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The incidence of the global financial crisis revisited: Financial and trade linkages*

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Abstract

We investigate the main determinants of growth performance of emerging market and developing economies during the global financial crisis of 2008-2009. We consider financial and trade channels with a focus on the former. Our results suggest that pre-crisis levels of reserves, short-term debt, credit growth, financial depth, current account deficits, *de jure* and *de facto* financial openness, trade openness and the shares of manufacturing and services in GDP are all significant with theory-consistent expected signs in explaining the growth collapse. We further find that the impacts of the financial channel variables vary with the prevailing *de facto* exchange rate regimes.

Key words: Emerging market economies, developing economies, global financial crisis, financial channel, trade linkages.

JEL codes: F21, F30, F32, G01

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1. Introduction

The global financial crisis of 2008-2009 (GFC), originated in the US, spread not only to other advanced economies (AE) but also to many emerging market and developing economies (EMDE). This was a new phenomenon even for the EMDE, which have often experienced currency and financial crises either due to their own macroeconomic and financial vulnerabilities and/or contagion impacts from their peer economies. Given the evidence that international capital flows and global financial conditions are amongst the most important determinants of growth (Aizenman et al., 2015; Kose and Terrones, 2015) and business cycles (Erdem and Özmen, 2015) especially in EMDE, the substantial adverse impact of the GFC may not be unexpected. The incidence and severity of the transmission of global conditions and thus the GFC on the EMDE, however, may not be invariant to their own macroeconomic, financial and trade fundamentals. In this context, this paper investigates whether the cross-country incidence and severity of the GFC is systematically related to pre-crisis domestic conditions in EMDE.

There is a wide and growing literature on the causes and consequences of currency and financial crises especially in EMDE. Cecchetti et al. (2013) and Kose and Terrones (2015) review the early studies. Kose and Ohnsorge (2021) describes the main features of global recessions and recoveries including the GFC in a historical context. A useful starting point to assess the roles of domestic conditions/vulnerabilities in determining the causes and symptoms of a crisis may be the earlier "early warning system" (EWS) indicators literature. Rose and Spiegel (2011) and Frankel and Saravelos (2012) provide extensive reviews of the pre-2008 EWS studies. Rose and Spiegel (2011) reports that there is no robust and reliable link between EWS variables and the causes and consequences of the recent GFC. In a similar vein, Frankel and Saravelos (2012) finds that only the level of reserves and real exchange rate appreciation stand out as two of the most important leading indicators. The findings by Levy et al. (2022) based on NBER working papers suggest that researchers were "slow-to-see" the crisis but "fast-to-act" as the number of studies substantially accelerated after the GFC.

International Monetary Fund (IMF, 2013) reports that the GFC triggered an unprecedented increase in output synchronization not only in the advanced economies but also in EMDE. The results by Özmen and Yaşar (2016) suggest that the GFC led to a change in the determinants of sovereign spreads and a significant decrease in the impact of credit ratings. Blanchard et al. (2010) considers EMDE data and report that both trade (exports) and financial (short-term debt and current account balance) linkages matter and there is no significant role of the exchange rate regime and reserve accumulation in limiting output collapse during the GFC. In a

similar vein, Lane and Milesi-Ferretti (2011) suggests an "impressionistic view" which postulates that cross-country incidence and severity of the GFC is systematically related to pre-crisis (initial) macroeconomic, real and financial conditions. Lane and Milesi-Ferretti (2011) also finds that pre-crisis levels of growth, private credits, current account balance (CAB) and trade openness are helpful in understanding the intensity of the GFC. The impacts of pre-crisis levels of trade and financial openness, *de facto* exchange rate regimes and international reserves, however, are found to be not robust to different samples and specifications. According to Sufi and Taylor (2021), the negative consequences of the GFC are due not only to the crisis itself but also to the imbalances including credit growth and elevated asset prices preceding the crisis. Eichengreen et al. (2024) finds that the tendency of economies to recover from recessions is positively associated with trade openness and exchange rate flexibility whilst negatively related to financial openness and rapid credit growth.

