Effects of Capital Inflows on Economies

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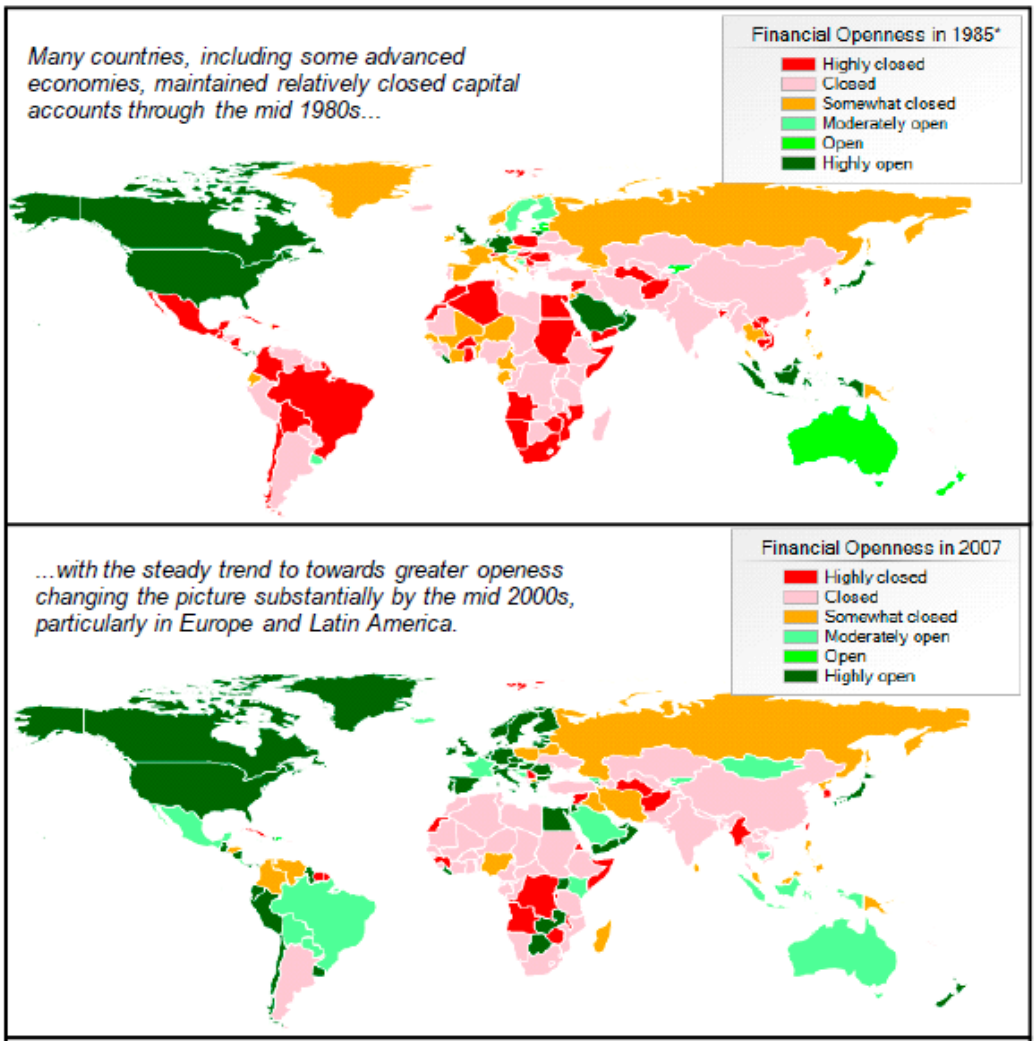
"While there is no proof in the data that financial globalization has benefited growth, there is evidence that some countries may have experienced greater volatility as a result." — Ken Rogoff

Introduction

Since the end of Bretton-Woods in the 1970's a vast capital account liberalization has taken place around the world, enabling nearly unlimited capital mobility. Capital would now be able to flow to where it was most productive unleashing large growth potential. This paper aims at providing some empirical indications on how successful financial globalization has been.



