies of weak countries would weaken and their competitiveness would improve, while strong countries would experience the opposite. Effectively, debts and receivables would remain euro-denominated.

If a basket currency was adopted, sovereign debt could remain euro-denominated. This would benefit the creditors of weak countries as compared to a situation where the receivables were converted to a currency with a lower value. Similarly, and importantly for companies, the euros in all euro-denominated currencies would be of equal value irrespective of the governing law of the contract. Individual euro members could, within the limits imposed by their legal systems and political realities, convert their debt into the new domestic currency, at least in the case of contracts made under national law.

Household debts and existing investments would presumably remain euro-denominated (unless redefined and converted into domestic currencies by way of legal amendments), but all future domestic market revenues would be generated in national currency. The financial position of households in weak countries would deteriorate and that of households in strong countries could improve. From the point of view of the economy, the situation would harmonise when exchange rates even out differences in competitiveness, even if the short-term adaptation would be painful for some crisis-affected countries. While the Deutschmark would appreciate, the national currency of Greece, for example, would depreciate substantially and so would the Italian currency, but to a smaller extent.

[6] Nordvig (2014) stressed the importance of legal aspects if the euro is phased out. Governments have the possibility of amending the financial agreements governed by their own respective laws. It is essential to know the law by which the contracts are governed, as well as the jurisdiction in which any disputes are to be settled.

[7] We can refer to the calculation (NExit) regarding the Netherlands' exit from the euro mentioned at the beginning of the study. The calculation suggests that NExit would have had hardly any repercussions for the financing and banking system. According to Nordvig's calculations (2014), the debts and receivables of the Finnish economy are balanced to the extent Finland's exit would not have any significant implications for us. Moreover, while nearly all of Finland's sovereign debt is governed by Finnish law, no legal ambiguities as to the payment currency would arise. Finnish companies, too, mostly apply Finnish law in their euro-denominated commitments.

The options available for Finland?

In terms of size, Finland is a small member state in the Economic and Monetary Union and its relative weight in the eurozone economy and decision-making is modest, just 1.8 percent according to the ECB capital key. The book by the EuroThinkTank of Finland suggested that Finland has three main options to choose from:

- Continued involvement in the evolution of the 18 euro members into a federation.
- Withdrawal from the federalist evolutionary process and a unilateral return to the Maastricht Treaty (Maastricht 2.0) while keeping options open as to further steps.
- An immediate exit from the euro.

Option 1: driftwood

The 'driftwood' option means participation in the federalist evolution and adaptation to the policies mainly determined by the large member states. Finland becomes involved in a process whose outcome it cannot really influence. Until a strong federation is in place, the eurozone would, at best, exist as a weak federation. This would mean slow and confused decision-making and the continuation of a vague economic policy. During the evolution towards a strong federation, Finland would have to be prepared for sluggish economic growth, on-going income transfers and declining sovereignty.

An inflexible and non-innovative Finland with a growing level of debt would fit into this type of federation. Finland would not have much to lose in a weak-growth federation in which a sizeable part of the eurozone would be in dire straits economically. The only triple-A country would be Germany, which would support the other members financially in exchange for sway and influence.

Acceding to a strong euro federation would be in Finland's best interest if the country had a strong and thriving economy and wanted to become one of the federal states of Germany. A strong federation would develop democratic decision-making institutions and be a major player in the global economy. Its population, approximately 330 million, would be equal in size to that of the United States. A strong, mature federation could conceivably appreciate experts even from a small nation. However, because of its strong economy, Finland would have to contribute a higher amount of funds to federal use than the other states on average, which would offset the benefits of membership.

Option 2: keeping options open

As an option 'slipstreaming' means withdrawing from the federalist evolutionary process and returning unilaterally to the Maastricht Treaty (Maastricht 2.0). This would mean that, as the evolutionary process proceeded in small steps, Finland could at some point decide that it would not participate in the next step, which would represent a sort of threshold. Any decision to withdraw from the federalist process would have to be made by the Finnish Parliament. One benefit offered by this strategy is that it would be possible to pull out of the euro unilaterally at a later date. Such a withdrawal would not be without political consequences; however, it would spare Finnish taxpayers from supporting countries in crisis in the future. More importantly, Finland would not be involved in the efforts to manage euro members' debts on a joint liability basis and it would retain its sovereignty with regard to economic policy. It is worth bearing in mind that those EU member states (Sweden, Denmark, Britain, Lithuania, Poland, the Czech Republic, Romania and Bulgaria) that are not part of the Eurogroup have not participated in extending credit to Greece, for instance, either. However, for Finnish banks to be able to do remain in the ECB system, it would be necessary, in practice, to agree on the use of the euro and related arrangements.

The Eurogroup treaties, however, have been drafted in such a way that, for example, any support drawn under the ESM is conditional upon each euro member having incorporated the fiscal compact or the balanced budget act in its national legislation. Finland included this fiscal law in its legislation as of the beginning of 2013. Presumably, all future intergovernmental treaties between euro members will also be combined, making it extremely difficult to stay out of any single agreement.

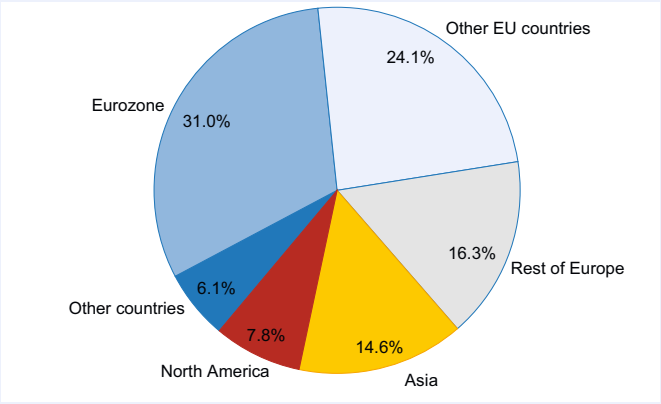
Withdrawal from integration would lead to political solitude (chosen by Sweden and Denmark), but would preserve democracy; it would even make it possible to retain the euro if this were felt to be important for trade policy reasons and if the EMU authorities agreed to that.

Option No. 3: Fixit, return to the Finnish markka

The third option is a Nordic one – an immediate exit from the euro. An exit from the euro would mean the re-adoption of Finland's own currency. Nordvig (2014) has calculated that Finland's financial receivables, investments and debts in the eurozone would not result in any significant financial gains or losses. Of course, the effects would depend on how the markets would value the new currency. Based on the data available at the end of 2013, Nordvig (2014) estimates that the independent markka would be 7 percent weaker than the euro. Until the last few years, Finland's current accounts have shown a surplus, and so it would hardly be necessary for Finland to regulate the movement of capital. Nor would any significant systemic impacts on capital, credit or derivative markets be anticipated.

Figure 4

Finland's exports by group of country, 2011



Source: Eurostat.

What options could Finland consider?

According to the book by EuroThinkTank, Finland will survive in any currency system as long as its economy is sound. So can Finland's ability to sustain a healthy economy and balanced public finances be trusted? It may be doubted on valid grounds. Finland's political system is disintegrated, its labour market is dominated by strong unions and its tripartite bargaining system is conservative, effectively blocking necessary structural reforms.

If Finland were unwilling or unable to look after the economy well, should the country strive to live off the European federation as a silent partner or sink into poverty amidst other counties with a currency of their own? If Finland's decision-makers were unable to pursue a sound economic policy beneficial to the country, should it remain part of the eurozone in the hope of receiving income transfers? Or should it instead seek to remain outside the euro union in order to allow the floating markka to take care of the necessary adjustments?

If Finland, by contrast, were able to manage its economy well, would it make sense for the country to join a joint liability system as a net payer? If Finland stays in the euro, the pressures to amend the labour market system would mount. The weaker the Finnish economy is, the greater these pressures would be.

At present, the EMU countries only account for a little over 30 percent of Finland's exports. Contrary to all expectations, this share has fallen since the adoption of the euro. In 2000, nearly 34 percent of Finland's exports went to the eurozone, whereas the corresponding figure in 2011 was only 31 percent. Important export markets for Finland are Sweden, the United States, Russia and Britain, none of which are an EMU country.[8]

Sweden's position, with its own currency and labour market solutions, is better than that of Finland. Moreover, Sweden already carried out most of the necessary political reforms after the 1990s depression. Consequently, Finland would be in a tougher situation than Sweden even if it had its own currency. Even so, a national currency would serve Finland's purpose better than the euro. Finland would have an exchange rate that it deserves.

Ultimately, Finland's relationship with the monetary union should be determined by the will of its people. Does it want to be part of a superpower or does it want to preserve the right of self-determination? Before making the choice, Finland needs to decide what it wants and what it is striving for. Making the choice is inevitable.

[8] The fact calls for an explanation why Finnish industry is such a keen supporter of the euro. One explanation could be that if Finland stays in the EMU, a labour reform and further flexibilities in the labour market become necessary. Yet, flagging out of the Finnish industry has intensified since the introduction of the euro. Another point worth noting is that Finland's accession to the euro was strongly advocated by the trade unions.

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Bank Heal Thyself: Benefits of Adding CoCos to the Balance Sheet

George M. von Furstenberg[1]

Introduction

CoCos, or simply cocos, are a promising form of hybrids first issued in 2009 by major West-European banks. They are contingent convertible debt securities that convert automatically into common equity when a regulatory capital ratio has fallen to its trigger level. For high-trigger cocos this level is reached when the book value of common equity tier 1 (CET1) has fallen to 7 percent of risk-weighted assets (RWA) as defined under the Basel III capital-requirements framework. At that point the bank is still a going concern and expected to recover. High-trigger cocos, which are the focus of this article, are dedicated to crisis preparedness and the recovery process.

What follows examines how cocos and their tax and regulatory treatment could be designed to promote greater in-house insurance of banks provided by their cocos holders. High-trigger cocos can be very effective in strengthening the financial system by helping banks weather a crisis that has decimated their equity capital. Conversion of their going-concern cocos helps rebuild capital initially through the cancellation of the cocos debt and subsequently through higher earnings on account of the interest payments no longer due. Cocos thus bring relief when equity capital is most needed but least available, and hence most expensive and dilutive, from other sources. While a fall in CET1 without cocos on the balance sheet increases leverage, if such a loss triggers cocos conversion, leverage decreases and the pressure to reduce assets is alleviated.

There are additional advantages. By automatically converting into a set number of newly issued shares of common stock when triggered long before the point-of-non-viability has been reached, high-trigger cocos can ward off discretionary regulatory measures. These could include bail-ins involving a partial or complete debt write-down ordered by regulators, and other possible interventions. Uncertainty about these interventions is bound to raise the cost of issuing instruments that could be subjected to them. High-trigger cocos would normally not be vulnerable in this regard. Being first to convert in a downturn when there is still much equity value left, they can credibly offer a substantial recovery rate in percent of the face value of cocos from the common stock issued when triggered.

A few definitions are needed. The conversion price per share set at the time of cocos issue, when divided into the face value of cocos to which it applies, yields the number of shares issued in conversion and hence the value that coco holders may expect to obtain, given their forecast of the share price conditional on conversion. The actual or conditionally expected recovery rate then reduces to the ratio of the corresponding post-conversion market price per share to the pre-set conversion price. That recovery rate for cocos may well be above the recovery percentage that holders of non-contingent subordinated debt could expect to realize from bankruptcy resolution. In addition, cocos holders would find their claim being converted into a highly liquid asset, shares of common stock, instead of being locked into an illiquid subordinated debt instrument that may eventually be bailed in by regulators to facilitate resolution.

The terms set on cocos can control the apportionment of expected gains and losses between their holders and pre-existing shareholders in a manner most conducive to generating optimal management incentives. If cocos holders were to lose everything upon conversion, like with write-down-only cocos that, in spite of their name, do not convert into anything of value at all, existing shareholders would profit unduly from cocos conversion. This could encourage substitution in favour of high-risk assets and stimulate the transfer of value from the bank's bondholders to its shareholders. On the other hand, if the credibly targeted recovery rate were set too close to 1 or to 100 percent, cocos holders would

[1] Indiana University, Bloomington. I am grateful to Heiko Schreiber of BDB for a link to documentation.

have nothing to fear from conversion and insufficient reason to incur monitoring costs even if their interests should be represented on the bank's board. Existing shareholders would benefit directly from conversion to the extent that the recovery rate for cocos holders (ρ) is less than 1. However, any small benefit from cocos conversion obtained by pre-existing shareholders when ρ is, say, 0.8 would be dwarfed by the prior stock-price decline that would accompany the fall in the CET1/RWA capital ratio to the trigger point.

If cocos are issued as a substitute for equity, they add to risky debt that can contribute to the debt overhang effect discouraging new equity issues and otherwise profitable investments. However, this effect is countered by the automaticity of conversion because the cocos debt must be cancelled and replaced by equity should a serious risk event triggering conversion have occurred. If cocos were issued as substitutes for non-contingent subordinated debt instead, they would raise the contingent equity content of the bank's financing and lower the yield required on equity and on any remaining non-cocos debt. Conversion would then reduce the debt overhang, rather than merely restoring the *status quo ante.* Mehran and Thakor (2014) and Bundesministerium der Finanzen (2014) have offered additional reasons why supervising leverage and introducing contingent debt are important to help privatise the too-big-to-fail (TBTF) banks' safety net and to ensure that their risk-taking is adequate, not underpriced and socially excessive.

Sufficient reasons may already have been given to favour high-trigger 'recovery' cocos, with a 7 percent or more CET1/RWA trigger, over low-trigger (5 percent or less) 'resolution' cocos and over debt that can be bailed in. One might thus suppose that adding high-trigger cocos to banks' balance sheet in good times to help preserve going-concern value in a crisis would merit encouragement from national bank regulators and tax authorities. This, however, has not always been forthcoming, least of all in the United States and, until recently, in Germany. Accounting definitions and national conventions for distinguishing debt from equity for tax purposes and for meeting regulatory capital requirements have gotten in the way.

Internalising and minimising TBTF-bank rescue costs

Internalising the bailout costs of keeping TBTF banks from failing is a principal policy objective of financial reform. Coupled with political aversion to nationalisation or extended government control, having TBTF status also means that private equity in TBTF banks tends to be preserved, being poised for recovery after the crisis. Recently there have been fresh studies on the size of the funding subsidies for such systemically important banks. The value of this subsidy has been measured in basis points (bps) saved on bonds issued by TBTF compared with other, carefully selected, banks not covered individually by the government's implicit guarantee of their survival. Thus one recent study (Santos 2014) estimated a funding advantage of 31 bps (0.31 percent) for TBTF over smaller banks on the basis of the bond spread differential for issues rated single-A by S&P. Related studies (see especially Gara, Santos and Traina 2014) have tended to confirm that large banks in fact do enjoy economies of scale in addition to TBTF subsidies and use their competitive advantage to grow larger and to increase risk-taking after assurances of greater government support.