Özkan and Ünsal (2017) provide a two country theoretical model which explicitly considers trade and financial linkages in explaining transmission of global financial shock on EMDE. De Nicolò and Juvenal (2014) finds that advances in international financial integration and globalization are associated with higher growth and lower probabilities of severe real output collapse. According to Devereux and Yu (2020), international financial integration substantially escalates the probability of crises. The results by Mathonnat et al. (2022) suggest that financial development is associated with a significant increase in the duration of banking crises. The duration of recovery from financial crises is found to be much shorter for countries with higher institutional quality (Chen et al., 2024).

Marchionne et al. (2022) reports that the probability of a financial crisis exhibits an inverted U-shape such that it rises at lower and decreases at higher levels of financial regulation and institutional quality. The empirical study by Berkmen et al. (2012) along with Blanchard et al. (2010) and Lane and Milesi-Ferretti (2011), differentiates trade and financial channels in investigating the factors driving the growth performance of EMDE in 2009. Berkmen et al. (2012) finds that the pre-crisis levels of financial (leverage, credit growth and short-term debt) and trade (openness and primary exports) conditions are all important in explaining the incidence of the GFC. According to Hausmann-Guil et al. (2016), countries with higher levels of trade and financial integration above a certain cutoff experienced much larger drop in growth than the others.

Under international capital mobility, exchange rate regime (ERR) flexibility allows countries to implement an independent monetary policy as suggested by the impossible trinity of international macroeconomics. In this context, Edwards (2011) presents evidence that ERR flexibility acts as a shock-absorber allowing countries

to accommodate external shocks. Erdem and Özmen (2015) finds that the impacts of external financial and real shocks are significantly greater under managed regimes compared to floats. All these suggest that the incidence and severity of the GFC may be expected to be much higher under managed regimes. The literature, however, often finds that the ERRs do not matter. Blanchard et al. (2010), Lane and Milesi-Ferretti (2011) and Bussière et al. (2015) are among the studies finding no significant and robust role of ERRs on the severity of the GFC. According to Kim and Pyun (2018), on the other hand, a fixed ERR with high capital account openness increased international transmission of business cycles during the GFC.

International reserves are amongst the most common postulated early warning indicators of crises. The pre-cautionary motive for holding international reserves postulates that reserves provide a buffer and self-insurance against external shocks including sudden stops or reversals in capital inflows. Benigno et al. (2022), for instance, finds that the potential of reserves to be used for liquidity provision during crises amplifies the positive impact of reserve accumulation on growth. Consequently, holding higher reserves may be expected to be effective in mitigating the impact of global shocks, such as the GFC. The literature on the incidence and severity of the GFC, however, provides mixed and often conflicting results. Blanchard et al. (2010), Lane and Milesi-Ferretti (2011), Berkmen et al. (2012) find no significant role of reserves on the severity of the GFC. Frankel and Saravelos (2012), Bussière et al. (2015) and Allegret and Allegret (2019), on the other hand, are amongst the studies finding that reserve accumulation is one of the most robust determinants of the intensity of the GFC. The pre-cautionary motive for holding international reserves may be expected to be the case especially for countries implementing a managed exchange rate regime (ERR) with more open to international capital flows. The literature on the GFC, however, is yet to explicitly investigate the interactions between international reserve holdings, capital market openness and exchange rate regimes. One of the main contributions of this paper is, thus, to consider this important and often neglected issue in investigating the incidence and severity of the GFC for a relatively large number of EMDE.

