
How Much Did Africa's Top Exports Fall During the Crisis? A Comparison with East Asia and within Africa

Martin Wermelinger

University of St. Gallen

1 Introduction

One significant development question asked at the onset of the global financial crisis was whether Sub-Saharan Africa (SSA)--with its low integration in world's financial markets--would be shielded from the ensuing sharp economic downturn in the industrialised world. Over time it became readily apparent that the answer was no. Noting the increasing export reliance of the region (Wim, 2010), this chapter examines the apparent vulnerability of exports in SSA during the crisis years of 2008 and 2009 in a major overseas market, the United States.

The remainder of this chapter is organised as follows. The next section describes the factors that are likely to have driven SSA's exports during the recent global economic downturn and why African exports could have been more affected than exports from other developing regions of the world economy. Section 3 describes the data which is used in section 4 to calculate the extent to which the top 20 African export sectors changed during the crisis. SSA export performance in a given sector is then compared, on a variety of measures, to that of East Asia (EA). Section 5 summarises the findings of an investigation as to whether a crisis-era reshuffling of export shares within Africa has generated another source of winners and losers. Section 6 concludes and discusses the implications of this chapter's findings.

2 Two channels affecting African exports during the recent global economic downturn

Much expert comment focuses on two channels through which the effects of the crisis affected Sub-Saharan African exports. First, lower global growth, particularly in the United States (USA) and the European Union (EU), reduced the demand for African exports, pushed commodity prices down, and curtailed the flow of remittances from abroad. Estimating sectoral gravity equations, Berman and Martin (2009) show that SSA exports are more sensitive to large negative income movements in the countries they export to, compared to other exporters from other developing regions of the world economy.

Two factors are said to make Africa particularly vulnerable to this "demand channel": low destination diversity and high export concentration. Although trade with China and other emerging economies have increased in recent years, the diversity of Africa's export destinations is still limited. More than 60% of exports go

to the EU and the USA. Exports are highly concentrated in primary goods sectors, in particular the oil and gas sector. Comparing export concentration indexes of different developing country regions, one can see that export concentration is three to four times higher in SSA compared to EA or Latin America and the Caribbean (Wim, 2010). Even so, Draper and Biacuana (2009) argue that the decline in export volumes experienced by African economies during the crisis was not as severe as in Asian economies.

Secondly, tighter credit market conditions have resulted in a greater scarcity and a higher cost of trade finance. While the precise magnitude of the "trade finance gap" in Africa is still unknown and the impact of such a gap on the collapse of exports has not convincingly been identified, various experts are convinced that trade finance constraints played a key role in the African trade collapse. Moreover, such experts content that the trade finance problem in Africa is more acute compared to other developing regions. For example, while perceived trade finance-related risks rose during the crisis, it is sometimes implied that the risks associated with African trade were thought to have grown more than for other parts of the developing world.

Berman and Martin (2009) have showed that - what they call - the "disruption" effect of a financial crisis is more important and longer lasting for African countries than for exporters of other developing regions. They find also that the high dependence on trade credit of African export markets may explain part of the fragility of African exports to the financial crisis. Alternatively, Humphrey (2009) reports the results of a firm survey in the garment and horticulture sectors in SSA. The interviewed firms did not face problems with trade finance (at least up to March 2009). The generality of these findings may be called into question because of the limited number of interviews conducted (about 30) and the study's exclusive focus on the garment and horticulture sectors. Most of the interviewed firms reported that they had well-established businesses that remain good risks for domestic banks, or operated in long-standing value chains, which are responsible for the financing of trade. Humphrey also reports anecdotal evidence from West African countries, where the shortage of credit in the domestic market curtailed pre-financing of trade in cocoa.

The relative importance of these two channels during the recent global economic downturn remains an open question and will no doubt stimulate future research. This study, however, investigates whether or not African exporters were indeed more severely hit than exporters from other developing regions. In addition, it is studied whether reshuffling within Africa has produced another source of winners and losers from the recent global economic downturn.

3 Monthly data of the top 20 export sectors in manufacturing and agriculture

This paper uses detailed monthly data of US imports from 2007 through 2009 made available online by the U.S. Census Bureau. Sub-Saharan Africa's top 20 export sectors to the US in manufacturing and agriculture were identified and listed with their total value for exports in 2009 (see Table 1, columns 1 to 3). The total amount of trade accounted for by the 20 largest sectors exceeded more than 80% of SSA exports in

manufacturing and agriculture to the US. As described above, the US remains the leading destination (besides the EU) of African exports, and these exports can therefore be taken as an indicator for exports to the world¹. Besides, it is interesting to look at the US data as the crisis had its origins there and the US was one of the most severely hit importing countries.