Implicit subsidies rise with the probability of distress in financial institutions, both individually and collectively, and with the willingness and ability of the relevant government agencies to bail them out. For instance, the IMF (2014) has estimated that in Europe the subsidy dropped during the initial phase of its financial crisis, but rose again and reached 90 basis points after bailouts under the European Stability Mechanism had been authorised in 2012.

Attempts to keep surviving TBTF banks from getting bigger after the last crisis, and generate credibility for official denials that they will be rescued in the next crisis have failed. Hence, taking the availability of TBTF emergency aid as given, the government's objective is to reduce both the private uncompensated benefit and the government's net costs of such contingent aid first by lowering the frequency and severity of financial crises and then by cutting the subsidy component. This means that government should pay for less, and private shareholders and long-term creditors for more of the TBTF coverage, and that its costs to the insurer should be prepaid through the equivalent of higher insurance premiums. Higher capital requirements for Global Systemically Important Banks (G-SIBs) to be met by CET1, such as 2 percent of RWA extra by January 2019 imposed on the Deutsche Bank, contractually agreed bail-in of long-term debt under prespecified conditions, and availability and contingent conversion of high-trigger cocos are all part of the strategy to reduce the unfunded government costs of

TBTF guarantees. The EU's Single Resolution Mechanism and Single Resolution Fund make use of some of these instrument requirements and reserve-accumulation approaches.

Regulatory capital requirements with cocos

By the start of 2019, with the end of the transition period, most Basel III regulatory capital requirements will have to be fully implemented, i.e., *fully loaded*, including the definition of RWA. For information purposes, most major banks started comparing their actual capital ratios with those required under Basel III fully loaded several years ago. On this basis, the basic minimum CET1 requirement, in effect already from 2015 on, is equal to 4.5 percent of RWA. CET1 consist principally of the proceeds from stock issuance and retained earnings. To this a 2.5 percent Capital Conservation Buffer (CCB) is added that must also be met by CET1, but in full only by 2019. This raises the CET1 requirement, fully loaded, to 7 percent of RWA, which explains why this level has often been chosen as the trigger point for going-concern cocos.

Higher regulatory capital requirements are set for capital and leverage ratios that include non-common additional tier 1 (AT1) along with CET1 in the numerator. AT1 capital, such as non-cumulative perpetual preferred stock with interest/dividends that may be cancelled at the discretion of both management and by regulators, is judged to be highly loss-absorbing and thus part of T1 capital along with CET1. However, the contribution of AT1 that may be 'credited' to the T1/RWA requirement of 6 percent may not exceed 1.5 percent of RWA. Tier 1 (T1) capital is also the numerator of the leverage ratio whose denominator, *leverage exposure* (LE), is much greater than RWA. Being less assuredly loss-absorbing than T1, tier 2 (T2) cocos may contribute no more than 2 percent of RWA to meeting the minimum of the total capital ratio (T1 + T2)/RWA. This minimum is scheduled to rise from 8 percent in 2015 to 10.5 percent of RWA by 2019 as the CCB of 2.5 percent is being phased in.

The takeaway is that qualifying cocos that may be credited toward regulatory capital requirements could account for as much as 3.5 percent of RWA, or one third of the total minimum capital requirement plus CCB equal to 10.5 percent of RWA fully loaded if all the non-common parts of these requirements were met by cocos. AT1 cocos could then be accounting for 1.5 percent and T2 cocos for 2 percent, while CET1/RWA is 7 percent. Almost all of the countries participating in global finance accept this extent of cocos' participation in meeting T1 and T2 capital requirements. The United States has chosen not to accord AT1 credit to cocos, citing national accounting rules, and to leave the tax status of the interest paid on cocos unclear, thereby discouraging the issuance of cocos. In the meantime, major banks in a growing list of European countries beyond the pioneers from Britain, Switzerland and the Netherlands have issued AT1 and/or T2 cocos. So have other large banks in countries such as Canada and Singapore.

Obstacles to issuing cocos in the United States

The issuance of cocos is encouraged when these instruments are treated as debt for tax purposes, but as equity for satisfying regulatory-capital, rating, and accounting-classification requirements. The United States has so far failed to provide legal certainty that interest paid on cocos is tax deductible, so that the issue would not normally have to be determined administratively on a case-by-case basis. As discussed further in von Furstenberg (2014), US regulatory agencies have categorically denied AT1 credit for cocos as long as cocos are classified as a liability and thus considered debt under US-GAAP. It appears therefore that US federal bank regulators do not view cocos as sufficiently equity-like to be reliably loss absorbing. At the same time the US Internal Revenue Service (IRS) may still regard cocos as too much like the common equity into which, when triggered, they would convert. Thus there are two strikes against cocos issuance in the United States: no assured tax deductibility for the interest paid on them and no credit as AT1 for meeting the T1 capital requirement or the impending leverage ratio requirement that features T1 capital in its numerator.

Until recently, cocos also had one strike against them in Germany. As reported in BDB (2014), Germany's Federal Finance Ministry published an administrative regulation on 10 April 2014 settling the tax treatment of capital instruments, like AT1 capital. This ruling adopted the tax conditions already prevailing in most other European countries, which allow interest paid on cocos to be fully deductible as a rule. Thus only US (and Australian) regulators are still denying assured deductibility of interest paid on cocos to issuers under their jurisdiction.

Distinguishing the equity from debt content in cocos

For high-trigger cocos there are only two possible outcomes: either they are serviced punctually and paid off at maturity, or their capital ratio declines to the high-trigger level specified in their covenant before their term is up. In that case their conversion into common stock is mandatory. The conversion price may have been set outright, or as a minimum, at the time of cocos issue. The minimum would bind if it topped the result of an unwise price-setting method designed to deliver 100 percent recovery for cocos holders *ex post* by setting the conversion price equal to whatever the market price then turns out to be.

The most critical variables for pricing the conversion risk premium in cocos are (i) the annual probability of conversion (π) of the surviving cocos and (ii) the recovery rate (ρ) obtained from the market value of the common stock received at conversion in relation to the face value of the cocos cancelled at that time. If π is reinterpreted as the annual probability of default on straight bonds in an alternative application, the recovery rate would be the fraction of the face value of the debt that is recovered in bankruptcy proceedings. To simplify the exposition, both π and ρ are taken to be constant over the entire term, or up to the first-call date, of the straight bond or coco whose face value is normalized at 1. This principal amount is repaid with accrued interest if the coco has not been converted into common stock by its maturity date after T years. The probability of the debt surviving to maturity is $(1 - \pi)^T$.

The 'riskless' rate (r*) that functions as the discount rate is deemed to be free of credit risk, but not free of illiquidity premiums and monitoring costs. Hence the best representation of the riskless rate for 10-year USD issues of cocos could be Moody's AAA rate on seasoned bonds, which have an effective maturity of around 10 years. The annual rate of return required on cocos (R) here does not include a premium to compensate for risk aversion, but only for losses expected in the event of conversion. R is the dependent variable being solved with the values of ρ, π, and r* assigned in the first 3 columns of Table 1. These same three parameters plus T determine the equity content (EC), which is the percentage of the value of cocos that is expected to be contributed by the common stock received if mandatory conversion should be triggered.

If $\rho = 0$, as on write-down-only bonds, $R = r^* + \pi$. At the other extreme $R = r^*$. This result applies both when $\pi=0$ and when $\rho=1$. Within the range of parameter values shown in Table 1, the risk-neutral actuarial conversion risk premium, $R - r^*$, varies from 40 to 240 bps, with the highest values obtained with the lowest value of ρ and the greatest value of π.

Estimates of EC in the last column of Table 1 range from 6 percent to 32 percent. Higher values of ρ, π, and T raise, and of r* lower, EC. Its size could be relevant for the tax treatment of interest paid on cocos. For instance, one of the factors considered by the IRS in its debt/equity determination "looks directly to the future form of the security, taking into account the possibility that a firm with a convertible bond has, in essence, a potential share of common stock outstanding" (Ceryak 1990, 280). Hence the higher the equity content of a hybrid, the greater the chance that the IRS would deny interest deductibility. The IRS may also apply the non-contingent bond method, fully described in my earlier article (IRS 2012), under which only that part of the interest would be deductible that

Table 1

Estimated rates of return required on cocos and their equity content

Row number	Recovery rate (ρ)	Probability of conversion (π)	Riskless interest rate (r*)	Term years (T)	Required rate of return (R)	Equity content (EC %)
1)	0.4	0.02	0.02	10	0.032	6.59
2)	0.4	0.02	0.04	10	0.052	5.97
3)	0.4	0.04	0.02	10	0.044	12.12
4)	0.4	0.04	0.04	10	0.064	11.02
5)	0.8	0.02	0.04	10	0.044	11.95
6)	0.8	0.02	0.04	20	0.044	18.54
7)	0.8	0.04	0.04	10	0.048	22.03
8)	0.8	0.04	0.04	20	0.048	31.93

Notes: $R = r^* + (1-\rho)\pi$; and $EC = \pi\rho(1 - [(1-\pi)/(1+r^*)]^T)/(r^* + \pi)$.

Source: von Furstenberg (2014).

would be paid on an otherwise comparable bond without the conversion feature.

Conversion risk and illiquidity do not necessarily raise the interest rate on cocos above that on otherwise comparable straight bonds. Unlike cocos, straight junior subordinated bonds are subject to default risk and a recovery rate which, while set at a default level of 40 percent in CDS pricing models for corporate bonds, in fact is only about half as large (see Moody's 2011). If high-trigger cocos conversion happens when the bank is still a good distance from default, a recovery rate of up to 80 percent may very well be realised: the only requirement for this to be achieved is to ground the conversion price specified for the cocos issue in realistic expectations of the low stock price to be expected when capital ratios have declined to the trigger point and cocos are being converted. On the other hand, since high-trigger cocos conversion must come well before default, and be more frequent than default to the extent conversion succeeds in averting it, the probability of cocos conversion, π, will always be higher than the default probability on otherwise comparable non-cocos bonds.

With both π and ρ higher for cocos, and with π raising and ρ lowering R, it is not possible to state categorically which way the spread between them and otherwise comparable non-cocos junior subordinated bonds should go. An example may help explain that the values assigned to ρ and π for each of the two types of subordinated bonds are critical to the outcome. If the share price expected to prevail, should it come to conversion, is only 40 percent of what it was at the time of cocos issue, setting the conversion price equal to 50 percent of that share price at cocos issue would yield an expected ρ of 80 percent (i.e., 0.40/0.50). So if r* is 4.63 percent, ρ = 80 percent and $\pi_{conversion}$ = 8 percent for cocos, and r* = 4.63 percent, ρ = 20 percent, and $\pi_{default}$ = 2 percent for a bank's straight subordinated bonds, R = 6.23 percent for both types of instruments. However, the balance of required rates of return could easily tip either way. For instance, if the values of both ρ and π were cut in half on the cocos, their R would rise to 7.03 percent while remaining at 6.23 percent on the non-cocos debt. In theory, the IRS could then apply the non-contingent bond method and disallow the deduction of 80 bps of the interest paid by cocos issuers.

In actuality, the R required for cocos may be lower than suggested above. A selection of recent European USD cocos issues in my book (von Furstenberg 2014) shows that 7 out of 10 had an investment-grade rating of BBB- or higher from S&P and an average yield (R) in November 2013 of 5.64 percent. For that month, our chosen riskless rate (r*) averaged 4.63 percent, leaving a cocos-over-straight-AAA-bonds spread of 1.01 percent.

Benefits of issuing cocos as substitutes for other subordinated debt

Applying elementary accounting discipline is helpful to lay out the possible balance-sheet effects of cocos (C) issuance and convergence. The starting identity (1) below does not yet contain cocos, so that C_1 equals zero initially. However there are senior debt (S), non-cocos junior subordinated debt (J), and equity (E) on the liability side whose sum is equal to that of assets (A).

$$(1) \qquad S_1 + J_1 + E_1 = A_1$$

The changed amount of any particular liability or asset from its initial level is shown in parentheses in subsequent equations. Cocos in the amount C_1 are now introduced into the original pre-crisis balance-sheet equation (1) in two ways. They can be either a substitute for equity, say through a stock buyback, as in equation (2), or a substitute for some of the junior debt that is repaid, as is equation (3).

$$(2) \qquad S_1 + J_1 + C_1 + (E_1 - C_1) = A_1$$

$$(3) \qquad S_1 + (J_1 - C_1) + C_1 + E_1 = A_1$$

A financial crisis (subscript 2) then causes losses (L_2) to equity and equally to the book value of assets, which falls from A_1 to $A_2 = A_1 - L_2$ in both cases. In the second case, however, increasing debt J by the amount L_2 reverses the asset shrinkage, so that A_2 is restored to A_1 in equation (5). Indeed, increased borrowing rather than asset contraction may be indicated when the crisis is expected to be short-lived.

$$(4) \qquad S_1 + J_1 + C_1 + (E_1 - C_1 - L_2) = (A_1 - L_2)$$

$$(5) \qquad S_1 + (J_1 - C_1 + L_2) + C_1 + (E_1 - L_2) = A_1$$

If the operating losses are such as to drive the relevant capital ratios below their trigger level in both cases, no cocos are left on either balance sheet, but the effects of

cocos issuance and conversion remain visible in equation (7) that is based on equation (5).

$$(6) \qquad S_1 + J_1 + (E_1 - L_2) = A_1 - L_2$$

$$(7) \qquad S_1 + (J_1 - C_1 + L_2) + (E_1 - L_2 + C_1) = A_1$$

Equation (6) shows that if cocos were originally issued as a substitute for equity, a bank that subsequently encounters a loss of equity capital triggering conversion would find itself in the same position as if cocos had never been issued. Had the bank issued cocos as a substitute for non-cocos junior subordinated debt instead, its position after conversion would have been stronger as equation (7) shows more equity and less debt than (6). If the face amount of cocos issued happened to be equal to the size of the subsequent loss that caused them to be converted, so that $C_1 = L_2$, equation (7) would reduce to the pre-crisis equation (1): cocos would have proved perfectly loss absorbing.