This paper also aims to contribute to the literature by examining how the interaction between international reserve holdings, capital account openness, and *de facto* exchange rate regimes affects the incidence and severity of the GFC in EMDE. Although the literature often investigates the individual effects of these variables, few studies examine their joint impact. In particular, it remains unclear how the precautionary role of reserves may depend on the degree of capital mobility and the prevailing *de facto* exchange rate regime. This paper seeks to fill this gap by providing a more comprehensive understanding of the channels through which global shocks, such as the GFC, are transmitted to EMDE thereby complementing

and extending earlier findings by Blanchard et al. (2010), Lane and Milesi-Ferretti (2011), and Berkmen et al. (2012).

Following Claessens et al. (2010), Blanchard et al. (2010), Lane and Milesi-Ferretti (2011), Berkmen et al. (2012) and Özkan and Ünsal (2017) we distinguish financial and real (trade) linkages. For the financial channel, we consider, *de jure* capital account openness, *de facto* international financial integration, international reserves, financial depth, credit growth, current account deficits (as a % of GDP), short-term debt (as a % of GDP) and their relevant interactions. For the financial channel, we also investigate whether the impacts of these variables are robust to the prevailing *de facto* ERRs. For the trade channel, following Berkmen et al. (2012), we consider trade openness (Trade_open, sum of exports and imports, as a % of GDP), trade composition (share of manufacturing products in total exports) and the direction of trade (the share of exports to high income countries).

The empirical findings of this study highlight that pre-crisis financial and trade fundamentals played a critical role in shaping the severity of the output collapse experienced by EMDE during the 2008–2009 global financial crisis. Specifically, rapid credit expansion, greater financial depth, and high short-term external debt levels significantly amplified the crisis's adverse impact, regardless of the exchange rate regime. In contrast, higher foreign reserves, particularly in economies open to capital flows, helped cushion the shock by stabilizing currency pressures under floating exchange rate regimes. These results imply that macro-financial vulnerabilities, such as excessive credit growth and reliance on volatile capital inflows, can increase exposure to global shocks, while strong reserve buffers and prudent financial regulation can mitigate these risks. Accordingly, policies aimed at reducing external imbalances, improving financial sector resilience, managing credit cycles, and fostering a robust manufacturing base may not only reduce crisis vulnerability but also support more stable and sustainable long-term growth trajectories for EMDE.

The plan for the rest of the paper is as follows. Section II presents our empirical results by using the data for the EMDE sample. In Section II.1, we consider the financial channel. Section II.2 considers *de facto* international financial integration along with an alternative proxy for reserves (reserves/GDP) for the whole sample and the managed exchange rate regimes. The results for the trade channel are presented by Section II.3. Finally, Section III concludes.

2. The financial and trade channels for the incidence of the GFC: Empirical results

2.1. The financial channel

To investigate the impact of the financial channel on the incidence and severity of the GFC in EMDE, we consider the following benchmark equation[1]:

$$Y^{g}_{i,\ cr\_pcr} = \mathbf{a}_0 + \mathbf{a}_i\mathbf{F}_i + u1_i \quad (1)$$

In (1), $Y^{g}_{i,\ cr\_pcr}$ is the difference between the average growth rates during the crisis (cr, 2008-2009) and pre-crisis (pcr, 2003-2007) period and $\mathbf{F}_i$ are the variables representing the financial channel. These include 2003-2007 average levels of international reserves in month of imports ($reserves\_month_{03\text{-}07}$), *de jure* capital account openness ($KAOPEN_{03\text{-}07}$), increase in the ratio of private credit to GDP ($credit\_growth_{03\text{-}07}$), financial depth ($fin\_depth_{03\text{-}07}$), short-term debt as a % of exports ($st\_debt\_exports_{03\text{-}07}$) and current account deficits as a percent of GDP ($CAD_{03\text{-}07}$). The data for growth, international reserves in months of imports, private credit (as a percent of GDP), short-term debt (as a percent of exports) and current account deficits (as a percent of GDP) are from World Development Indicators, World Bank. For the *de jure* capital account openness, we consider the Chinn-Ito index (Chinn and Ito, 2006) which is based on annual reports on Exchange Arrangements and Exchange Restrictions (AREAER) published by the IMF. The KAOPEN is standardized to have a zero mean and unitary variance with higher values denoting more openness to cross-border capital transactions. For financial market depth, we rely on a recently published IMF database on financial structure for a relatively large number of advanced economies and EMDE (Svirydzenka, 2016). The financial depth index (fin_depth) considers both the size and liquidity of financial institutions and lies between zero and one, with higher values denoting