There were several reasons for the focus here on manufacturing and agricultural exports- even though the primary goods sectors of many SSA economies account for a large proportion of trade. First, export unit values in primary goods depend heavily on world commodity prices, which were generally in sharp decline during the crisis (Wim, 2010). Hence, investigating these sectors would require careful corrections for price changes. Secondly, primary goods sectors are geographically restricted to few African countries making a region-wide analysis less meaningful.

Thirdly, it has been argued that Africa's sustainable development is dependent on a diversified set of exports (in particular manufacturing), which leads to less volatile export flows (Haddad, Lim, and Saborowski, 2010). Focusing on sectors that - if sufficiently diversified - promise more stability is therefore of particular interest.

Finally, most of the country-by-country data for the primary sectors (including oil and gas, mineral and ores, petroleum and coal products, and chemicals) are missing and thus their investigation could yield to biased conclusions. Nevertheless, readers should be aware that 75% of total African exports are in the oil and gas sector in 2009. Excluding oil and gas exports, manufacturing and agriculture make up 70% of remaining total exports by SSA.

4 Benchmarking recent export developments in Sub-Saharan Africa to that of East Asia

This section examines how badly SSA leading exports were affected during the recent global economic downturn and to what extent SSA's experience was worse than that of East Asia. The analysis distinguishes between an export growth measure (which indicates the percentage change in a region's exports of a particular sector's products) from a volatility measure (which captures the degree of export fluctuations within a given year). Data on both measures form the basis of the empirical assessment made in this section.

To assess the fall in exports, for each of the top 20 exports from SSA to the USA, the monthly year-on-year export growth (or reduction) for the year 2008 (before the global export collapse) and for the year 2009 (after the global export collapse) were calculated for the entire SSA region.² Statistics reported in Table 1 show that Africa's top 20 export sectors were severely hit. To give a sense of the SSA export performance at its worst, the weighted average of maximum monthly export fall in 2009 is 72%

1 Due to former colonial relationships between certain EU member states and Africa, export patterns to the EU are likely to be different than to the US. Hence, an independent study with EU data would also be of interest.

2 Intra-regional differences, ie. cross-country differences in export performance in a given sector in the SSA region, are examined in section 5 below. For a chapter seeking to assess the overall impact on the SSA region's exports it is appropriate to consider at some point in the analysis the effects on total exports of a particular sector from that region.

compared to 33% in 2008, reinforcing the impression that--at its worst--2009 was markedly worse than 2008.

To get a sense of average performance among the top SSA exports, the weighted average of the medians of monthly sectoral export change of the top 20 SSA exports was calculated. In 2008, that average grew by a massive 113% for SSA; in 2009 the comparable average export figure pointed to a fall of around 30%! The high average growth in 2008 is influenced by the five-fold expansion in the exports of the automobile industry, which is the second largest SSA export and is located primarily in South Africa. Eight of the 20 sectors had negative growth figures in 2008, compared to 13 sectors in 2009. While Africa's biggest manufacturing sector, primary smelting and refining of nonferrous metals (except copper and aluminum), was back on a positive growth path in the fourth quarter of 2009, most other sectors still reported negative numbers at the end of last year.

To provide some comparative perspective, the above SSA export performance was compared with that of the developing countries of East Asia (EA), taken here to be all of the countries in EA except Japan, Singapore, and South Korea. The statistics in Table 1 confirm that SSA's most important exports in manufacturing and agriculture are similarly affected by the crisis than the same sectors in EA. Both regions had positive weighted average growth across the 20 sectors in 2008 and negative numbers in 2009. In fact, Africa performed relatively better than EA on several grounds: (i) the weighted average growth in exports was higher (or export reduction lower) in SSA in both years; (ii) the number of sectors reporting negative export growth in 2009 in EA was 18 compared to 13 in SSA; and (iii) EA exports are taking longer to recover to their previous levels. The weighted average export reduction in the 4th quarter of 2009 was 27% in EA.