How two G-SIBs have managed capital requirements and the introduction of cocos

According to Deutsche Bank's Annual Report for 2013 (DB 2014), its total assets were 1,611 billion euros, leverage exposure (LE) was 1,445 billion euros, equal to 90 percent of total assets, and risk-weighted assets (RWA) were a mere 350 billion euros, or 22 percent of total assets. By the end of 2013, DB's CET1 ratio had risen to 9.7 percent of RWA, but that ratio fell back to 9.5 percent by the end of Q1 2014. DB's goal of raising CET1/RWA to 10 percent within one year is modest when compared with the goals set by other G-SIBs in the area. UBS, for instance, met its goal of 13 percent for that capital ratio as early as Q1 2014, a goal which included a capital buffer equal to 3 percent of RWA above the required level. This buffer was to be sufficient to cope with a crisis stipulated in its stress test without suffering restrictions on the payment of dividends and stock buybacks.

The ECB is about to conduct its own stress test with new standards for capital adequacy and crisis preparedness. In preparation for that test, DB announced on 19 May 2014, that it was raising 8.5 billion euros from the sale of new shares to a private party and through rights issued to existing shareholders to boost its CET1 ratio from 9.5 percent to 11.8 percent. Assuming that the closing price of DB shares of 29.71 euros on 4 June 2014 in Frankfurt correctly valued the shareholdings just prior to the opening of the subscription period (6-24 June), the theoretical ex-rights price (TERP) is 28.14 euros by my reckoning. Hence existing shareholders could suffer a loss in value from the rights issue if the share price after the end of the subscription period would settle below the TERP and do so on account of the adverse signaling effects of the rights issue. The 26.77 euro closing price of DB on 25 June 2014 on the 'Börse Frankfurt' suggests that investors initially did not view the rights issue as value enhancing.

Cocos may offer a better way to raise regulatory capital ratios and buffers. If DB had issued AT1 cocos equal to 1.5 percent of its end-2013 RWA of 350 billion euros and T2 cocos equal to 2 percent of that RWA, it would now have 12.25 billion euro cocos outstanding. For comparison, UBS already placed four issues of write-down only cocos amounting to 5.3 billion euros, or 2.88 percent of its RWA, over two years ending February 2014. That same percentage of DB's RWA would amount to 10.1 billion euros. Having a total of 10 billion euro worth of cocos outstanding by the end of 2015 could help lift DB to being adequately buffered rather than comparatively thinly capitalized. In view of the 1.5 billion euro T2 issue already placed in 2013 and the 3.5 billion euros of AT1 write-down with optional write-up notes placed in May 2014, half of the 10 billion euro cocos would remain to be issued. The cocos issue would have to be even larger if it were also to provide for replacement on DB's books of the 11.3 billion euros of existing hybrid capital securities whose eligibility for AT1 or T2 is being phased out.

Conclusions

Cocos started to be issued in 2009 within a few years after first having been proposed by Flannery (see 2014). Since then some serious errors have crept into their design: for instance, by trying to fix recovery rates at either zero or 100 percent and by letting distressed banks sell cocos to agencies of their own government. Thus second thoughts about sustainability – the ability to replace cocos with new issues soon after they have been converted – and about the spillback of large losses into the banking system have begun to dog write-down-only cocos and have created renewed interest in cocos with a high expected recovery rate.

While cocos remain a work-in-progress in several respects, high-trigger cocos that convert into common

shares well before approaching the point of non-viability were found to have much to recommend them. Judicious choice of the conversion price per share translates into a large measure of control over ρ and hence the required spread of cocos over non-contingent subordinate debt. This spread may not be large and may not even be positive. Letting high-trigger cocos replace non-contingent subordinated debt could therefore be an excellent business decision requiring no regulatory mandates. It would only require that bank regulators and tax authorities give these cocos due credit for inclusion in AT1, and not only T2, and grant tax deductibility of the interest paid on them. Exposure to regulatory failure would be minimised.

Regulators, auditors, trial lawyers and prosecutors are, of course, still needed for oversight to limit the extent to which the capital ratio that serves as a cocos trigger and the leverage ratio that serves as a back-up can be gamed. Otherwise, these crucial ratios may be creatively inflated or otherwise misstated, thwarting prompt and automatic corrective action in which high-trigger cocos conversion should take the leading part.

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Regulating the Global Insurance Industry: A Compendium of Motivations and Challenges

Christian Thimann[1]

Insurance regulators have embarked on a Herculean task: regulation of the industry on a global basis. They have two objectives: firstly, to strengthen the oversight of insurance companies that are deemed 'systemically important' in the global financial system; and secondly, to design something for internationally active insurance companies which has long-since been conceived for banking, namely a global capital standard.

The work is overseen by the G20 countries and takes place under the auspices of the Financial Stability Board (FSB).[2] At present, the focus is on regulating insurance groups deemed systemically important. Nine groups have been identified: five from Europe, three from the United States and one from China.[3]

The FSB is inspired by its framework recently applied to the banking sector, where 29 banking groups were classified as systemically important. These banks were subject to a three-pronged framework consisting of enhanced supervision, the preparation of risk and crisis management plans, and the application of capital surcharges.

The regulators are pursuing a similar strategy for the nine insurance groups, and progress is underway: supervision has already been enhanced, risk management plans are under preparation, and the global community is currently working on a framework of possible capital surcharges.

The motivations are clear, but the challenges and potential pitfalls are numerous. There are several reasons why global regulation of the insurance industry is particularly challenging from both a conceptual and a policy perspective, and why it is both more difficult and more questionable than for banking.

This article presents a compendium of the key motivations for the global regulation of the insurance industry, as well as the main unresolved challenges. It explains what open questions should be addressed first, including through more research, and highlights the pitfalls of advancing regulation while some of the challenges remain unresolved. In the spirit of the long-standing OECD's ten-point checklist on regulation, the open issues concern mainly the first point on the correct indentification of the problem (Box 1).

Specifically, the article argues that it would be flawed to apply a bank-based framework to the insurance industry: insurers have a different business model from banks; they have a distinctive balance sheet

Box 1

The OECD checklist for regulatory decision-making

1. Is the problem correctly defined?
2. Is government action justified?
3. Is regulation the best form of government action?
4. Is there a legal basis for regulation?
5. What is the appropriate level (or levels) of government for this action?
6. Do the benefits of regulation justify the costs?
7. Is the distribution of effects across society transparent?
8. Is the regulation clear, consistent, comprehensible and accessible to users?
9. Have all interested parties had the opportunity to present their views?
10. How will compliance be achieved?

Source: OECD (1995).

[1] AXA Group and Paris School of Economics.

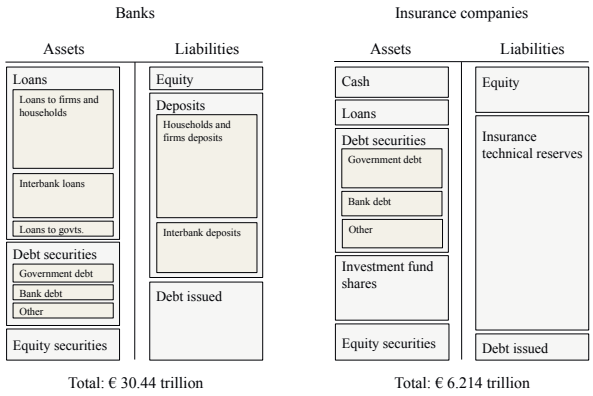
[2] There are 64 institutions that are members of the FSB; they generally include the finance ministry, central bank and the main national supervisory authority of the member countries (52 institutions in total), plus 12 international organizations including the IMF, the World Bank, the ECB, the European Commission, the BIS, the OECD and standard-setting bodies such as the Basel Committee on Banking Supervision, the International Accounting Standards Board and the International Association of Insurance Supervisors (IAIS).

[3] These companies are from Europe: Allianz, Aviva, AXA, Generali and Prudential (UK); from the United States: AIG, MetLife and Prudential (US); and from China: Ping An.

structure; and, as will be shown, they interact with the financial system and the real economy in a way that is fundamentally different from banks.

Figure 1

Stylised balance sheet of banks and insurers compared



Note: Main balance sheet components of the euro area's aggregated banking system and insurance sector. The size of each box corresponds to the relative weight on the balance sheet. The total absolute values also include external assets and liabilities, fixed assets, and other assets and liabilities that are not represented for the sake of simplicity. A unit-linked insurance plan is a type of life insurance where the value of a policy is linked to the net asset value of the underlying investment and where customers are allotted units, as in a mutual fund.

Source: ECB.

Motivations for global insurance regulation

There are a number of motivations behind recent efforts to implement global regulation of the insurance industry, with a specific focus on large and internationally active companies. Five motivations stand out:

1. *Given the historic severity of the global financial crisis, only the widest possible regulation of financial institutions is politically acceptable.* The financial crisis caused the biggest rise in unemployment and the largest strain on public finances seen in the industrial world. Therefore, no policy-maker can defend the exclusion of certain financial institutions from systemic regulation. Even though some policy-makers and finance experts may be convinced of the different degrees of systemic significance of different financial institutions, and some experts have even stressed that insurance as such is not systemically risky,[4] such positions are not easily explained to the general public.

2. *Some insurers experienced financial distress in the global crisis and a few of them required government support.* In addition to the case of AIG discussed below, two US insurers required government support as they were particularly heavily exposed to US subprime assets; in the Netherlands, one insurer required government support for the same reason, resulting from a historic US engagement; and in Belgium, one insurer required government support because it held a significant amount of shares in Dexia bank, which lost all value in the crisis. The total support provided to these insurers amounted to about 7 billion euros.[5] This compares with several hundred billions of euros in support for the banking system in Europe, as well as in the United States. In the United States, the TARP programme alone amounted to 700 billion US dollars. In the European Union, state aid in the form of capital support amounted to 590 billion euros, the bulk of which was provided to the banking sector. The top three receiving banks – RBS, Anglo Irish Bank and Bankia – together received 100 billion euros in capital support.[6]

3. *AIG was the largest bailout in history.* This bailout reflected a conscious decision in September 2008 that Lehman Brothers could be allowed to fail, but not AIG. At the time, AIG received an 85 billion US dollar loan from the Federal Reserve and subsequently received 100 billion US dollars in support from the Treasury. It was the largest bailout of a private company in US history. This suggested that insurers were just as systemic as banks, if not more so.

4. *Insurers are large-scale financial intermediaries between savers and investors in the economy, and they are important investors in financial markets.* Life insurance products carry a significant part of national savings and provide an important source of a society's retire-

[4] For example, when in the United States the Financial Stability Oversight Council decided to designate the insurer Prudential as systemic, the Council member with insurance expertise voted against this decision ("As the Financial Stability Oversight Council's Independent Member having insurance expertise, I dissent from the final determination that, based on the analysis and conclusions presented […], the material financial distress of Prudential Inc. could pose a threat to the financial stability of the United States" – see Financial Oversight Council, Minutes of the meeting of 19 September 2013).

[5] The insurance companies requiring government support included Hartford and Lincoln National in the United States with 3.4 billion US dollars and 1 billion US dollars, respectively; Aegon in the Netherlands with 3 billion euros, and Ethias in Belgium with 1.5 billion euros. Hartford, Lincoln, and Aegon had invested substantially in US subprime assets and Ethias had held a 5-percent share in Dexia bank that lost value. In Belgium and the Netherlands, the bank insurance groups ING, Fortis and SNS REAAL also received government support, triggered mainly by their banking operations.

[6] The four countries that supported their banks most with capital measures during the financial crisis were Britain (82 billion euros), Germany (64 billion euros), Ireland (63 billion euros) and Spain (60 billion euros) – European Commission (2014).

ment income. Even though the size of insurers' balance sheets in most economies is well below that of the banking sector – about 6 trillion euros in the euro area, compared with 30 trillion euros for the banking sector (Figure 1) – insurers represent a significant part of the financial system. Moreover, insurers invest in both public and private debt securities, as well as in equities, securitization and infrastructure, which are important for the functioning of the economy, for investment and job creation.

5. *Since banks, which are also financial intermediaries and financial investors, are subject to global regulation and systemic regulation, it might seem logical to apply the same principle to insurance.* There are globally coordinated standards for banks' capital, liquidity, leverage and funding ratios as part of the Basel framework. In the United States, for example, the Basel III framework is currently planned to apply to about 30 banks, with consolidated assets worth over 50 billion US dollars;[7] while in the European Union, the Basel III framework has been transposed into a Capital Requirements Directive (CRD IV) and applies to all 8,000 banks.[8]

Challenges for global insurance regulation

While motivations are relevant and manifold, so are the challenges for global insurance regulation. The following challenges stand out:

1. *Insurance is a less global business than many parts of banking and other financial activities, such as brokerage and asset management.* The reason is that those insurance activities that account for the bulk of assets and liabilities, namely life and savings contracts,[9] have their origin in providing a complementary role to social security systems that by definition vary greatly from country to country. Even though the macroeconomic situation of social security systems in advanced countries faces similar challenges, the specificities of social security systems, tax systems and habits as well as preferences for insurance differ significantly, and hence so do life insurance contracts. Contracts need national regulatory approval, and insurance competition occurs within each national constituency rather than on a global basis.

2. *AIG was not insurance.* The business that brought AIG down was a type of banking business, undertaken not by the insurance company of AIG in New York, but by a financial subsidiary located in London, called AIG Financial Products. Using the insurer's balance sheet and top rating by rating agencies, the subsidiary provided credit enhancements of US subprime products, mainly to banks, by selling over 500 billion US dollar worth of credit default swaps, which are not an insurance product, but a non-regulated financial product (Baranoff 2012). Moreover, the financial business in London was *de facto* unsupervised, as the Office of Thrift Supervision according to the US government commission "failed to effectively exercise its authority over AIG and its affiliates: it lacked the capability to supervise an institution of the size and complexity of AIG, did not recognize the risks inherent in AIG's sales of credit default swaps, and did not understand its responsibility to oversee the entire company, including AIG Financial Products".[10] The Financial Crisis Commission concluded: "if the products sold by AIG Financial Products had been regulated as insurance contracts, AIG would have been required to maintain adequate capital reserves, would not have been able to enter into contracts without the posting of collateral, and would not have been able to provide default protection to speculators. Thus, AIG would have been prevented from acting in such a risky manner". Hence, it was the non-insurance feature of these activities or, put differently, the non-insurance quasi-banking subsidiary within the insurance conglomerate, that caused the systemic risk.

3. *Europe and the United States – the world's two largest insurance markets – have different accounting standards.* Whereas Europe adopted the IFRS (International Financial Reporting Standards), the United States follows its national GAAP (Generally Accepted Accounting Principles) standard. The differences are significant. The same issue exists in banking, but in insurance it is compounded by different regulatory and supervisory standards (see below).