[1] The equation does not include capital intensity or human capital variables, primarily because these standard controls matter much more in growth empirics, especially in long-run growth regressions. Since the focus of this study is on short- to medium-term growth dynamics surrounding the global financial crisis, much of the literature emphasizes that macro-financial and external sector variables play a more immediate role. Therefore, the model specification is intentionally designed to capture the short-run transmission mechanisms of external shocks rather than long-run growth determinants. We are grateful to the anonymous referee for pointing this important issue.

higher depth. We estimate eq. (1) for a sample of 63 emerging market and developing economies[2].

The literature distinguishes between neo-mercantilist and pre-cautionary motives for holding international reserves (Choi and Taylor, 2022). The neo-mercantilist motive is explained by reserve accumulation (purchases of foreign currencies) aiming to real exchange rate depreciations to promote export-led growth. Rodrik (2006) notes that the mercantilist motive expresses reserve accumulation as a by-product of industrial policies to promote exports. According to the pre-cautionary motive, reserves provide self-insurance against adverse shocks originating from external global financial conditions and/or from domestic vulnerabilities. Aizenman et al. (2024) finds that financial development plays an essential role in explaining the buffer effect of international reserves on real exchange rate changes. According to the pre-cautionary motive, international reserves are crucially important in determining the incidence and severity of financial and currency crises including the recent GFC. The literature, however, provides mixed results. Blanchard et al. (2010), Lane and Milesi-Ferretti (2011), Berkmen et al. (2012) find no significant role of reserves on the severity of the GFC. Frankel and Saravelos (2012), Bussière et al. (2015) and Allegret and Allegret (2019) are amongst the studies finding that reserve accumulation is one of the most robust determinants of the intensity of the GFC. Calvo et al. (2013) also suggests that higher international reserves reduce the cost and probability of sudden stops in capital inflows. Bussière et al. (2015) finds that the impact of international reserves (relative to short-term debt) depends on the degree of capital controls, such that lower capital account openness reinforces the mitigating effect of reserves during the GFC.

The precautionary motive to hold international reserves may not be independent of the level of capital openness of the countries. Bergin et al. (2023), for instance, finds that capital controls combined with reserve accumulation contribute to real GDP growth. In this context, we consider also the interaction of KAOPEN and reserves (KAOPEN*reserves_month) in our estimations. Credit growth is among the variables often robustly explaining the incidence of the GFC. Credit growth in a country with higher financial development, on the other hand,

[2] The EMDE sample contains 63 countries: Argentina, Armenia, Bangladesh, Belarus, Belize, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Burundi, Cambodia, Chile, China, Colombia, Costa Rica, Croatia, Dominican R., Egypt, El Salvador, Ethiopia, Gambia, Georgia, Ghana, Guatemala, Guinea, Guyana, Honduras, Hungary, India, Indonesia, Jamaica, Jordan, Kenya, Korea R., Kyrgyz R., Latvia, Lesotho, Lithuania, Macedonia, Malawi, Malaysia, Mexico, Moldova, Morocco, Mozambique, Nicaragua, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russia, Sierra Leone, South Africa, Sri Lanka, Tanzania, Thailand, Tunisia, Türkiye, Ukraine, Vietnam. The choice of the sample is basically determined by data availability.

may have quite different consequences from that for a country with relatively underdeveloped financial markets. This important issue is tackled with the introduction of credit_growth*fin_depth in our equations.