Source: IMF[1]

1 THE FUND'S ROLE REGARDING CROSS-BORDER CAPITAL FLOWS (2010): http://www.imf.org/external/np/pp/eng/2010/111510.pdf

In order to do so we provide some tangible evidence of enhanced economic performance due to capital inflows. We will empirically analyze how a set of largely advanced economies are affected by capital flows in the years 1980–2010. Firstly, we will analyze the effect of strong capital inflows on general indicators of economic performance: growth, inflation and unemployment. In the next step to gain a better understanding of how capital inflows operate we will explore underlying channels, such as investment and savings rates and government deficits.

Data and Calculations

In our analysis of capital inflows on economies, we use IMF World Economic Outlook data. All figures are stated in percent to GDP. The methodology used in this paper was to initially evaluate the data comparatively by means of comparing overall averages from 1980-2010 with averages from "capital flow bonanzas"– years of high capital inflows as defined by Reinhart and Reinhart (2008)[2]. The robustness of apparent patterns was subsequently tested in linear regression analysis.

Capital bonanzas, growth, unemployment, and inflation

Growth

The theoretical intuition regarding capital inflows into an economy is that it will spur economic growth. In Table 1 we compare the countries average growth rates from 1980–2010 to the average growth rates during capital inflow bonanzas in order to empirically clarify this relationship. The results in *Table 1* provides certain examples for individual countries, such as Spain, Denmark, Germany, and Norway in which higher average growth rates where attained in capital flow bonanzas. However, several examples can be found for the contrary case of lower growth rates during capital flow bonanzas, most prominently Canada, Finland and Sweden. On the whole the averages from 1980-2010 and the averages during capital flow bonanzas are nearly identical which does not point to an immediate general relationship between capital inflows and growth for our sample.

[2] Reinhart and Reinhart: "Capital Flow Bonanzas: An Encompassing View of the Past and the Present"

Extending the analysis of growth to the years following capital inflow bonanzas yields some interesting insights. Growth slows significantly from an overall average of 2.43% to 1.34% for the two years following strong capital inflows. A closer look into the data reveals that every single country which has a higher average growth during capital flow bonanzas, e.g. Australia, Denmark, France, Greece, Germany, New Zealand, the United Kingdom, has a significant drop-off in economic performance with below average growth in the two years following capital bonanzas.

Country	**average growth rate 1980-2010 (in %)**	**average growth rate during capital inflow bonanza (in %)**	**average growth rate during the 2 years following the bonanza (in %)**
Australia	3,213161	3,599	**2,631333333**
Austria	2,028613	2,075	2,4956
Belgium	2,005645	1,472	1,85
Canada	**2,546032**	**1,2395**	1,86775
Denmark	1,753677	2,709333	**1,02733**
Finland	**2,438742**	**1,11166**	1,78675
France	1,869968	2,0712	**0,22275**
Germany	1,744355	2,67616	**0,59725**
Greece	1,834	2,9804	1,1368571
Italy	1,328677	0,4684	1,35075
Korea	6,55329	6,1406	5,698
New Zealand	2,329871	2,984	**0,3234**
Norway	2,676806	1,8652	2,57825
Portugal	2,63971	2,4672	**0,57016**
Spain	**2,606774**	**3,9048**	**0,87275**
Sweden	**2,186**	**0,70516**	2,009
United Kingdom	2,123484	2,623	-1,55175
United States	2,682032	2,59183	**-1,3165**
averages	**2,4756**	**2,42691**	**1,34164**

Table 1

The relationship does not hold either in a regression analysis[3]. The current account as an independent variable to explain overall average growth rates is not significant and yields a low R^2 of 0.034.

[3] Independent variable: average current account of all countries in a year; dependant variable: average growth rate of all countries in a year

Unemployment

The unemployment rate is positively affected by strong capital inflows as the rate drops from its sample average of 7.47% to 6.75% during capital inflow bonanza years. This effect appears to be only temporary as the rate rises again in the following years to 7.2%. This temporary effect is somewhat reflected in a simple regression analysis which supports a weak linear influence of the current account on unemployment (p-value of 0.102; R^2 of 0.089)[4].