4. *Europe and the United States maintain fundamentally different regulatory standards.* Europe is about to finalise the world's most advanced, ambitious and complex regulatory standard with Solvency II. It aims to capture an economic concept of risk, provides market consistent valuations and is essentially based on mark-to-market accounting. In contrast, the United States

[7] US Federal Reserve, Interim Final Rules on the Implementation of the Basel III Regulatory Framework, 24 September 2013.
[8] "Contrary to other parts of the world, we apply Basel III to all our 8,000 European banks", Barnier (2012).
[9] In the euro area, reserves held for life and savings contracts account for 3.6 trillion euros out of 5.1 trillion euro total reserves held for all insurance policy-holders (source: ECB, Monetary and Financial Statistics).
[10] US government "Inquiry into the Financial Crisis Report" 2011.

maintains its longstanding risk-based capital standard, which is not a full solvency framework but seen by the regulators more as a minimum standard (NAIC 2014). The US insurance regulators are generally sceptical about an international capital standard for insurance. They are "ready to engage in the process", but have "serious concerns about the necessity, timing and complexity of international capital standards for insurance". Moreover, they explicitly exclude replacing the US capital framework with any international standard (NAIC 2013).

5. *There are fundamentally different supervisory standards between Europe and the United States – and even within the United States, as insurance is supervised at state level.* The most comprehensive set of financial reforms in the history of the United States that changed almost everything in regulation and supervision, the Dodd-Frank framework, changed nothing as regards the location of insurance supervision at state level. Only a Federal Insurance Office with a small number of staff was created at federal level, essentially as a monitoring and advisory function for the Treasury department. The Director of this office chairs the international forum working on a common international supervisory and capital framework, but some Congress members expressed serious concern that the Federal Insurance Office was overstepping its mandate by engaging in such international negotiations, which are seen as challenging the allocation of insurance supervision to the state level: "we are concerned that these federal agencies have participated in the development of capital standards for international insurance companies […] and gone beyond the scope of authority granted by Congress to those entities. Time and again, the Congress has reaffirmed its commitment to preserving state supervisory authority over the business of insurance" (US Congress 2014).

6. *Systemic risk channels for insurance have not been identified.* Whereas for banking institutions the origin and propagation of systemic risk channels are well identified, both conceptually and empirically,[11] this is not the case for insurance. For banks these three steps can broadly be described as follows:

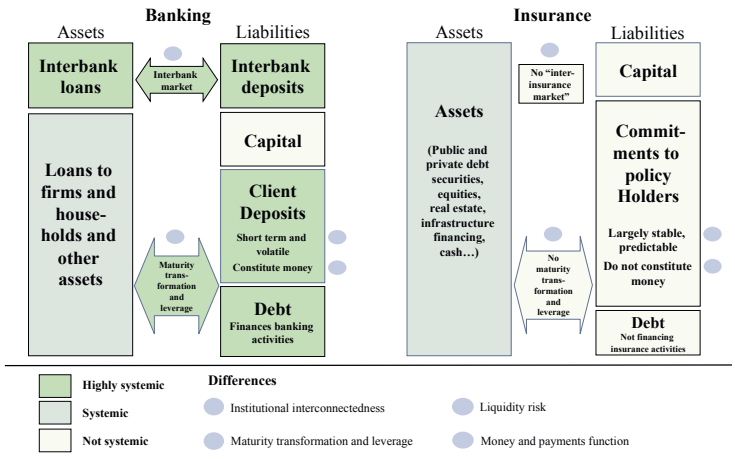
- Firstly, the primary source of vulnerability is given by the combination of fugitive liabilities, particularly deposits, including in the interbank market, combined with stickier long-term assets as a result of maturity transformation.
- Secondly, their transmission to the banking system predominantly occurs through the institutional interconnectedness to other banks that are short-term, callable at will and largely based on trust.
- Thirdly, the transmission to the real economy can occur through a combination of a fall in trust in the safety of deposits, disruptions to the payment system and/or the credit provision.

The fact that banks are financial intermediaries and investors in financial markets can aggravate the transmission of financial risk, but the importance of this aspect is dwarfed by the importance of a bank's specific channels listed earlier.

For insurers, none of the bank-specific channels apply. Liabilities represent no means of payment, are less fugitive and mostly longer-term, assets are broadly matched and there is no 'inter-insurance market' as there is an interbank market with direct balance sheet exposure across institutions. The sole potential channel of transmission lies in the role of financial intermediary and investor. Here, an insurer, like any large investor facing challenges in asset management, might be able to contribute to strain in the financial system. If that is the case, the solution to containing risk may lie less in the nature of the institution than in the na-

Figure 2

Banks and insurers: four main differences in systemic linkages



Source: Author's compilation.

[11] See de Bandt and Hartmann (2000) for a pre-crisis overview; and CGFS (2010) as well as IMF (2011) for post-crisis overviews.

ture and functioning of financial markets or the nature of the accounting. The issue of transmission channels of insurance-originated systemic risk is still open.

7. *The systemic interconnection of insurers is not yet well identified and is certainly different from banks.* There are four essential distinctions with regard to the systemic interaction between banks and insurers (Thimann 2014), illustrated in Figure 2.

- Banks are institutionally interconnected; they operate through direct balance sheet exposure to each other in the form of unsecured and secured interbank lending. These direct and important interconnections between banking institutions are an intrinsic feature of banks' operating models, and they serve as a protection against liquidity risk that is paramount in banking (Allen and Gale 2000). They establish the 'banking system' – a structure of directly interrelated parts. The fact that there is a 'central bank' further underscores to which degree banks function – and can only function – within a system. It is these institutional interconnections and their fragility that constitute the primary channel of contagion within the banking system. Insurers are not institutionally interconnected; they are stand-alone operators. There is no direct balance sheet link between the systemically important insurers. No 'insurance system', and no 'central insurer' comparable to a central bank exist. Hence, there is also no *direct* relationship of contagion among insurers as there is for banks.[12]
- Banks engage in maturity transformation combined with leverage; they transform short-term liabilities into longer-term assets. As returns are usually increasing with rising duration, banks have an incentive to stretch this duration gap outwards. Insurers pursue a liability-driven investment approach, trying to match their asset profile with their liability profile. As insurers can estimate the duration of liabilities, they will, in principle, seek to buy assets with a corresponding maturity, which also means that they generally can hold assets to maturity. This makes them react very differently to downward market pressure compared with a short-term funded or leveraged investor.
- Liquidity risk is inherent in banking, but not in insurance. Banks risk being liquidity-short; insurers are liquidity-rich. Deposits are the largest items on banks' balance sheets. No bank has enough buffers to stem such an outflow, and systemic risk and contagion often start from liquidity shortages. Insurance liabilities are less fugitive. The liabilities for insurance of general protection, property, casualty and health are not callable at will. They relate to exogenous events that policy-holders do not influence and that are not correlated with financial market cycles. The part of liabilities that are theoretically callable concerns those parts of life insurance business that are not annuities (which cannot be withdrawn early). But there are penalties for early withdrawal, and tax benefits might vanish. In a crisis, where financial and economic uncertainty rise, it is also not evident that policy-holders would cancel life insurance policies that assure them future incomes.
- Banks deal with the payment function, they create credit and their liabilities constitute money. If the function of money, credit and payments is impaired, immediate consequences for the economy arise. Through the credit multiplier process, banks are a key component in the transmission of monetary policy impulses to the real economy, and they organise the payment function. Insurers do not create credit, and their liabilities do not constitute money, but an illiquid financial claim. Moreover, insurers are not an organisational part of the payments systems.

8. *Leverage – a key concern for systemic risk – is inherent in banking and quasi-absent in insurance.* "Banking is all about leverage", says Stefan Ingves, chair of the Basel Committee for Banking Supervision. "Banks are highly leveraged financial institutions that are in the business of facilitating leverage for others" (Ingves 2014). Leverage is the key challenge for addressing systemic risk because it creates boom-and-bust debt cycles.

Insurers do issue and hold debt but they do not do so to purchase financial assets to make leveraged returns. They do so mainly to finance mergers and acquisitions, and to a lesser extent, to establish a cash buffer if needed or to buy fixed assets (buildings, etc.). Hence, the main counterparts of insurers' debt on the asset side are goodwill, cash or fixed assets.

9. *Insurers have larger loss-absorption capacities than banks in case of crisis.* For banks, the loss absorbency

[12] It is sometimes argued that insurers and reinsurers together constitute a system that resembles the banking system. But such a parallel overlooks the functions and size of reinsurers. Reinsurers are not first risk-takers at the same level as front-line insurers, but act as a backstop. This means that they are not transmitters, but absorbers of risk materialization. In addition, the size of the links is far from what it is in banking. Insurers only pass on a fraction of their risk to reinsurers, so that the linkages between the two levels are relatively limited.

on the liability side is mostly confined to the equity tranche, and it is very challenging and potentially destabilising to raise the degree of loss absorption, especially as far as deposits, the bulk of liabilities, are concerned.

In insurance, the bail-in is built in: there is an inherent loss absorption capacity in the form of beneficiary participation, which constitutes a significant part of life insurance contracts. In these contracts, policyholders participate in the gains and losses of the investment linked to their policies. Hence, there is a built-in loss absorbency function in insurance on top of the equity tranche.

10. *The linchpin of bank systemic regulation is capital; it is not evident that this is the linchpin for insurance regulation.* For banks, higher capital requirements are effective in addressing systemic risk because, in addition to controlling leverage, they raise the costs of balance sheet growth and augment the immediate loss absorption capacity of individual institutions to shocks, which, in turn, limits the pass-through of such shocks to the system. This is the key reason why higher capital requirements are a tool for internalising systemic risk for banks. Higher capital buffers are 'front-stop' systemic risk.

In insurance, capital has a very different role. It serves essentially to ensure that the last policy-holder is being paid (Plantin and Rochet 2007). Firstly, all assets are wound down, which typically can take many years, and to be sure that there are enough assets to eventually also cover the liabilities of the last policy-holder under adverse market conditions, regulators demand more assets than liabilities from the outset, which is what establishes capital. Hence, whereas in banking, capital enters the sequence of adverse events at the beginning, in insurance it enters the sequence of adverse events at the end.

This difference has an important implication for systemic regulation because it changes the effectiveness of capital surcharges. Raising capital levels for banks increases their buffer to withstand shocks and helps to prevent a chain of systemic contagion. It also reduces the likelihood of adverse shocks *ex ante,* by reducing leverage, and thus the propensity to cycles of bubbles and crashes.

Raising capital for insurers, in contrast, essentially means that there are (even) more assets available to cover the liability stream than otherwise, but such additional capital will be consumed, if at all, at the end of the process of distress and possible resolution and has no crisis prevention or stabilisation function.

Conclusions

Insurers operate at the intersection of three circles: the economy – because managing risks is an economic task; finance – because they use financial tools to manage risks; and society – because their offerings are closely dependent on the risk and time preferences of individuals and the structure of the social system.

There is no doubt that insurers are an important component of the financial sector and that large insurance companies are both significant financial intermediaries and important investors in financial markets. There is also no doubt that they play an essential economic role, by allowing firms and households to manage economic risk. In that sense, insurers are systemically important for the economy because they provide an essential economic function.

What is less evident, and what needs further study, is the extent to which insurers can be originators or transmitters of systemic risk in the financial system – the risk that causes large parts of the system to fail. This question warrants more research into the sources and transmission channels of risk. Such research should be rooted in the business model and balance sheet structures of insurance companies, which clearly differ from those of banks.

Advancing the regulation of 'systemic risk' in insurance without such an explicit understanding of sources and transmission channels could end up missing the point: it might not address the right aspects and it might not use the right tools. In particular, given the different economic and financial role of capital compared with banking, it is not evident that capital surcharges would be the preferred instruments in insurance.

For example, if a potential 'run' on an insurer through the massive withdrawal of life insurance liabilities is an issue of concern, it is not clear that higher capital charges would prevent such a scenario; by contrast, regulation that reduces the fluidity of such liabilities by balancing individual with collective in-

terests might be a more effective option. Equally, if the holdings of bank bonds or bank equity might be a concern of insurance regulators as it induces interconnectedness, limiting such cross-holdings to avoid excesses may be more effective than demanding more capital overall.

Advancing the global regulation of insurance reflects commendable and relevant motivations. But advancing such regulation while disregarding the more 'international' rather than global nature of important parts of the insurance business or failing to remove important differences in accounting, regulatory and supervisory standards, especially across the Atlantic, would not achieve the aim of a level playing field. It may even aggravate distortions and create new fault lines in the present level playing fields between systemic, internationally active and national insurers.

Insurance regulators are fully aware of these issues. They should be given the time and the analysis to address them in the right way and in the right sequence. More research on the macroeconomic and financial role of insurers would be very welcome.

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Dynamics and Time Frame of Post War Recovery Required for Compensating Civil War Economic Losses

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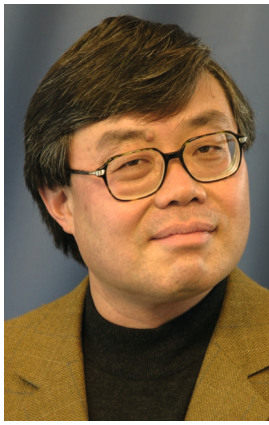

Introduction

Although the number of civil wars has gradually declined over the last twenty-five years, they still significantly threaten the development of some countries and regions, especially in Africa and Asia (World Bank 2011). Civil war is mostly caused by poverty,[3] and further destroys existing physical and human capital, while damaging social and political institutions at the same time. The failure of post-war economic recovery, in turn, increases the risk of a poverty-conflict trap recurring and pushing the country back into civil conflict, thus restarting the cycle all over again (Collier 1999; Collier *et al.* 2003).[4] Following this logic, the vicious circle created by civil war appears to be seriously detrimental to any country's economic development. Moreover, civil wars are deemed contagious, since refuge flows, diseases, lawlessness, and the illicit trading in drugs, arms and minerals generate some negative cross-border spillover effects into neighbouring countries (Murdoch and Sandler 2002 and 2004; Collier *et al.* 2003; Blattmann and Miguel 2010; Bosker and de Ree 2010). Such transnational spreads of negative effects tend to accelerate an economic downturn in the entire region, which, in turn, also makes it difficult for the initial victim to stage a rapid post-war recovery due to its close economic relationship with its surroundings.

There have been a number of serious empirical investigations into the immediate economic loss sustained during a civil war. Collier (1999) argues that during civil war, countries appear to grow around 2.2 percentage points more slowly than during times of peace. Consequently, after a typical civil war lasting seven years, incomes are approximately 15 percent lower than if the war had not taken place. The cumulative loss of income during the war is equal to around 60 percent of a pre-war year's GDP. According to Stewart *et al.* (2001), fourteen (among the investigated 18) countries suffered from the 3.3 percent reduction in the average annual per capita GNP during the conflict. In other words, the cumulative loss of income during the 7 years of warfare amounted to over 85 percent of a pre-war year's per capita GNP level in these 14 civil war victim countries. Furthermore, the World Bank (2011) estimates the average economic cost of civil war to be over 30 years of GDP growth for a medium-size developing country.