The growth determinants during the crisis may not be invariant to the prevailing exchange rate regimes (ERRs). For the exchange rate regimes (ERRs), we consider the *de facto* –i.e., the actually followed, rather than the officially declared- classification by Ilzetzki et al. (2019) (IRR). The classification by IRR divides *de facto* regimes into 6 "coarse" -fixed, limited flexibility, managed floating, freely floating, freely falling, dual market in which parallel market data is missing- and 15 "fine" categories. In these classifications, higher values (up till 4 and 13, respectively in the coarse and fine classifications) denote more flexible exchange rate arrangements[3]. We consider the coarse classification by IRR and define fixed and limited flexibility regimes as managed whilst managed floating and freely floating regimes as floating.

Table 1 reports the estimation results for equation 1 for the whole sample, managed and floating ERRs. Countries with higher level of reserves prior to the GFC tend to have a positive growth during the crisis. KAOPEN amplifies this positive impact of the reserves. The effect of KAOPEN *per se*, on the other hand, is negative for countries with managed ERRs and insignificant for those with floating ERRs. This suggests that greater capital account openness enhances the effectiveness of pre-cautionary reserve holdings. Pre-crisis credit growth, which is often found as being amongst the robust determinants of crises, dampens growth under managed ERRs. This growth mitigating effect appears to be the case for financial depth under floating ERRs. However, credit growth may be less harmful in deeper financial systems operating under floating regimes, as these systems are better equipped to absorb shocks and benefit from the monetary policy flexibility that floating regimes provide. Short-term debt (% of exports) tends to lower growth. Higher current account deficits (CAD) lower growth under managed ERRs. It may plausibly be expected that CAD led to real exchange rate adjustments under floating ERRs. Consistent with this wisdom, CAD appears to have an insignificant impact on growth during the crisis under floating ERRs.

[3] IRR notes that classifying episodes of severe macroeconomic instability with very high inflation and exchange rate change as floating, intermediate or pegged may be misleading as they could be incorrectly attributed to the ERR. IRR classifies these episodes as "freely falling".

Table 1
The Determinants of Growth During the Crisis: The Financial Channel

Equation	(1.1)	(1.2)	(1.3)	(1.4)
Sample	Whole	Managed ERR	Floating ERR	Floating ERR
$Reserves\_month_{03\text{-}07}$	0.688 (0.163)***	0.788 (0.235)***	0.862 (0.366)**	0.862 (0.224)**
$KAOPEN_{03\text{-}07}$	-1.489 (0.505)***	-2.004 (0.632)***	0.109 (0.944)	
$(reserves\_month*KAOPEN)_{03\text{-}07}$	0.206 (0.102) **	0.304 (0.132)**	-0.051 (0.192)	0.339 (0.162)**
$st\_debt\_exports_{03\text{-}07}$	-0.044 (0.015)***	-0.048 (0.026)*	0.086 (0.049)	-0.055 (0.012)***
$fin\_depth_{03\text{-}07}$	-1.660 (0.699)**	-1.675 (1.311)	-3.002 (0.820)***	-2.717 (0.601)***
$credit\_growth_{03\text{-}07}$	-0.811 (0.307)***	-1.125 (0.385)***	-0.256 (0.443)	
$(credit\_growth*fin\_depth)_{03\text{-}07}$	-0.259 (0.139)*	-0.354 (0.177)**	0.103 (0.256)	
$CAD_{03\text{-}07}$	-0.159 (0.074)**	-0.237 (0.088)***	0.070 (0.114)	
constant	-1.560 (1.616)	-1.673 (3.154)	4.718 (2.308)	4.259 (1.560)**
Statistics	N=63	N=44	N=19	N=19
	$R^2 = 0.540$	$R^2 = 0.527$	$R^2 = 0.748$	$R^2 = 0.734$
	F = 7.92	F = 4.87	F = 3.72	F = 13.90

Notes: The values in parentheses are the standard errors. *, ** and ***, respectively, denote significance at 10 %, 5 % and 1 % levels. N is the number of countries.