Overall, then, while SSA exporters came under considerable pressure during the recent global economic downturn, their East Asian counterparts fared worse at least in terms of average export performance. Further research may want to account for any regional differences in crisis-era export performance for a given sector, examining for example whether differences in discriminatory measures taken against different regions' exporters can account for some, or all, of the observed differences in sectoral export performance.

However, as noted above, large fluctuations in economic activity--including in exports--are a long-standing development challenge in SSA. Columns 9, 10 and 13,14 in Table 1 report an index of export volatility for SSA and EA, respectively.³ These numbers report a measure of month-by-month export fluctuation within a year. Comparing the figures for weighted average volatility across years and regions, an increase in volatility in both regions is observed during 2009, with the index being in general slightly higher in SSA. However, none of these differences are statistically significant at conventional levels, which leads to the conclusion that Africa's most

³ The following formula is used to calculate the index of export volatility:

$$Vol_{i,R}^y = \frac{\sum_{m=1}^{12} (s_{i,R}^{m,y} - c)^2}{12}$$

where $s_{i,R}^{m,y}$ is the export share (in %) in sector i , region R , and month m of year y . and c is a constant corresponding to $100/12$, equal to the average monthly export share (in %) in a particular year.

Table 1 Africa's top 20 export sectors to the US in manufacturing and agriculture (in 2009): Descriptive Statistics

NAICS (digit)	Description	SSA Exports to the US (in 1000's of \$)	Sub-Saharan Africa				East Asia (excluding Japan), South Korea, Singapore)				
			Max Export Fall 2008	Median Growth 2008	Average Growth Q4 2009	Volatility (in 2008)	Max Export Fall 2008	Median Growth 2008	Average Growth Q4 2009	Volatility (in 2008)	
331419	Primary Smelting and Refining of Nonferrous Metals (except Copper and Aluminum)	1391943	-71%	-18%	99%	79	90	-75%	82%	-41%	73
336111	Automobiles and Light Duty Motor Vehicles, Including Chassis	1393543	30%	488%	-9%	77	80	-86%	-40%	-42%	73
339913	Jewelry, including Chassis	972482	46%	2%	-12%	71	75	-41%	-13%	-16%	75
331529	Women's and Girls' Outerwear	366166	-27%	-1%	-42%	74	72	-9%	0%	-3%	72
331112	Electromechanical Terminal Product	306063	-44%	87%	-35%	76	123	-80%	63%	-54%	94
315223	Men's Boys' Shirts	197922	-1%	63%	80%	70	71	19%	28%	-4%	70
111339	Other Work Shop	161513	31%	99%	-32%	75	71	-32%	9%	-13%	71
336399	Other Agricultural Products	157714	46%	21%	-30%	72	75	-20%	-1%	-2%	69
115335	Motor Vehicle parts, (Nesoi)	130081	-2%	55%	32%	103	101	-17%	3%	15%	79
315224	Men's and Boys' Trousers, Slacks, and Jeans	143981	-13%	20%	40%	75	73	-31%	-5%	5%	74
339911	Jewelry (except Costume)	131737	21%	13%	-48%	112	81	-33%	-14%	22%	72
113210	Forestry Products	128326	43%	57%	-13%	72	77	-14%	36%	-41%	70
331515	Aluminum Sheets, Plates, and Foils	122475	-56%	39%	-38%	74	79	-50%	-24%	-41%	75
315232	Women's and Girls' Blouses And Shirts	118672	-29%	7%	3%	70	72	-6%	4%	5%	69
331111	Iron and Steel	108903	73%	-12%	-24%	80	99	-26%	30%	-93%	79
331112	Primary Aluminum	106235	-100%	-100%	-83%	233	231	-100%	-56%	-94%	120
335228	Men's and Boys' Other Outerwear	83820	-4%	-14%	-29%	74	72	-25%	-14%	-3%	76
335618	Other Engine Equipment	38797	22%	13%	16%	84	84	8%	32%	-7%	69
111910	Tobacco	49794	-80%	-5%	-34%	145	92	-23%	9%	-46%	105
311320	Chocolate and Confectionery Products	46424	-4%	23%	50%	76	80	-17%	73%	-25%	74
	Weighted Average of Top 20 Sectors		-33%	113%	-33%	81	86	-40%	15%	-45%	75
NAICS (digit)	Description										
331	Primary Metal Manufacturing		-68%	-6%	61%	86	101	-38%	64%	-45%	78
336	Transportation Equipment		22%	436%	-11%	77	80	-69%	-38%	-53%	73
339	Miscellaneous Manufactured Commodities		-49%	3%	-17%	76	76	-40%	-13%	-36%	74
315	Apparel and Accessories		-24%	16%	0%	83	82	-9%	6%	-1%	82
111	Agricultural Products		-34%	66%	-1%	96	86	-25%	18%	-7%	79
113	Forestry Products, Nesoi		-42%	57%	-13%	72	77	-79%	-34%	-41%	70
333	Machinery, except Electrical		22%	159%	-16%	84	84	8%	32%	-7%	69
311	Food and Kindred Products		-42%	23%	92%	76	80	-17%	75%	-24%	74