Apart from the destruction of production factors (like human resources, production facilities and physical infrastructure) already mentioned above, some additional reasons for the acceleration of economic decline caused by civil wars include in particular: (a) the crowding out of government expenditures for provision of infrastructure and welfare programmes through the expansion of military spending; and (b) human and capital flight – frightened people escape from their own country and protect their assets by shifting them abroad (Murdoch and Sandler 2004). According to Knight, Loayza and Villanueva (1996) and Collier *et al.* (2003), the GDP share of military expenditure grows from 2.8 percent to 5.0 percent on average, while the additional increase in military spending by 2.2 percent of GDP, sustained over the seven years of civil war, generally leads to a permanent loss of around 2 percent of GDP. For a typical civil-war country, as Collier and Sambanis (2002) suggest, the average share of private wealth held in foreign countries amounts to 9 percent prior to the conflict, but

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[3] According to the World Bank (2011), a country that suffered from major violence between 1981 and 2005 has a poverty rate that is 21 percentage points higher than that of a country that does not experience such event at the same period of time.
[4] "[…] conflicts often are not one-off events, but are ongoing and repeated: 90 percent of the last decade's civil wars occurred in countries that had already had a civil war in the last 30 years" (World Bank 2011, 2).

this share rises to around 20 percent by the end of the civil war.

As already mentioned above, civil war tends to not only reduce a country's own growth rate, but also to significantly harm economic development across an entire region (Buhaug and Gleditsch 2008). As most countries have several neighbours, the negative neighbourhood effects of civil war have often been seen as a major multiplier of the economic cost caused by the conflict (Easterly and Levine 1998). Apart from the collateral damage to infrastructure and capital caused by the battles fought in neighbouring states, especially when battles take place close to the border, major reasons for the reduction in neighbours' growth rates encompass, for example: (i) immediate economic burdens related to the refugee population; (ii) increases in arms and military expenditure caused by the threat from the civil war country; (iii) disruption of trade and growing international transport costs, especially for landlocked countries; and (iv) the bad reputation gained by the conflict region for (foreign) investors (Murdoch and Sandler 2004). According to Collier *et al.* (2003), having a neighbour at war reduces the annual growth rate by around 0.5 percentage points. In addition "a country making development advances, such as Tanzania, loses an estimated 0.7 percent of GDP every year for each neighbour in conflict" (World Bank 2011, 5). Therefore, policies to bring peace to civil-war-torn countries have a positive return not only for the conflict-ridden country, but also for its neighbours.

The rebound in post-war GDP growth appears to be less surprising. "War disrupts economic activity, contracting income. Thus, the mere resumption of pre-war economic activity would result in a relatively high post-war economic growth rate, given the fact of computing the growth rate over a low base" (Davies 2008, 4). To the extent that civil war's impact is limited to the destruction of capital, Bellows and Miguel (2006) suggest that the neoclassical model predicts the rapid post-war growth in the short-to-medium term (because the marginal productivity of capital would be high due to a reduced capital stock), converging back to steady-state growth. Peace after the civil war may also provide an additional dividend, since it tends to reverse the flight of capital and labour which would, in turn, accelerate economic growth (Collier 1999).

On the other hand, Collier (1999) argues that "the restoration of peace [after civil war] does not necessarily produce a dividend. Peace does not recreate either the fiscal or the risk characteristics of the pre-war economy, [since] there is a higher burden of military expenditure and a greater risk of renewed war. The desired capital stock is consequently lower than had there been no war, although being higher than that desired during the war. In addition, if a civil war lasts only a year, it was empirically found to cause a loss of growth during the first five years of peace of 2.1 percent per annum, a loss not significantly different from that sustained had the war continued. However, if the war has been sufficiently long, the capital stock will have adjusted to a level below that desired in post-war conditions. In this case, capital repatriation enables the economy to grow more rapidly than during the pre-war period" (Collier 1999, 181).

There are also some alternative views that civil wars may lead to a 'creative destruction' of the traditional economic, social and political system, which eventually leads to higher rapid growth in the long run. Post-civil war developments are often characterised by multiple transition processes – the transition from war to peace generally accompanied by democratisation, decentralisation and market liberalisation (Reychler and Langer 2006). Therefore a success in the timely transformation of war-torn societies into peaceful and stable ones could well provide a foundation for rapid long-term economic growth.[5] According to Bellows and Miguel (2006), civil war has had a positive long-term impact on institutions in some parts of Sierra Leone. If this were true for the country as a whole, it could imply a higher long-term growth rate than would have occurred in the absence of war (see also Davies 2008). Moreover, according to the popular endogenous growth theory, a country whose capital stock is destroyed by a civil war tends to compensate for its loss with new capital that embodies more modern technology, which, in turn, triggers the long-term growth rates of total factor productivity and GDP per capita (Aghion and Howitt 1998). In this context Kang and Meernik (2005) see a rapid economic recovery in the immediate post-civil war period as absolutely necessary in order to realise stable long-term economic growth, while international aid accelerates a short-term recovery (Flores and Nooruddin 2009). If creative destruction occurs, warfare can also eventually be expected to have positive long-term external effects for neighbouring countries as well.

[5] Tilly (1975) shows how war promoted state formation and nation building in Europe historically, ultimately strengthening institutions.

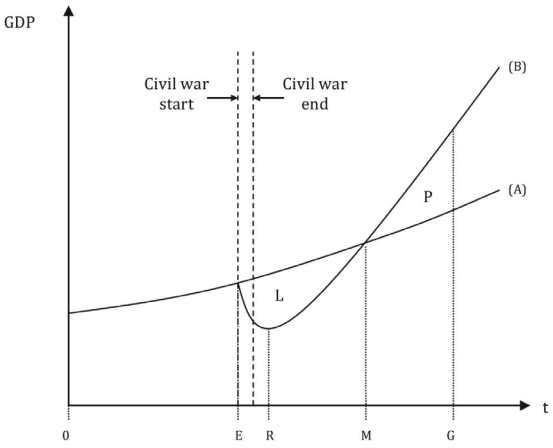
Are civil wars associated with long-term growth optimism? Very little research has been carried out to date aimed at identifying whether and how rapidly victims of civil war recover from such serious negative events in the sense that output losses are reversed (see also Cerra and Saxena 2008). The main aim of this article is to deliver some possible answers to these crucial questions. More precisely, this study attempts to estimate, based on a simple present value model, the time frame and the dynamics of post-war recovery required to compensate for the civil-war GDP losses in several selected countries like Algeria, Angola, Lebanon, Mozambique, Sierra Leone and Uganda. All of them experienced the rebound of GDP growth after the years of continuous economic decline caused by the civil war, but the dynamics of recovery differ from one country to another. Instead of highlighting generalised empirical facts identified based on a large number of country samples, our analysis primarily emphasises the country-specific development trends and characteristics in these survey nations.

This study is structured as follows: section 2 describes the present value model adopted to compare the potential GDP loss caused by a civil war and the potential gain led by the strong post-war economic recovery. The third section delivers some empirical findings explaining different recovery patterns in the investigated victim countries and examines the dynamics and time frames of post-war development needed to compensate for civil war losses. The final section summarises the major findings and offers some conclusions.

Model

This study considers the simple case that a country experiences a civil war only once and has a rebound in economic growth caused by this event at year *R*, whereas the potential post-war economic recovery thereafter is much stronger than the potential growth trend expected in the absence of civil war.[6] Under the further *(a priori)* assumption that the economy starts to decline simultaneously as the civil war begins, the polynomial function *(B)* in Figure 1 shows the potential GDP growth trend after the civil war beginning at year *E*,[7] while the polynomial function *(A)* demonstrates the anticipated potential GDP growth trend in

Figure 1
Economic recovery from civil war: a general approach



Source: Authors' conception.

the absence of civil war, which is delivered under the consideration of the GDP changes in the pre-war years. Moreover, Figure 1 illustrates the case that economic decline continues until *R*, although the civil war ends earlier. Consequently the economic rebound emerges immediately after *R*. Since the function *(B)* is expected to run more rapidly than *(A)* after *R*, a break-even point between the two GDP growth functions can be expected at the year *M*. In this case one can calculate the economic loss caused by civil war, which is denoted by the area *L* between the years *E* and *M*, and compare it with the economic gain resulting from the difference between the functions *(B)* and *(A)* as shown by the area *P* between *M* and a given year *G* in Figure 1.

For the measurement of the economic loss, as well as the economic gain mentioned above, we adopt the simple present value model. The present value of a country's GDP loss caused by the civil war on the year that the civil war begins *(t = E)* can be then expressed as

$$(1)\ PV_{L,t=E} = \int_{E}^{M}(A)e^{-r(t-E)}dt - \int_{E}^{M}(B)e^{-r(t-E)}dt$$

where *A* = potential GDP growth trend in the absence of civil war over the course of time *t; B* = potential GDP growth trend after civil war begins – also as a function of *t; r* = discount rate; and *t* = year.

On the other hand, equation (2) shows the present value of economic gain at *t = M* which results from the difference between the anticipated GDP growth functions *(B)* and *(A)* within the time interval from *M* to *G*.

[6] To be sure previous experiences, for example those in Liberia, show that the post-war peace is very fragile, the fact that has often led to the multiple civil wars.
[7] Here we assume that the economic downturn starts as the civil war begins.

$$(2)\ PV_{P,t=M} = \int_{M}^{G}(B)e^{-r(t-M)}dt - \int_{M}^{G}(A)e^{-r(t-M)}dt$$

Hence, measured in terms of the present value at $t = E$, a complete compensation for the economic loss caused by the civil war takes place by the rapid economic recovery within a given period of time from M to G^*, when

$$(3)\ PV_{L,t=E} - \frac{1}{(1+r)^{M-E}}PV_{P^*,t=M} = \int_{E}^{M}(A)e^{-r(t-E)}dt - \int_{E}^{M}(B)e^{-r(t-E)}dt - \frac{1}{(1+r)^{M-E}}\left\{\int_{M}^{G^*}(B)e^{-r(t-M)}dt - \int_{M}^{G^*}(A)e^{-r(t-M)}dt\right\} = 0$$

where $G^* - M$ denotes the time period required for the full compensation of the GDP losses.

Empirical findings

For the empirical analysis GDP data expressed in terms of the '1990 international dollars' from 1950 to 2008 are used. Such internationally comparable GDP data have been collected, estimated and systematically compiled by A. Maddison – see http://www.ggdc.net/maddison/. This database enables the identification of those Asian and African countries that experienced a civil war in the observed time period that had a particularly serious negative impact on GDP development. As already mentioned above, civil wars not only destroy physical capital, but also tend to reduce population size significantly since such wars kill people and, at the same time, cause massive cross-border human flights. For this reason it appears to be more sensible to consider the total GDP change than that in GDP per capita, when examining the negative economic effects of such wars.

As was the case in Figure 1, the two vertical lines in Figure 2 indicate the start and the end of the civil war (see different civil war durations in the investigated countries in Table 1), while the gray line illustrates the changes in actual GDP values between 1950 and 2008. In the following country figures the year 1950 is set as the year 0, and in the selection of survey countries it was borne in mind that the pre-war GDP trend function *(A)* and the GDP trend function *(B)* since around the outbreak of the civil war were estimated based on sufficient observations. A decline in GDP started one-year prior to the beginning of the war in most investigated African countries (Algeria, Angola, Mozambique and Uganda), because there was already considerable unrest in the country, which significantly impeded economic development (Table 1). Therefore, when identifying the GDP trend function *(B)* and calculating the civil-war economic loss, the GDP reductions occurring in the year before the warfare began should also be adequately considered. Yet Lebanon appears to be an exception: in this country the economic downturn did not emerge until five years after the civil war started in 1974.

Contrary to the conventional wisdom that an economic upturn cannot be expected to emerge until the post-war years, Table 1 and Figure 2 clearly suggest that in all of the investigated countries, except for Lebanon, such GDP rebounds took place within the civil war period (i.e. while the conflict was still in process). For example, in Algeria – the country experienced a civil war between 1991 and 2002 – GDP started to decline in 1990 and reached a trough point *R* (with a GDP level of 71.9 billion 1990 international

Table 1

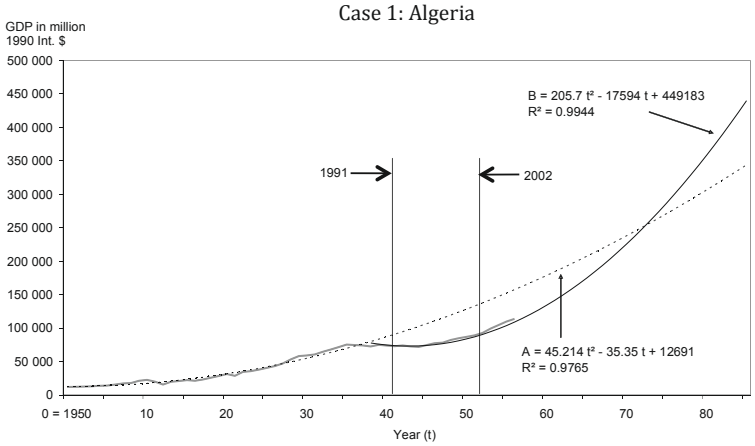
Civil war duration and some immediate economic consequences

	Civil war duration	Start of economic down-turn caused by civil war		Actual economic trough led by civil war		Actual GDP in 2008 (Billion 1990 intern. dollars)	Estimated break-even point	
		Starting year (*E*)	Actual GDP at *E* (Billion 1990 intern. dollars)	Trough year (*R*)	Actual GDP at *R* (Billion 1990 intern. dollars)		Year (*M*)	Number of years taking between civil war end and *M*
Algeria	1991–2002	1990	73.9	1994	71.9	118.9	2022	19
Angola	1975–2002	1974	10.2	1993	5.2	21.1	2059	57
Lebanon	1975–1990	1979	8.9	1988	6.1	17.7	2071	81
Mozambique	1977–1992	1976	13.6	1985	12.0	46.0	2034	42
Sierra Leone	1991–2002	1991	4.3	1999	1.9	4.3	2010	8
Uganda	1979–1986	1978	8.3	1980	7.1	31.6	1997	11

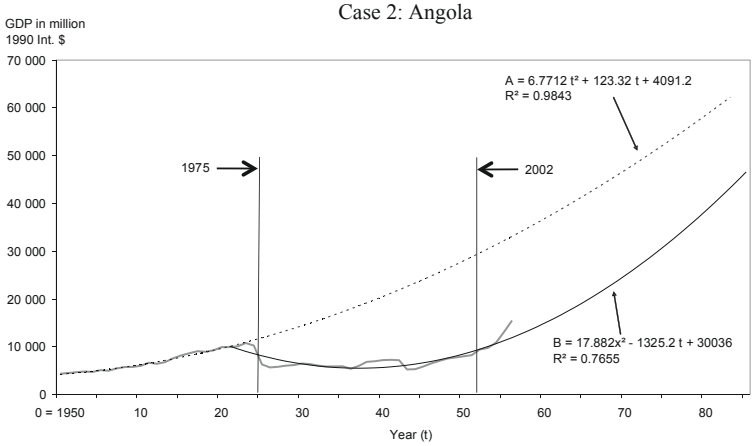
Source: World Bank (2011); Collier *et al*. (2003); historical statistics compiled by A. Maddison (http://www.ggdc.net/maddison/); authors' own calculation.