2.2. International reserves, capital openness and growth under managed exchange rate regimes

The EMDE with floating ERRs may also need to hold international reserves due to mainly the presence of short-term debt and "fear of floating" arising from liability dollarization (Calvo and Reinhart, 2002). In this context, Calvo et al. (2013) shows that floating ERRs have no impact on optimal international reserve holdings. The pre-cautionary motive for holding international reserves may be expected to be

the case especially for countries implementing a managed exchange rate regime (ERR) with more open to international capital flows. Jeanne and Ranciere (2011), in particular, suggests that an average country needs to hold a stock of reserves equivalent to 9.1% of its GDP to offset the negative growth impact of the financial account reversal. In a similar vein, according to Mihailov and Nasir (2022) the optimal reserves-to-output ratio is 7.5% for typical emerging market countries facing the risk of sudden stops in capital inflows. Calvo et al. (2013) estimates average optimal level of reserves for their EMDE sample as 25.7 % of GDP. For our sample, the average level of reserves as a % of GDP by 2007 is 31.7 for floating ERRs and 41.8 for managed ERRs. Consequently, the EMDE including those with managed ERRs may be interpreted to hold adequate level of reserves on average just before the GFC.

Higher *de jure* capital openness index (KAOPEN) does not necessarily ensure higher international financial integration. Consequently, we also consider the pre-crisis *de facto* index of international financial integration (IFI) which is measured as the sum of international gross stocks of financial assets and liabilities as a % of GDP (Lane and Milesi-Ferretti, 2011). According to Kose et al. (2009), the IFI may be preferred as it provides a better measure of how economies are integrated in practice. We estimate eq. (1) also by considering reserves/GDP (reserves_GDP) and its interactions with IFI and KAOPEN.

Table 2 presents the results for the whole sample and managed ERRs. We consider *de facto* international financial integration as a measure of financial openness in eq.s (2.1) and (2.2). In eq.s (2.3) and (2.4), we use the alternative measure of reserves i.e., reserves as a percent of GDP and *de jure* capital account openness index. We consider *de facto* financial openness measure i.e., IFI and alternative reserve definition in eq.s (2.5) and (2.6).

The pre-crisis level of KAOPEN appears to be associated with lower growth during the crisis for countries with managed ERRs. This is also the case for *de facto* IFI. Higher reserves (Reserves/GDP), on the other hand, lead to growth for the samples of managed ERR prevailing countries. This may reflect the theoretical role of reserves as a buffer under limited exchange rate flexibility, where reserves help absorb external shocks and maintain monetary and financial stability in the absence of full nominal adjustment through the exchange rate. The positive impact of reserves is amplified for those either with higher *de facto* (IFI) and *de jure* (KAOPEN) regimes albeit IFI and KAOPEN, *per se*, are individually negative and statistically significant. This negative association between capital openness and growth during the GFC likely reflects the vulnerability of countries with liberalized capital accounts but limited exchange rate flexibility. In the absence of adequate macroprudential regulation and sufficient buffers, capital openness increased

susceptibility to sudden stops, capital flow reversals, and financial contagion thereby intensifying the adverse effects of GFC on output. The results for short-term debt, financial depth, credit growth and CAD are essentially the same with those reported by Table 1.

Table 2

The Determinants of Growth During the Crisis: Alternative Reserve and Financial Openness Measures