Source: U.S. Census Bureau, author's calculations

important export sectors are not more exposed to continued ups and downs than the same sectors in East Asia.

Another distinct assessment of the potential relationship between African and East Asian export performance was performed. The purpose of this particular empirical analysis was to examine whether the fluctuations in African and East Asian export performance to the USA were in fact similar but with one region's exports tending to lag another region's in the same sector. Since the lag structure is not known, a wide range of possibilities were considered (the results are available from the author.) Simple ordinary least squares regressions with SSA monthly export growth as the dependent variable and EA export growth (using negative, zero, and positive lags) as the independent variable. This procedure would reveal if, for example, in a given sector a recessionary demand shock in the USA affected East Asian exports before they affected SSA exports, or visa versa. Such analysis might also reveal little by way of common dynamics of SSA and EA exports in a sector.

Table 2 reports the information on the specification in each export sector that generated the highest explanatory power (R-squared)⁴. In 12 export sectors a positive and statistically significant correlation exists between SSAs and EAs paths, in four sectors negative and significant correlations were found, and in the remaining four sectors none of the specifications revealed a significant relationship between the export paths of the two regions. It is quite surprising that 40 percent of the investigated sectors show a negative or no temporal relationship between SSA and EA exports. One explanation could be that same sectors in SSA and in EA differ substantially with respect to the type (quality?) of products that are shipped to the USA.

For those 12 African export sectors whose intertemporal variation correlates with that of East Asian counterparts, eight sectors are such that SSA exports lagged those by EA (typically between one to three months). This illustrates that demand trends in the US are likely to affect EA before SSA. Focusing on the R-squares for the reported relationships, it appears that African and East Asian export paths can explain around 50% of each other's variation given that the correlation is positive (except for apparel where this number is around 20%).

Interestingly, the one major exception to the finding that "SSA exports lag EA exports" is in the largest Sub-Saharan African export sector considered here, namely, Primary Smelting and Refining of Non-ferrous Metals (except Copper and Aluminum). In this particular sector, a specification where SSA exports lead EA exports by three months best fit the data. These last two paragraphs suggest their exist economically meaningful differences in the temporal sequence through which demand shocks from the USA affected the exports of leading sectors in Sub-Saharan Africa and East Asia during the recent global economic downturn. No doubt as more monthly and quarterly data becomes available, it will become possible to examine these intertemporal dynamics in greater detail, not least because these dynamics may shed light on any regional differences in the temporal sequence of any potential export recovery.

⁴ This investigation is not done for separate years due to the small number of observations (a maximum of 24 observations can be used, which corresponds to 2x12 months).

Table 2 Correlations between African and East Asian export paths

NAICS (6digit)	Description	Correlation Sign	Specification with highest R2	Highest R2
331419	Primary Smelting and Refining of Nonferrous Metals (except Copper and Aluminum)	+	plus-3-months	0.61
336111	Automobiles and Light Duty Motor Vehicles, Including Chassis	+	minus-2-months	0.52
339913	Jewelers' Material and Lapidary Work	+	minus-1-month	0.46
315239	Women's and Girls' Other Outerwear	+	minus-3-months	0.12
331112	Electrometallurgical Ferroalloy Product	+	minus-2-months	0.76
315223	Men's and Boys' Shirts (except Work Shirt)	not sig.		
111339	Other Noncitrus Fruits	+	minus-1-month	0.31
336399	Motor Vehicle Parts, Nesoi	+	minus-3-months	0.46
111335	Tree Nuts	not sig.		
315224	Men's and Boys' Trousers, Slacks, and Jeans	+	plus-2-months	0.23
339911	Jewelry (except Costume)	-	minus-1-month	0.28
113210	Forestry Products	+	instantaneous	0.63
331315	Aluminum Sheets, Plates, and Foils	not sig.		
315232	Women's and Girls' Blouses And Shirts	+	minus-2-months	0.22
331111	Iron and Steel	+	minus-1-month	0.36
331312	Primary Aluminum	-	minus-1-month	0.29
315228	Men's and Boys' Other Outerwear	-	plus-1-month	0.19
333618	Other Engine Equipment	+	minus-3-months	0.51
111910	Tobacco	-	plus-3-months	0.27
311320	Chocolate and Confectionery Products	not sig.		