Figure 2
Economic recovery from civil war: country cases

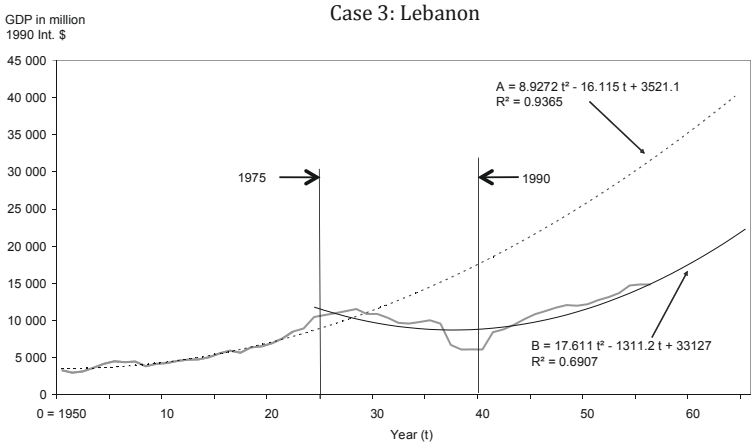
Case 1: Algeria



Case 2: Angola



Case 3: Lebanon



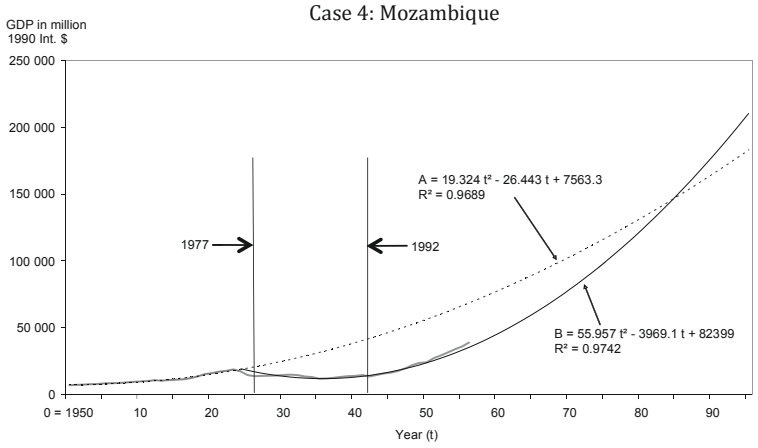
dollars) in 1994. In other words, GDP has gradually grown since 1995 in this country (see Table 1). This interesting finding indicates among others that, as a civil war starts to lose intensity and slowly heads towards a ceasefire, the extent of additional damage to production factors in a year tends to gradually decrease, and that the adjustment and responsiveness of economic activities to the emergence of a political thaw and/or the signs of possible peace appear to be extremely speedy within periods of civil war.

To compare the time frame and the dynamics of post-war recovery required to compensate for the civil-war GDP losses in selected six countries, the identification of the break-even-year *M* appears to be the first task, where the anticipated two GDP growth trend functions *(A)* and *(B)* intersect each other. Regardless of the investigated countries, a uniform interest rate of 5 percent is adopted as the discount rate for the purpose of computing the present value of GDP losses and gains at the initial year of the economic downturn. Repeatedly, apart from the speed and scope of economic decline led by the civil war, the variation in the growth dynamics of the trend functions *(A)* and *(B)*, particularly after the rebound, determines such break-even-years in the individual countries.

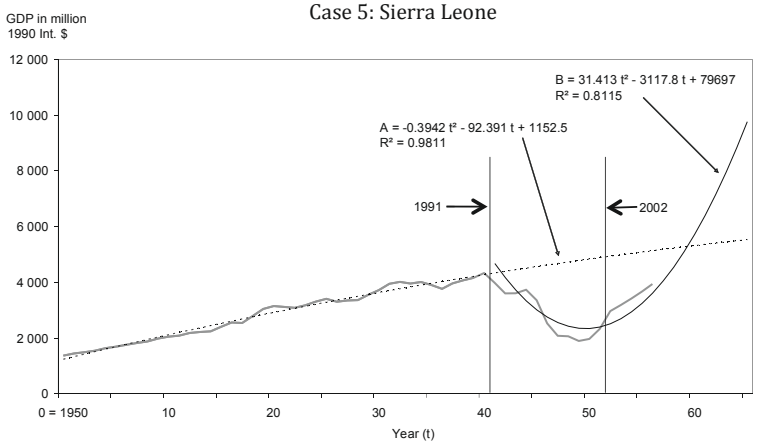
Firstly, in countries like Angola, Mozambique and Lebanon the actual (i.e. observed until 2008) and also anticipated GDP development thereafter – expressed in terms of the function *(B)* – appears far too weak to return to the pre-war growth trend *(A)* in the foreseeable future: the intersecting between the two trend functions is not anticipated to occur in Mozambique until 2034, in Angola until 2059, and in Lebanon until 2071. In other words, such a break-even point will not be reached until 81 years after the end of civil war in Lebanon, while the comparable time frame will be 57 years in Angola and 42 years in Mozambique (see Table 1). After all these individual years, the aforementioned countries can start to slowly compensate for their economic losses. With the adopted interest rate of 5 percent for discounting future GDP level, the present value of total GDP loss at the starting year of the economic downturn caused by the warfare is estimated to reach approximately 150.7, 220.8 and

Figure 2 (continued)

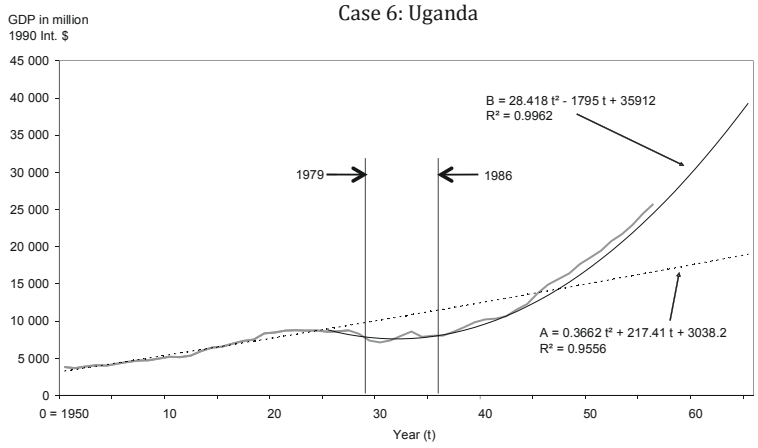
Case 4: Mozambique



Case 5: Sierra Leone



Case 6: Uganda



Note: Two vertical lines indicate the start and the end of the civil war. The gray line shows the actual GDP values between 1950 and 2008.

Source: Table 2; historical statistics compiled by A. Maddison (http://www.ggdc.net/maddison/); authors' own calculation.

346.2 billion 1990 international dollars in Lebanon, Angola and Mozambique respectively (see Table 2). The huge size of GDP loss in these countries is clearly highlighted by comparing such a loss in a country with the annual GDP level of the same country at the starting year of the economic downturn. For example, Lebanon's GDP amounted to 8.9 billion 1990 international dollars in 1979, compared to Angola's 10.2 and Mozambique's 14.6 billion 1990 international dollars in 1974 and 1975, respectively (see Table 1). Namely, at the starting year of the economic downturn caused by the civil war, the share of actual annual GDP measured in terms of the calculated present value of total GDP loss ranges solely from 4 percent to 6 percent in these countries. From these less favorable empirical facts, one can easily expect the fatal consequences of large scale GDP losses caused by the civil war in these countries: the compensation of civil war economic loss is hardly possible in the foreseeable future (see Table 2).

On the other hand, countries like Algeria, Sierra Leone, and Uganda experienced significantly stronger GDP growth in function *(B)* after the rebound, compared to that demonstrated by the trend function *(A)* in the absence of civil war. As a result, a shorter time frame is required to reach the break-even-year *M*, which prevails in Uganda in 1997 and in Sierra Leone in 2010, while such intersection is likely to take place in Algeria in 2022. In other words, such a break-even point will be given 19 years after the end of civil war in Algeria, while the comparable time-frame is anticipated to reach 8 years in Sierra Leone and 11 years in Uganda (see also Table 1). In addition, the present value of total GDP loss at the starting year of economic downturn appears to be rather low, amounting to approximately 17.6 and 27.8 billion 1990 international dollars in Sierra Leone and Uganda, respectively. Algeria is an exception partly due to its relatively large economic power: the country's present value of total GDP loss caused by the civ-

Table 2

Size of civil war loss calculated based on two potential GDP growth trends

	Algeria	Angola	Lebanon
Potential GDP growth trend in the absence of civil war (A)	$A = 45.214t^2 - 35.35t + 12691$ $R^2 = 0.9765$ $\frac{dA}{dt} = 90.428t - 35.35$	$A = 6.7712t^2 + 123.32t + 4091.2$ $R^2 = 0.9843$ $\frac{dA}{dt} = 13.5424t + 123.32$	$A = 8.9272t^2 - 16.115t + 3521.1$ $R^2 = 0.9365$ $\frac{dA}{dt} = 17.8544t - 16.115$
Potential GDP growth trend after the civil war begin (B)	$B = 205.7t^2 - 17595t + 449183$ $R^2 = 0.9944$ $\frac{dB}{dt} = 411.4t - 17595$	$B = 17.882t^2 - 1325.2t + 30036$ $R^2 = 0.7655$ $\frac{dB}{dt} = 35.764t - 1325.2$	$B = 17.611t^2 - 1311.2t + 33127$ $R^2 = 0.6907$ $\frac{dB}{dt} = 35.222t - 1311.2$
Estimated present value of civil war loss (L) in billion 1990 International $	455.0	220.8	150.7
Break-even-year (M) Number of years after M required to compensate the civil war loss	2022 42	2059 ∞	2071 ∞
	Mozambique	Sierra Leone	Uganda
Potential GDP growth trend in the absence of civil war (A)	$A = 19.324t^2 - 26.443t + 7563.3$ $R^2 = 0.9689$ $\frac{dA}{dt} = 28.648t - 26.443$	$A = -0.3942t^2 - 92.391t + 1152.5$ $R^2 = 0.9811$ $\frac{dA}{dt} = -0.7884t - 92.391$	$A = 0.3662t^2 + 217.41t + 3038.2$ $R^2 = 0.9556$ $\frac{dA}{dt} = 0.7324t + 217.41$
Potential GDP growth trend after the civil war begin (B)	$B = 55.957t^2 - 3969.1t + 82399$ $R^2 = 0.9742$ $\frac{dB}{dt} = 111.914t - 3969.1$	$B = 31.413t^2 - 3117.8t + 79697$ $R^2 = 0.8115$ $\frac{dB}{dt} = 62.826t - 3117.8$	$B = 28.418t^2 - 1795t + 35912$ $R^2 = 0.9962$ $\frac{dB}{dt} = 56.836t - 1795$
Estimated present value of civil war loss (L) in billion 1990 International $	346.2	17.6	27.8
Break-even-year (M) Number of years after M required to compensate the civil war loss	2034 ∞	2010 13	1997 18

Source: Authors' own calculation.

il war reaches around 455.0 billion 1990 international dollars. The share of the annual GDP level – e.g. Sierra Leone: 4.3 billion 1990 international dollars (in 1990); Uganda: 8.3 billion 1990 international dollars (in 1978); and Algeria: 73.9 billion 1990 international dollars (in 1990) – expressed in terms of the present value of total GDP loss at the corresponding starting year of economic downturn amounts to approximately 25 percent and 30 percent in Sierra Leone and Uganda, respectively, while the same share reaches around 16 percent in Algeria.

All of these conditions appear to make compensation for GDP loss rather 'manageable' in these countries within a foreseeable period of time after the break-even year mentioned above. Full-scale compensation for GDP loss is expected to take place in Algeria in 2064 (i.e. 62 years after the end of civil war in 2002), Sierra Leone in 2022 (i.e. 20 years after the end of civil war in 2002), and Uganda in 2014 (i.e. 28 years after the end of civil war in 1986). Nevertheless, compared to the civil war durations of 7 to 11 years in these countries (i.e. from 1979 to 1986 in Uganda; and from 1991 to 2002 in Algeria and Sierra Leone), those computed 'much-longer' time periods that are required to compensate for the GDP losses again indicate the fact that an economic recovery from such wars is an expensive and painful process and constitutes a serious challenge for the victims.

Conclusion

Based on a simple present value model and taking into account the nation-specific pre and post-war development trends in the selected countries (Algeria, Angola, Lebanon, Mozambique, Sierra Leone and Uganda), this study delivers some novel empirical findings related to the time frame and the dynamics of post-war recovery required to compensate for the civil-war GDP losses. At first glance, all these victims have achieved a more favorable post-war GDP growth level compared to their pre-war economic development, but this is not the end of story for several reasons.

Firstly, contrary to the widely accepted notion that an economic upturn should not be expected until the years after the end of warfare, this study clearly demonstrates the possibility of a GDP rebound emerging in many countries *within* the civil war period. Apart from the fact that, as the civil war starts to lose intensity and heads towards a ceasefire, the extent to which the production factors get additionally damaged in a year tends to decrease, this finding also suggests the speedy adjustment and responsiveness of economic activities to the emergence of political thaw and/or the signs of possible peace within the civil war periods.