Equation	(2.1)	(2.2)	(2.3)
Sample	Whole	Managed ERR	Whole
$Reserves\_month_{03\text{-}07}$	0.069	-0.264	
	(0.036)	(0.451)	
$IFI_{03\text{-}07}$	-0.023	-0.036	
	0.014)*	(0.019)**	
$(reserves\_month*IFI)_{03\text{-}07}$	0.005	0.008	
	(0.003)*	(0.004)**	
$Reserves\_GDP_{03\text{-}07}$			0.027
			(0.017)
$(reserves\_GDP*IFI)_{03\text{-}07}$			
$(reserves\_GDP*KAOPEN)_{03\text{-}07}$			0.022
			(0.012)*
$KAOPEN_{03\text{-}07}$			-1.164
			(0.395)**
$st\_debt\_exports_{03\text{-}07}$	-0.060	-0.085	-0.049
	(0.016)***	(0.031)***	(0.016)**
$fin\_depth_{03\text{-}07}$	-1.882	-1.250	-1.043
	(0.739)***	(1.394)	(0.714)
$credit\_growth_{03\text{-}07}$	-0.777	-1.172	-0.839
	(0.331)**	(0.418)***	(0.323)***
$(credit\_growth*fin\_depth)_{03\text{-}07}$	-0.241	-0.381	-0.262
	(0.148)***	(0.191)**	(0.148)*
$CAD_{03\text{-}07}$	-0.153	-0.226	-0.054
	(0.079)**	(0.097)**	(0.075)
constant	1.081	4.421	2.248
	(2.497)	(3.869)	(1.299)
Statistics	N=63	N=44	N=66
	$R^2 = 0.49$	$R^2 = 0.577$	$R^2 = 0.462$
	F = 6.50	F = 5.14	F = 6.11

Table 2 (cont'd.)

Equation	(2.4)	(2.5)	(2.6)
Sample	Managed ERR	Whole	Managed ERR
$Reserves\_month_{03\text{-}07}$			
$IFI_{03\text{-}07}$		-0.024	-0.038
		(0.010)**	(0.014)***
$(reserves\_month*IFI)_{03\text{-}07}$			
$Reserves\_GDP_{03\text{-}07}$	0.045	-0.046	-0.068
	(0.021)**	(0.042)	(0.043)
$(reserves\_GDP*IFI)_{03\text{-}07}$		0.001	0.011
		(0.000)***	(0.003)***
$(reserves\_GDP*KAOPEN)_{03\text{-}07}$	0.027		
	(0.013)**		
$KAOPEN_{03\text{-}07}$	-1.279		
	(0.438)***		
$st\_debt\_exports_{03\text{-}07}$	-0.052	-0.058	-0.080
	(0.026)**	(0.017)***	(0.027)***
$fin\_depth_{03\text{-}07}$	0.262	-1.100	0.168
	(1.051)	(0.738)	(1.041)
$credit\_growth_{03\text{-}07}$	-1.472	-0.949	-1.745
	(0.393)***	(0.349)***	(0.414)***
$(credit\_growth*fin\_depth)_{03\text{-}07}$	-0.529	-0.307	-0.630
	(0.177)***	(0.156)**	(0.181)***
$CAD_{03\text{-}07}$	-0.125	-0.115	-0.249
	(0.084)	(0.081)	(0.092)**
constant	4.147	5.037	8.406
	(2.161)*	(1.960)***	(2.572)***
Statistics	N=49	N=66	N=49
	$R^2 = 0.464$	$R^2 = 0.428$	$R^2 = 0.471$
	F = 4.34	F = 5.34	F = 4.46

Notes: The values in parentheses are the standard errors. *, ** and ***, respectively, denote significance at 10 %, 5 % and 1 % levels. N is the number of countries.

2.3. The trade channel

For the trade channel, we consider trade openness (Trade_open, sum of exports and imports, as a % of GDP), trade composition proxied by the share of manufacturing products in total exports (Manexp_merchexp), the direction of trade

(the share of exports to high income countries, Merch_exports_to high income), the share of medium and high technology exports in total exports (Med_High_Tech_exports) along with the shares of manufacturing value added (MVA) and services value added (SVA) in GDP.

As the GFC caused a sharp decline in world trade and thus import demand not only in AE but also in EMDE, the direction of trade, *per se*, may not be very informative. The import content of medium and high technology products may be expected to be much higher than primary and lower technology products. Substantial real exchange rate depreciations during the GFC, in this context, may lead to a decrease in production and export of the higher technology intensity products magnifying the growth collapses.