Inflation

Regarding the influence of capital flow bonanzas on inflation we can tell a clear story. The majority of the countries in our sample are faced with higher inflation rates during and after capital flow bonanzas. A regression analysis provides more convincing evidence of the strong relationship between capital inflows and inflation (R^2 of 0.80; highly significant p-value, see *Table 3*).

To conclude our first glance at the data we observe no general influence of capital flow bonanzas on growth and, remarkably, a poorer economic performance in the

Country	**average inflation rate 1980-2010 (in %)**	**average inflation rate during capital bonanza (in %)**	**average inflation rate during 2 years following bonanza (in %)**
Australia	4,64	4,80	5,46
Austria	2,56	3,03	2,77
Belgium	2,98	7,40	3,08
Canada	3,39	5,20	4,74
Denmark	3,46	6,04	5,46
Finland	3,67	5,88	6,14
France	3,64	5,37	4,19
Germany	2,28	2,57	3,39
Greece	11,22	9,71	10,15
Italy	5,81	13,80	8,53
Korea	5,67	14,30	4,78
New Zealand	5,46	7,74	8,50
Norway	4,23	5,88	3,24
Portugal	8,11	10,64	10,79
Spain	5,71	3,27	2,58
Sweden	4,50	10,04	5,98
United Kingdom	4,02	3,92	4,36
United States	3,63	2,67	1,75
averages	**4,72**	**6,79**	**5,33**

Table 2

Regression statistics inflation, current account

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	2,194992	0,365409	6,006948	1,56E-06
Current Account	-3,37614	0,312291	-10,8109	1,09E-11

Regression Statistics	
Multiple R	0,895098
R Square	0,8012
Adjusted R Square	0,794345
Standard Error	1,563958
Observations	31

Table 3

[4] Independent variable: average current account of all countries in a year; dependant variable: average unemployment rate of all countries in a year, see Appendix for regression tables

following two years. There is a weak effect on unemployment, albeit a temporary one. Furthermore, there is substantial evidence of capital inflows significantly driving up the inflation rate.

Underlying channels

In the following we will attempt to paint a more complete picture of how capital flow bonanzas affect economies. We do this by indentifying possible channels such as changes in investment and savings behavior, government deficits and output gap.

Investment and savings

Data on the investment and savings rate (in % to GDP) was only available for six of the 18 countries. Observing *Table 4* we can quickly identify a distinction of what Rodrik and Subramanian (2009) would term saving-constrained and investment-constrained economies[5]. Saving-constrained economies would enjoy an increase in the investment rate (France; Italy; United Kingdom) and investment-constrained ones would see a drop in the savings rate (United States; Canada). Germany upsets this pattern as both the investment rate and the saving rate show significant change. To test the validity of this pattern, we will conduct regressions of the current account changes on the changes in the investment and savings rate of these countries, the results of which are presented in *Table 5*:

Country	investment/ savings rate (in % of GDP)	average 1980 - 2010	average during capital flow bonanzas	differential
Canada	inv.	20,77	20,59	-0,19
Canada	sav.	19,98	16,97	-3,02
France	inv.	20,11	21,13	1,03
France	sav.	20,57	20,85	0,28
Germany	inv.	21,56	23,35	1,79
Germany	sav.	22,57	21,07	-1,51
Italy	inv.	21,33	23,71	2,38
Italy	sav.	20,20	20,77	0,57
United Kingdom	inv.	17,49	19,41	1,91
United Kingdom	sav.	15,96	15,85	-0,11
United States	inv.	19,31	19,59	0,28
United States	sav.	16,26	14,79	-1,47

Table 4

[5] Rodrik, Dani, Arvind Subramanian: "Why Did Financial Globalization Disappoint?"