In this study the size of GDP loss caused by civil war is measured on the basis of differences between the (estimated) potential GDP growth trend since 1950 under the assumed absence of civil war and the (estimated) potential GDP growth trend after the beginning of civil war, while the GDP decline usually starts one-year prior to the war start in survey countries. More precisely, apart from the conflict duration, and the speed and scope of immediate economic decline caused by civil war, the variation in the GDP growth dynamics of both trends mentioned above (i.e. also the post-war recovery trend after the rebound), as well as the expected intersect year of these two growth functions (break-even-year), determine the economic loss in the individual victim countries. In addition to a discount rate of 5 percent, GDP data expressed in terms of 1990 international dollars from 1950 to 2008 are used to calculate the present value of civil war loss at the starting year of economic downturn, which is then compared to that of economic gain triggered by the more rapid post-war recovery in the same year.

According to our calculations, the intersection between the two GDP growth functions will occur 81 years after the end of civil war in Lebanon, while the comparable time frame amounts to 57 years in Angola and 42 years in Mozambique. The present value of GDP loss reaches around 150.7, 220.8 and 346.2 billion 1990 international dollars in Lebanon, Angola and Mozambique, respectively: such computed civil war losses are 16.9, 21.6 and 25.5 times higher than the annual GDP level of the year of economic decline in the countries in the same order. In these countries such extremely huge civil war economic losses can hardly be compensated for by the post-war recovery in the foreseeable future.

By comparison Algeria, Sierra Leone and Uganda experienced a stronger GDP growth after the rebound. Consequently, the break-even between the two potential growth trend functions will take place 19 years after the end of the civil war in Algeria, while the comparable time frame will span 8 years in Sierra Leone and 11 years in Uganda. The computed present value of total GDP loss at the starting year of economic decline is also lower, amounting to around 17.6 and

27.8 billion 1990 international dollars in Sierra Leone and Uganda respectively, compared to 455.0 billion 1990 international dollars in Algeria. Such civil war economic losses are 3.3, 4.1 and 6.2 times higher than the annual GDP level of the year of economic decline in Uganda, Sierra Leone and Algeria respectively. All of these pre-conditions appear to make compensation for the GDP loss achievable within a foreseeable period of time: such an event is likely to occur in Algeria in 2064 (62 years after the end of the civil war in 2002), in Sierra Leone in 2022 (20 years after the end of the civil war in 2002), and in Uganda in 2014 (28 years after the end of the civil war in 1986). Yet, compared to the civil war durations of 7 to 11 years in these countries, those longer time frames required for to compensate for war-based losses demonstrate again that a successful post-war economic recovery is not only a painful, but also an extremely challenging process for the victim countries.

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How Do Economic Experts Assess the Effects of Large-scale Government Bond Purchases by Central Banks in the Short to Medium Term?

Michael Kleemann and Elisabeth Wieland[1]

In response to the financial and economic crisis of 2007/08 and the following sluggish recovery, major central banks have lowered interest rates to the zero lower bound and have adopted unconventional monetary policies to provide additional stimulus. Although highly debated, one of those unconventional measures was central banks massively buying government bonds in secondary markets. Examples of large-scale government bond purchasing programmes are given by the Federal Reserve, the Bank of England, the Bank of Japan, and the ECB. In April 2014, the Ifo World Economic Survey (WES) asked about 1,000 economic experts globally to assess the short to medium term effects of such programmes. As revealed by the survey results presented in this article, for the short-term assessments are rather positive and agreement among experts is quite high. However, for the medium-term potential risks gain importance and higher disagreement in expert assessments within and across regions may reflect both considerable uncertainty and regional differences in economic beliefs.

The IMF distinguishes between two different objectives that central banks' large-scale government bond purchases (LSGP) and related unconventional policy measures can contribute to (see IMF 2013). On the one hand, increasing demand for government bonds can be aimed at lowering long-term yields and therefore easing monetary policy conditions, despite the zero lower bound. On the other hand, bond purchasing programmes can be targeted to resolve financial market distortions and to ensure a proper monetary policy transmission mechanism (as in the case of the ECB's OMT programme). Overall, the effects of bond-buying programmes on the real economy are rather uncertain, since these effects materialise over a longer horizon and are hard to disentangle from other influencing factors (see, for example, Williams 2014).

In April 2014, a special question in the WES asked the economic experts surveyed to evaluate given statements on the possible effects of central banks' LSGPs. Experts could indicate whether they (dis-)agree with a given opinion on a four-point scale ("strongly agree", "rather agree", "rather disagree", "strongly disagree"). The statements referred to the broad effects of LSGPs in the areas of monetary and fiscal policy, overall economic policy, and financial markets. More specifically, the list of statements reads as follows:

"In general, large-scale government bond purchases are likely to…

- …be an effective policy tool to combat deflationary spirals.
- …lead to high inflation in the medium-term due to excess central bank money.
- …reduce public and private sector funding costs.
- …reduce fiscal discipline in the medium-term.
- …allow more time to introduce structural reforms.
- …lead to a loss of central bank independence from fiscal policy.
- …trigger asset price bubbles in the medium-term.
- …prevent short-term irrational overshooting in the financial market.
- …trigger large capital flows into emerging markets, which may probably reverse quickly once the programmes terminate".

Each potential short-term effect of LSGPs was contrasted with a potential medium-term effect as discussed by the general public, such as the trade-off between fighting deflationary spirals in the short-term and the possibility of high inflation in the medium-term due to excess central bank money.

[1] Ifo Institute.

The results of the WES special question across regions are shown in Table 1. The answers are presented as balance statistics, which reflect the difference in the shares of respondents agreeing with a given statement and those who disagree.[2] As far as the effect of LSGPs in the field of *monetary policy* is concerned, respondents worldwide agree that such programmes help to combat deflationary spirals, with the largest approval for this statement in the Near East and Latin America. By contrast, there is a high level of dissent among experts concerning the statement that LSGPs might lead to high inflation in the medium term. While CIS countries and the Near East in particular do not expect excess central bank money to be sterilised on time to prevent high inflation, respondents in North America in particular strongly disagree with the statement.

In the field of *fiscal policy*, economic experts in all regions agree on the effectiveness of LSGPs in reducing public and private sector funding costs. At the same time, the majority of experts (notably in Asia and Oceania) believe that government bond purchases reduce fiscal discipline in the medium term. Only experts in Africa do not agree on balance with this statement.

As far as *overall economic policy* is concerned, experts worldwide agree that LSGPs allow more time for structural reforms. However, there is a high level of disagreement about whether such programmes lead to a loss of central bank independence from fiscal policy, as indicated by the standard deviation of regional balance statistics (reported in the final row of Table 1). Whereas experts in Asia and Europe in particular agree with this statement, experts in Oceania and North America strongly object.

Given the effect of LSGPs on *financial markets*, experts worldwide generally agree that such programmes might lead to asset price bubbles in the medium term. This statement received the highest consensus among respondents, as indicated by the average approval rate across regions. By contrast, there is a high level of dissent concerning the effectiveness of LSGPs in prevent-

[2] Since the categories at the higher and lower end of the response scale were less selected, the two statements on agreement or disagreement ("strongly"/"rather") were summarised without weighting in one category each.

Table 1

Balancing statistics* on the effects of large-scale government bond purchases by central banks

	"In general, large-scale government bond purchases are likely to…"								
	combat deflationary spirals	lead to high inflation in the medium term	reduce public and private sector funding costs	reduce fiscal discipline in the medium term	allow more time for structural reforms	lead to a loss of central bank independence from fiscal policy	trigger asset price bubbles in the medium term	prevent short-term irrational overshooting in the fin. market	trigger large capital flows into emerging markets
	Monetary Policy		*Fiscal Policy*		*Economic Policy*		*Financial Markets*		
Western Europe	28	– 7	43	28	41	28	63	– 11	29
Eastern Europe	31	13	40	49	34	29	34	– 18	31
CIS	33	48	21	34	12	23	42	15	18
North America	48	– 25	42	29	45	– 42	56	– 10	7
Asia	44	33	34	61	24	40	68	5	40
Latin America	51	21	37	30	53	20	27	19	51
Near East	70	45	46	40	83	– 24	54	34	– 7
Oceania	33	15	37	59	68	– 64	56	– 92	81
Africa	42	– 10	37	– 13	37	7	16	33	38
Consensus	42	15	37	35	44	2	46	– 3	32
Disagreement	13	25	7	22	22	37	17	38	25

* The table reports balancing statistics that represent the difference in the shares of respondents (strongly) agreeing with the respective statement and those who (strongly) disagree. Results at the regional level are obtained by weighting the experts' opinion according to the country-specific exports and imports as a share of total world trade. Negative entries are marked red, whereas the highest value for each statement is marked green. Consensus is measured by the mean of regional balances. Disagreement is the standard deviation of regional balance statistics.

Source: Ifo World Economic Survey (WES) II/2014.

ing short-term irrational overshooting in the financial market, with the majority of experts in Oceania, Europe and North America disagreeing. Moreover, this statement was the only one that received a negative consensus value. Finally, experts were asked to assess a statement referring to potential spillovers of domestic LSGPs to emerging markets. Most experts agree that such measures might lead to large capital flows into emerging economies, which may probably reverse quickly once the programmes terminate. Interestingly, the lowest approval rate for this statement is found in the Near East and North America, probably because these economies were barely affected by changes in capital flows in recent years.

Two main messages can be derived from Table 1. Firstly, economic experts worldwide seem to broadly agree on the short-term effects of LSGPs. The majority of experts hold the opinion that massive government bond purchases help to fight deflationary spirals, reduce public and private funding costs and allow more time to introduce structural reforms. One exception is the effectiveness of LSGPs in preventing short-term overshooting in financial markets, as advanced economies tend to disagree with this opinion. Secondly, medium-term effects are generally more uncertain than short-term effects, as reflected by a higher level of disagreement among respondents on a given statement. The greatest degree of uncertainty pertains to the credibility of monetary policy, emphasising the importance for central banks of clearly communicating their unconventional monetary policy strategies. Survey results also indicate challenges for future exit strategies from unconventional measures such as LSGPs, given that experts across regions disagree on their effect on emerging markets capital flows and, given the high degree of consensus that such programmes trigger asset price bubbles in the medium term.

Table 2 shows the balance statistics for selected countries. Experts' opinions in economies whose central banks introduced LSGPs mainly to ease monetary policy conditions at the zero lower bound (United States, Japan and Britain) are rather heterogeneous,

Table 2

Balancing statistics* on the effects of large-scale government bond purchases by central banks in selected countries and regions

		"In general, large-scale government bond purchases are likely to…"								
		combat deflationary spirals	lead to high inflation in the medium term	reduce public and private sector funding costs	reduce fiscal discipline in the medium term	allow more time for structural reforms	lead to a loss of central bank independence from fiscal policy	trigger asset price bubbles in the medium term	prevent short-term irrational overshooting in the fin. market	trigger large capital flows into emerging markets
(No. of responses)		*Monetary Policy*		*Fiscal Policy*		*Economic Policy*		*Financial Markets*		
USA	*(23)*	39	**– 22**	39	30	39	**– 39**	**57**	**– 4**	**– 4**
Japan	*(30)*	60	33	40	**67**	7	**67**	53	0	45
UK	*(9)*	40	**– 40**	40	0	56	11	**78**	**– 78**	56
Euro area (core)[a]	*(171)*	20	3	31	35	35	38	**63**	**– 7**	28
GIIPS[b]	*(84)*	54	**– 26**	**58**	14	52	5	53	15	36
Brazil	*(29)*	47	33	29	27	**57**	0	31	41	**57**
Russia	*(33)*	31	**45**	9	33	0	15	44	3	9
India	*(13)*	54	69	9	38	**85**	**– 8**	69	8	54
China	*(11)*	50	40	33	64	17	45	**82**	**– 9**	33
South Africa	*(25)*	28	12	28	60	12	20	68	**– 25**	**76**
Turkey	*(17)*	63	29	65	41	29	**– 13**	53	29	**76**

* The table reports balancing statistics that represent the difference in the shares of respondents (strongly) agreeing with the respective statement and those who (strongly) disagree. Results at the regional level are obtained by weighting the experts' opinion according to the country-specific exports and imports as a share of total world trade. Negative entries are marked red, whereas the highest value for each country or region is marked green.
[a] Euro area without GIIPS (Greece, Ireland, Italy, Portugal, Spain).
[b] Greece, Ireland, Italy, Portugal, Spain.

Source: Ifo World Economic Survey (WES) II/2014.

but with a high consensus on the risk of asset price bubbles in the medium term. Respondents in the United States object the most to the given statements, notably concerning high inflation and a loss of central bank independence as a result of LSGPs. In 'euro area core' countries, the majority of experts also agree that LSGPs lead to asset price bubbles in the medium term. Interestingly, experts in core countries generally do not agree that LSGPs prevent short-term irrational overshooting in the financial market, although financial market tension was a major reason for the ECB to introduce large-scale government bond purchases.[3] However, results strongly differ for the periphery of the euro area (Greece, Ireland, Italy, Portugal and Spain). Here, experts agree on balance that LSGPs help to overcome financial market overreactions, accompanied with a strong approval rating for the easing of public and private sector funding costs. Finally, within the BRICS countries LSGPs are widely considered to trigger large and reversible capital flows to emerging markets, notably in Brazil, India and South Africa, as well as in Turkey. This mirrors the financial turbulences faced by these countries since the Federal Reserve announced the possible reduction of its bond-buying programme in May 2013 and the actual reduction ('tapering') in January 2014.[4] Country-specific heterogeneity on this issue might also reflect a challenge concerning recent calls to coordinate monetary policies, like that made by the leaders of emerging economies on the occasion of this year's meeting of the G20 in Sydney.[5]

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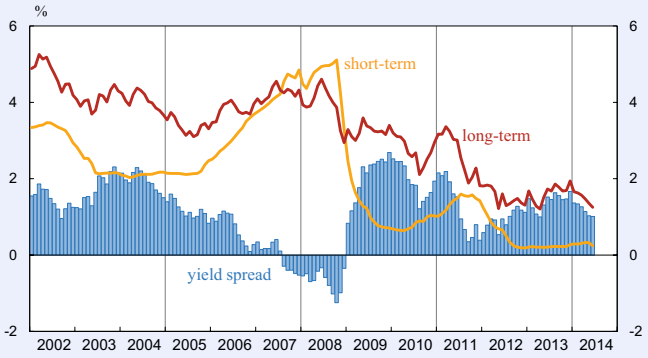
[3] See e.g. the introductory statement to the ECB's Governing Council press conference in September 2012 by Mario Draghi, http://www.ecb.europa.eu/press/pressconf/2012/html/is120906.en.html.

[4] As shown by results of the special question in the Ifo WES I/2014, the majority of experts in these countries also expected large portfolio-investment outflows due to quantitative easing tapering in the United States – see Plenk *et al.* (2014).