Table 3
The Determinants of Growth During the Crisis:
The Trade Channel

Equation	(3.1)	(3.2)
$Trade\_open_{03-07}$	-0.021	-0.022
	(0.013)*	(0.012)*
MVA_{07}	0.198	0.170
	(0.111)*	(0.096)*
$SERV\_VA_{07}$	-0.171	-0.166
	(0.064)**	(0.060)***
$Med\_High\_Tech\_exports_{03-07}$	-0.057	-0.057
	(0.027)**	(0.026)**
$Merch\_exports\_to\ high\ income_{03-07}$	-0.012	
	(0.028)	
$Manexp\_merchexp_{03-07}$	-0.005	
	(0.020)	
constant	12.305	11.472
	(4.066)***	(3.395)***
Statistics	N=64	N=67
	$R^2 = 0.327$	$R^2 = 0.305$
	F = 4.61	F = 6.80

Notes: The values in parentheses are the standard errors. *, ** and ***, respectively, denote significance at 10 %, 5 % and 1 % levels. N is the number of countries.

The results presented by Table 3 suggest that countries with more open to international trade prior to the crisis observed negative growth. In a similar vein, higher medium and high technology product exports are associated with lower growth. The negative relationship between medium and high technology exports and growth during the global financial crisis likely reflects the sharp decline in global demand, which disproportionately affected technology intensive sectors reliant on international markets. Consistent with the Kaldorian "manufacturing is the engine of growth" postulation (Kaldor, 1966), higher manufacturing share enhances growth even during the crisis. In a similar vein, servicification appears to be associated with lower growth.

3. Concluding notes

The global financial crisis (GFC) of 2008-2009 spread also to many emerging market and developing economies (EMDE). The results of this study strongly support a postulation that the intensity and contagion of the crisis may be explained by the own financial and trade fundamentals of the countries prior to 2008-2009. Higher credit growth combined with financial depth and short-term debt appear to aggravate the adverse impact of the crisis in terms of output collapse both under managed and floating ERRs. Consistent with a view that reserves may act as a buffer to defend the currency under floating ERR, higher reserves dampen output collapse during the crisis especially for countries open to international capital flows. Restraining credit growth and consequently decreasing current account deficits, regulating financial system and development, accumulating adequate reserves, decreasing short-term debt and capital inflows which are indeed often prone to sudden stops or reversals along with enhancing manufacturing industry may be amongst the essential parts of a policy strategy aiming to decrease vulnerabilities of an economy from adverse external shocks. Such a strategy may also be expected also to enhance higher sustainable growth especially for emerging market and developing economies.

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Özet

Küresel finansal krizin etkisine yeniden bakış: Finansal ve ticari bağlantılar

Biz bu çalışmamızda 2008-2009 küresel finansal krizi sırasında yükselen piyasa ve gelişmekte olan ekonomilerin büyüme performansını belirleyen temel faktörleri araştırıyoruz. Bu faktörleri araştırmada, finansal ve ticaret kanallarını ele alıyoruz ve özellikle finansal kanala odaklanıyoruz. Sonuçlarımız, kriz öncesi rezerv seviyeleri, kısa vadeli borç, kredi büyümesi, finansal derinlik, cari açık, *de jure* ve *de facto* finansal açıklık, ticaret açıklığı ile imalat ve hizmet sektörlerinin GSYİH içindeki paylarının büyüme çöküşünü açıklamada teorik beklentilerle uyumlu şekilde anlamlı olduğunu göstermektedir. Ayrıca, sonuçlarımız finansal kanal değişkenlerinin etkilerinin *de facto* döviz kuru rejimlerine bağlı olarak değişim sergilediğini göstermektedir.

Anahtar kelimeler: Yükselen piyasa ekonomileri, gelişmekte olan ekonomiler, küresel finansal kriz, finansal kanal, ticari bağlantılar.

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