		Canada	France	Germany	Italy	UK	USA
Investment rate	R^2	n/a	**0,34**	**0,26**	**0,32**	**0,23**	n/a
	Direction of effect	+	**+**	**+**	**+**	**+**	+
	p-value[6]	0.55	**0.00053*****	**0,0034*****	**0.00084*****	**0.0064*****	0.54
Saving rate	R^2	**0,43**	n/a	**0,67**	**0,23**	**0,18**	**0,20**
	Direction of effect	**-**	-	**-**	**-**	**-**	**-**
	p-value	**0,00006*****	0.35	**2,15e-08*****	**0.0064*****	**0.0168****	**0.012****

Table 5

We can take from this regression analysis that the initial categorization of investment-constrained countries (USA/Canada) holds, as capital inflows (negative current account) do not significantly influence the investment rate. Similarly, the idea of France, Germany, Italy, and the UK as being saving-constrained holds as well, due to the significant increase in the investment rate.

We would assume that saving-constrained economies would be able to put capital inflows to productive use and have increased growth rates during capital flow bonanzas and a declining growth when capital inflows slow. *Table 1* reflects this story for Germany, France, and the United Kingdom – not quite though for Italy. The investment-constrained economies in our sample, the United States and Canada, face no or a negative growth during capital flow bonanzas while the additional capital allows for a lowering of the saving rate.

Government deficit

Regarding capital inflows on government debt (in % to GDP), we have varying results between countries from a number of country which are highly influenced by a change in the current account to countries which are not affected at all. Regression analysis rejects any substantial correlations between capital inflows and government debt levels for the USA, Canada, and France. Convincing cases for increasing debt to GDP levels can be made, however, for Germany (R^2 0.595; p-value: $6.7e^{-5}$), Italy (R^2: 0.47; p-value: 0.000282), Norway (R^2: 0.699; p-value: $5e^{-9}$), Greece (R^2:0.26; p-

[6] *** significant to the 1%-quantile
** significant to the 5% quantile
*significant to the 10% quantile

value: 0.003). For Finland (R^2:0.80; p-value: $7e^{--12}$) we observe a significant decrease of government debt levels during capital inflows. It should be noted that the direction of causality remains unclear for these regressions.

Conclusion

This paper has explored possible effects of strong inflows on a set of mainly advanced economies. The results of linear regression are summarized in the following chart:

	capital inflows	Direction of effect for
growth rate	No robust overall effect	0
	Weak linear effect for saving-constrained economies	+
	No effect for investment constrained economies	0
unemployment rate	Weak linear effect	-
inflation rate	Robust linear effect	+
investment rate	Robust linear effect for saving-constrained economies	+
	No effect on investment-constrained economies	0
savings rate	Robust linear effect on all investment-constrained economies, as well as some saving constrained economies	-
government deficit	For some countries highly significant influence, overall weak correlation	Generally increased deficit, for the case of Finland decreased deficit

We find no robust evidence that strong capital inflows have an apparent effect on economic growth. In fact, it can easily be argued that strong capital inflows worsen the economic environment as the average growth rate of our country sample is almost halved in the years following the capital flow bonanzas as well as a significant and robust increase in inflation.

A closer analysis of the available data reveals patterns of saving-constrained and investment-constrained countries. The investment rate is significantly influenced by capital inflows in all cases of what we term saving-constrained economies. Also the growth rates are temporarily accelerated in capital inflow bonanzas, but return to lower levels when these inflows slow. The effect on the growth rate of these economies shows a higher significance towards changes in the current account than

for investment-constrained economies, in which the investment rate remains unaffected and the capital inflows mainly replace domestic savings. Through another possible channel capital inflows could lead to an increase in governments' deficits.

In all the findings of this paper provide some support for Bhagwati's view that "The claims of enormous benefits from free capital mobility are not persuasive. Only an untutored economist would argue therefore that free trade in widgets and life insurance policies is the same free cap mobility. Capital flows are characterized by panics and manias."[7]

[7] http://www.imf.org/external/np/tr/2007/tr070427.htm

References

Reinhardt, Carmen, Vincent Reinhart: “Capital Flow Bonanzas: An Encompassing View of the Past and the Present”, NBER Working Paper 14321, 2008.

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