[5] Recent literature documents sizeable spillovers from unconventional monetary policies in advanced economies to emerging markets – see e.g. Mohan and Kapur (2014).

Financial conditions in the euro area

Nominal Interest Rates [a]

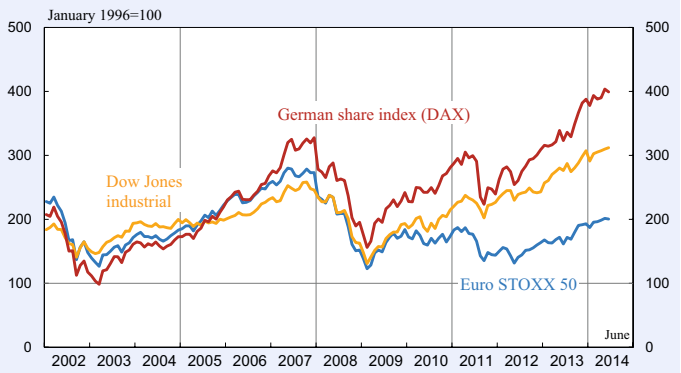


a) Weighted averages (GDP weights).

Source: European Central Bank.

In the three-month period from April 2014 to June 2014 short-term interest rates decreased: the three-month EURIBOR rate declined from 0.33% in April 2014 to 0.24% in June 2014. The ten-year bond yields also decreased from 1.47% to 1.25% in the same period. The yield spread reached 1.01% in June 2014, from 1.14% in April 2014.

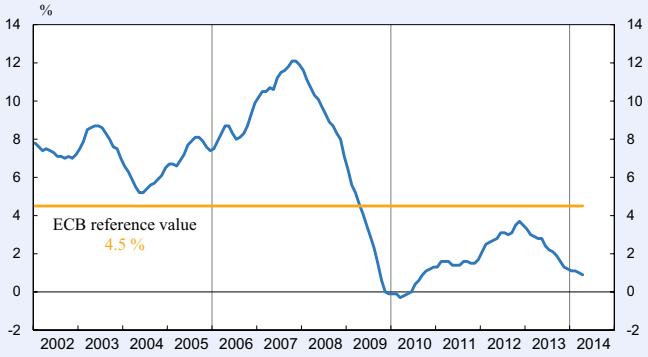
Stock Market Indices



Source: Deutsche Börse; Dow Jones; STOXX; Datastream.

The German stock index DAX decreased in June 2014, averaging 9,833 points compared to 9,943 points in May 2014. The Euro STOXX also declined slightly from 3,244 to 3,228 in the same period of time. In contrast the Dow Jones International increased, averaging 16,827 points in June 2014, compared to 16,717 points in May 2014.

Change in M3 [a]

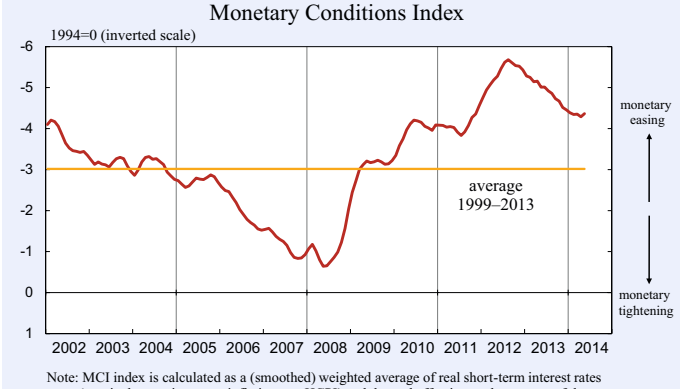


a) Annual percentage change (3-month moving average).

Source: European Central Bank.

The annual growth rate of M3 increased to 1.0% in May 2014, from 0.7% in April 2014. The three-month average of the annual growth rate of M3 over the period from March 2014 to May 2014 amounted to 0.9%, compared to 1.0% in the period from February 2014 to April 2014.

Monetary Conditions Index

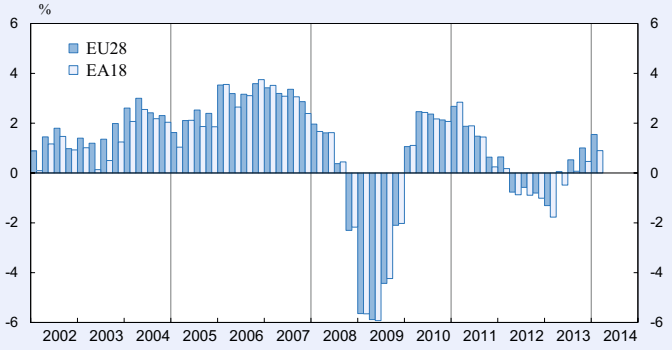


Note: MCI index is calculated as a (smoothed) weighted average of real short-term interest rates (nominal rate minus core inflation rate HCPI) and the real effective exchange rate of the euro.

Source: European Central Bank; calculations by the Ifo Institute.

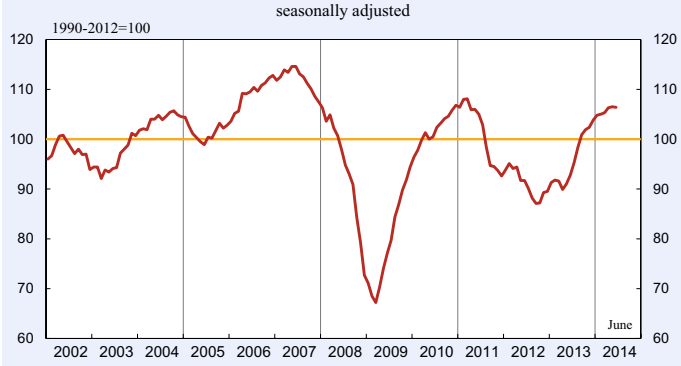
Between April 2010 and July 2011 the monetary conditions index remained rather stable. This index then continued its fast upward trend since August 2011 and reached its peak in July 2012, signalling greater monetary easing. In particular, this was the result of decreasing real short-term interest rates. In May 2014 the index continued its downward trend, initiated in August 2012.

EU SURVEY RESULTS



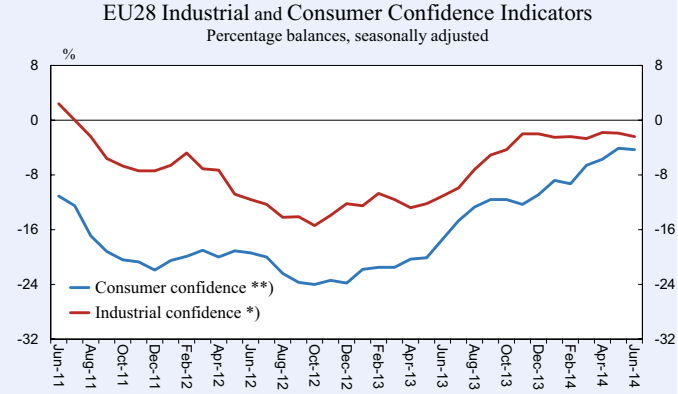
Source: Eurostat.

According to the second Eurostat estimates, GDP grew by 0.2% in the euro area (EA18) and by 0.3% in the EU28 during the first quarter of 2014, compared to the previous quarter. In the fourth quarter of 2013 the growth rates were 0.3% and 0.4%, respectively. Compared to the first quarter of 2013, i.e. year over year, seasonally adjusted GDP rose by 0.9% in the EA18 and by 1.4% in the EU28 in the first quarter of 2014.



Source: European Commission.

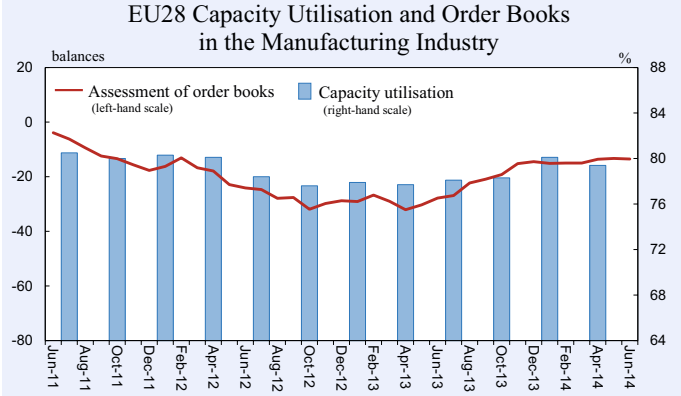
In June 2014 the Economic Sentiment Indicator (ESI) decreased by 0.6 points in the euro area (to 102.0), while it remained broadly stable in the EU28 (– 0.1 points at 106.4). In both the EU28 and the EA18 the ESI stands above its long-term average.



Source: European Commission.

* The industrial confidence indicator is an average of responses (balances) to the questions on production expectations, order-books and stocks (the latter with inverted sign).
** New consumer confidence indicators, calculated as an arithmetic average of the following questions: financial and general economic situation (over the next 12 months), unemployment expectations (over the next 12 months) and savings (over the next 12 months). Seasonally adjusted data.

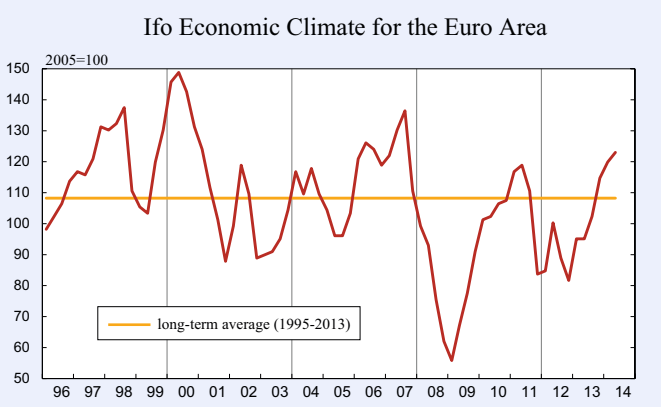
In June 2014, the *industrial confidence indicator* decreased by 0.5 in the EU28 by 1.2 in the euro area (EA18). The *consumer confidence indicator* also decreased slightly by 0.2 in the EU28 and by 0.4 in the EA18.



Source: European Commission.

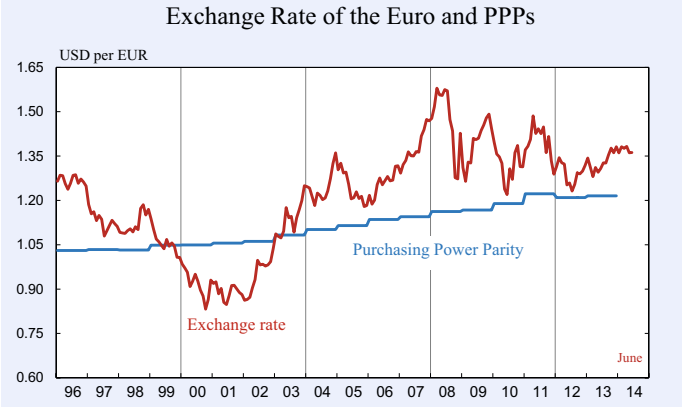
Managers' assessment of *order books* reached -13.5 in June 2014 and remained rather constant compared to – 13.3 in May 2014. In March 2014 the indicator had amounted to – 15.0. *Capacity utilisation* slightly decreased to 79.4 in the second quarter of 2014, from 80.1 in the previous quarter.

Euro area indicators



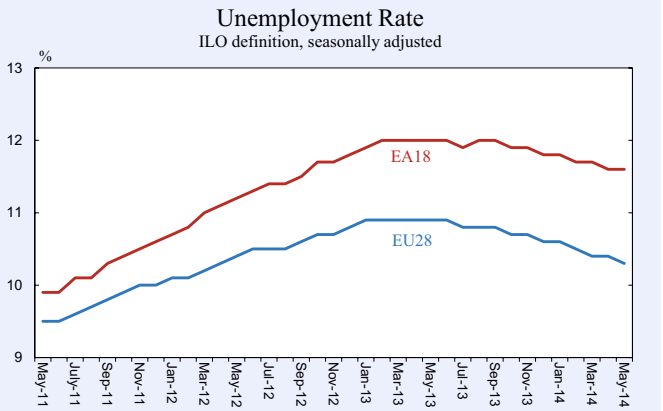
Source: Ifo World Economic Survey (WES) II/2014.

The Ifo Economic Climate Indicator for the euro area (EA18) continued to rise in the second quarter of 2014, reaching its highest level since the end of 2007. The economic recovery is expected to take shape more clearly in the months ahead. The rise in the Ifo indicator is due to less unfavourable assessments of the current economic situation. The economic outlook for the next six months remains good.



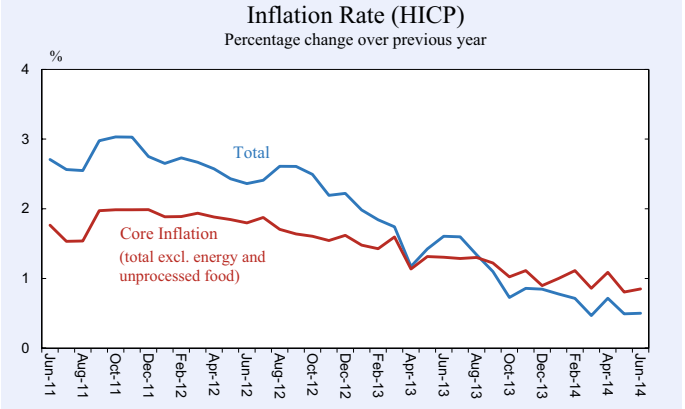
Source: European Central Bank; OECD; calculations by the Ifo Institute.

The exchange rate of the euro against the US dollar averaged approximately 1.37 $/€ between April 2014 and June 2014. (In March 2014 the rate had amounted to around 1.38 $/€.)



Source: Eurostat.

Euro area (EA18) unemployment (seasonally adjusted) amounted to 11.6% in May 2014, stable compared to April 2014. EU28 unemployment rate was 10.3% in May 2014, down from 10.4% in April 2014. In both zones, rates have reduced compared to May 2013, when they were 12.0% and 10.9%, respectively. In May 2014 the lowest unemployment rate was registered in Austria (4.7%), Germany (5.1%) and Malta (5.7%), while the rate was highest in Greece (26.8%) and Spain (25.1%).



Source: Eurostat.

Euro area annual inflation (HICP) was 0.5% in June 2014, stable compared to May 2014. A year earlier the rate had amounted to 1.6%. Year-on-year EA18 core inflation (excluding energy and unprocessed foods) increased to 0.85% in June 2014, from 0.81% in May 2014.

65 ifo Forschungsberichte

How Can the Crisis Vulnerability of Emerging Economies Be Reduced?

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