Source: U.S. Census Bureau; author's calculations

5 Within Africa reshuffling of export patterns

Rather than examine the changes in the total exports of a given sector in SSA to the USA, as was done in the last section, here the goal is to investigate whether export shares within Africa have changed during the crisis. Table 3, column 3 reports an index of reshuffling in each sector⁵; the higher the value of the index the larger the changes in the intra-regional distribution of that sector's exports to the US market. The reported indices reveal that between 2008 and 2009 in four of the top 20 largest export sectors more than 10 percent of the total value of that sector's exports were reshuffled among SSA nations between 2008 and 2009.⁶ For example, Lesotho's share of total SSA exports of Mens and Boys' Other Outerwear fell 14.59% and Madagascar's share rose 12.32% (Columns 4-6 of Table 3 list the top three exporters from a particular sector and indicate their share in 2009 as well as the change of this share from 2008 to 2009.) Table 3 further illustrates that for 8 of the 20 sectors almost all of the SSA exporters are located in South Africa. This finding shows South Africa's dominant position in non-primary (manufacturing) industries.

5 The reshuffling index is calculated as follows

$$IoR_i = \sum |s_{i,c}^{08} - s_{i,c}^{09}|$$

where $s_{i,c}^y$ is the export share of country c in sector i in year y .

6 Given the construction of the reshuffling index, where each 1% shift in production is going to create a 2% increase in the index,

Table 3 Within Africa reshuffling

Naics (6digit)	Commodity Desc	Index of Reshuffling	Top 3 Exporters given that export share >= 5% either in 2008 or 2009		
331419	Primary Smelting and Refining of Nonferrous Metals (except Copper and Aluminum)	1.67%	South Africa		
			100.00%	0.00%	
336111	Automobiles and Light Duty Motor Vehicles, Including Chassis	0.01%	South Africa		
			100.00%	0.00%	
339913	Jewelers' Material and Lapidary Work	10.80%	South Africa	Botswana	Angola
			70.88%	12.67%	5.17%
			-2.77%	-1.13%	2.83%
315239	Women's and Girls' Other Outerwear	14.96%	Kenya	Madagascar	Lesotho
			28.92%	24.49%	24.15%
			-3.69%	-2.25%	3.57%
331112	Electrometallurgical Ferroalloy Product	15.36%	South Africa	Zimbabwe	
			100.00%	0.00%	
			7.68%	-7.68%	
315223	Men's and Boys' Shirts (except Work Shirt)	15.97%	Mauritius	Lesotho	Madagascar
			33.27%	28.86%	19.60%
			3.20%	2.17%	-4.97%
111339	Other Noncitrus Fruits	36.93%	Ethiopia	Kenya	Madagascar
			22.77%	19.98%	16.49%
			-17.56%	1.42%	0.83%
336399	Motor Vehicle Parts, Nesoi	0.26%	South Africa		
			100.00%	0.00%	
111335	Tree Nuts	19.44%	IvoryCoast	Ghana	Nigeria
			77.65%	8.53%	7.03%
			-8.02%	6.84%	1.34%
315224	Men's and Boys' Trousers, Slacks, and Jeans	19.14%	Lesotho	Kenya	Madagascar
			46.54%	16.72%	16.51%
			2.57%	-3.75%	-5.53%
339911	Jewelry (except Costume)	3.73%	South Africa		
			100.00%	0.00%	
113210	Forestry Products	21.39%	Liberia	IvoryCoast	Nigeria
			51.84%	15.44%	8.89%
			-7.10%	2.45%	-1.34%
331315	Aluminum Sheets, Plates, and Foils	0.00%	South Africa		
			100.00%	0.00%	
315232	Women's and Girls' Blouses And Shirts	13.12%	Lesotho	Kenya	Madagascar
			31.68%	20.92%	19.28%
			-0.90%	3.17%	2.19%
331111	Iron and Steel	0.38%	South Africa		
			100.00%	0.00%	
331312	Primary Aluminum	15.36%	South Africa	Mozambique	Nigeria
			73.93%	16.75%	9.32%
			-26.07%	16.75%	9.32%
315228	Men's and Boys' Other Outerwear	35.83%	Lesotho	Madagascar	Kenya
			28.98%	38.66%	17.30%
			-14.59%	12.32%	3.06%
333618	Other Engine Equipment	0.91%	South Africa		
			100.00%	0.00%	
111910	Tobacco	8.53%	Malawi	Cameroon	South Africa
			92.06%	2.48%	2.39%
			-2.77%	-0.19%	1.49%
311320	Chocolate and Confectionery Products	25.65%	IvoryCoast	Ghana	Cameroon
			75.44%	17.64%	6.15%
			-10.29%	12.15%	0.63%

Source: U.S. Census Bureau; author's calculations

Overall, though, the degree of reshuffling across SSA appears to be quite limited, at least in respect of exports to the US market. If all SSA exporters in a given sector faced the same aggregate demand shocks, then it would seem from the paucity of reshuffling that there were few crisis-induced shifts in the relative supply side performance. An alternative interpretation of these results is as follows: in SSA's leading export sectors the aggregate demand shock from the crisis appears to have hit most export sources relatively evenly and any discriminatory commercial policy measures⁷ undertaken by SSA nations or by the USA do not appear to have reshuffled exports much between SSA nations.

6 Implications of this chapter's findings

The purpose of this paper has been to construct some sensible benchmarks against which to compare SSA export performance during the recent global economic downturn. Such benchmarks may be useful in stimulating further research and coming to some necessarily interim assessments on certain policy matters. For example, while concerns about trade finance holding back SSA exports were given plenty of attention during the past 18-24 months, it should be borne in mind that leading SSA exports to the USA fell less than comparable exports from East Asia, where fewer concerns about trade finance were expressed. Of course, other factors may account for these regional differences in export performance, but if trade finance really was a particularly important factor holding back SSA exports, then what other factor or factors were reduced EA exports further? Or, were our original assumptions about the impact of trade finance on SSA exports correct in the first place?

Comparing the temporal sequence of SSA and EA exports of the same goods to the US market was revealing too. It seems that Sub-Saharan African exporters of non-ferrous metals saw their exports fall to the US market about three months before their East Asian counterparts. Whereas, for many of the other top 20 exports to the US market, East Asian total exports began to fall one to three months before those from Sub-Saharan Africa. Such findings, if accurate, reveal a lot about the spread of the aggregate demand shock from the United States to the developing regions of the world economy. One might also ask what is it about the nonferrous metals exported by SSA, or the contracts that SSA exporters sign, that accounts for importer demands affecting sales faster than in East Asia. Are any changes in contracting clauses or export specialization called for?

Finally, perhaps the most important implication of the analysis of the potential reshuffling of African exports to the USA is that there appears, on the basis of the measure developed here, to be little by way of intra-regional redistribution of sectoral exports during the crisis. Such a finding is consistent with there being little by way of supply side shifts (or comparative advantage) changes between 2008 and 2009 and, perhaps encouragingly, little evidence of commercial policies being implemented that discriminated between Sub-Saharan African exporters.

7 Including incentives to export.

References

- Wim, N. (2010). 'Africa and the global economic crisis: a risk assessment and action guide'. MPRA Paper No. 19856. Munich Personal RePEc Archive.
- Berman, N. & Martin, P. (2009). 'The vulnerability of sub-Saharan Africa to the financial crisis: the case of trade'. European University Institute and Sciences-Po, mimeo.
- Draper, P. & Biacuana, G. (2009). 'Africa and the trade crisis'. VoxEU (<http://www.voxeu.org/index.php?q=node/4268>).
- Humphrey, J. (2009). 'Are exporters in Africa facing reduced availability of trade finance?'. *IDS Bulletin*. Volume 50 (5).
- Haddad, M., Lim, J., & Saborowski, C. (2010). 'Does openness increase volatility? Not if countries are sufficiently diversified'. VoxEU (<http://www.voxeu.org/index.php?q=node/4268>).

About the author

Martin Wermelinger is a member of the Global Trade Alert team at the Swiss Institute for International Economics and Applied Economic Research, University of St. Gallen, Switzerland. He is also doctoral student in the Department of Economics conducting applied and theoretical research on trade flows.