The Simple Economics of Sudden Stops

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The national income can be accounted for by following identity: $Y=C+I+NX$ where Y is the GDP, C refers to aggregate consumption in the economy, I refer to investment and NX is the difference between exports and imports. After some mathematical manipulation the equation can be reduced to $NX=S-I$ in equation (3) below

$$Y=C+I+NX \qquad (1)$$

Replacing $Y=C+S$ in equation (1) above the equation reduces to

$$C=Y-S \qquad (2)$$

$$NX=S-I \qquad (3)$$

Equation (3) shows that the current account can be explained as a difference between domestic saving and investment. Fig. 1 shows the evolution of Pakistan's current account using equation (3) for the years 1980-2015. The balances have been calculated separately for public and private sector. Both public and private balances move in tandem. Private current account has consistently remained in surplus. It briefly turned negative in FY10. On the contrary the public balances have persistently remained in deficit. Both balances converged in FY 2010 but thereafter

Fig. 1 Current Account Balances Pakistan

Source: Handbook of Statistics on Pakistan Economy
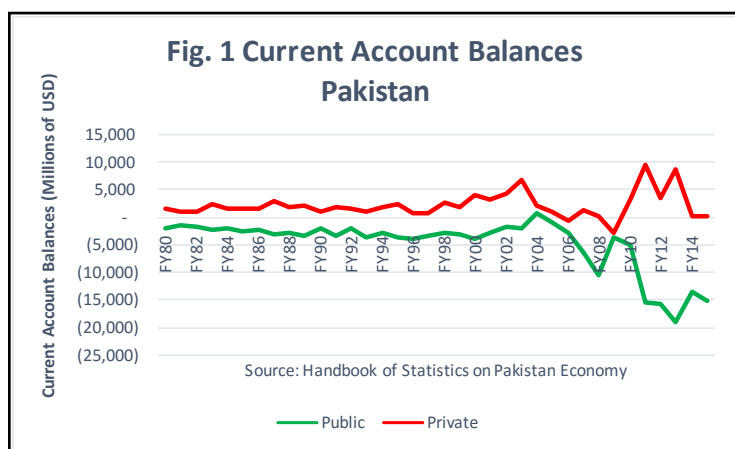
the directions were opposite. Excess public investments were equally offset by low private investment which is evident after FY10. The trend continued until 2014 when both balances appear to be converging again. What is noteworthy is heightened volatility post global financial crisis that began in 2007 and culminating in 2008.
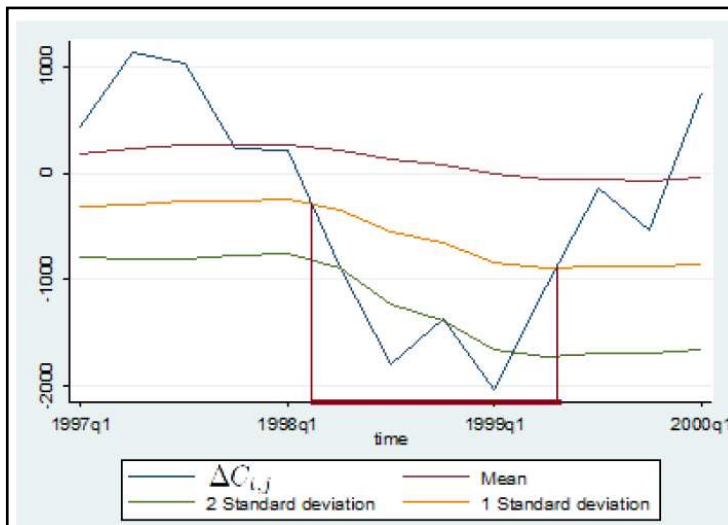
This volatility in current account or trade balances naturally leads to difficulties in financing it. It is thought that economies experiencing large current account deficits (CADs) are potentially exposed to 'large and unexpected' stops in the financing of the current account gap, or Sudden Stops (SS[2]) This implies a sudden discontinuity in the flow of international capital. (Izquierdo,

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[1]Inspired by the title of (Calvo, Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops, 1998)

[2] The term Sudden Stop can be first traced to work by famous economist Dornbusch in his article on Currency Crises and Collapse in 1995, quoting the banker's adage "it is not speed that kills, it is the Sudden Stop". (Calvo,

2013). The SS have been apparent following Tequilla crises in Mexico and Asian financial crises (occurred in nineties) which eventually led to painful adjustments in the exchange rates of those countries.

As mentioned earlier the term Sudden Stop was first introduced by famous economist Dornbusch in the context of currency crises (Calvo, Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops, 1998) Subsequently, (Cavallo, Powell, Pedemonte, & Tavella, 2015) used a comprehensive taxonomy of sudden stops to identify sudden stops that concern most . They used an empirical strategy to define various sudden stops based on flows.

Their strategy included two requirements which needed to be satisfied for a Sudden Stop episode to occur. First the sudden stop signal which is defined as a fall in year-on-year (yoy) flows exceeding two standard deviations below the mean. This algorithm was first proposed in (Calvo, Izquierdo, & Mejía, NBER , 2004). It shows Sudden Stop as an episode that begins when change in net external flows falls below one standard deviation of its historical mean (conditional that it subsequently falls below two standard deviations below the mean) and ends when the series exceeds one standard deviation below the mean. Figure 2 shows this in a graphical form.
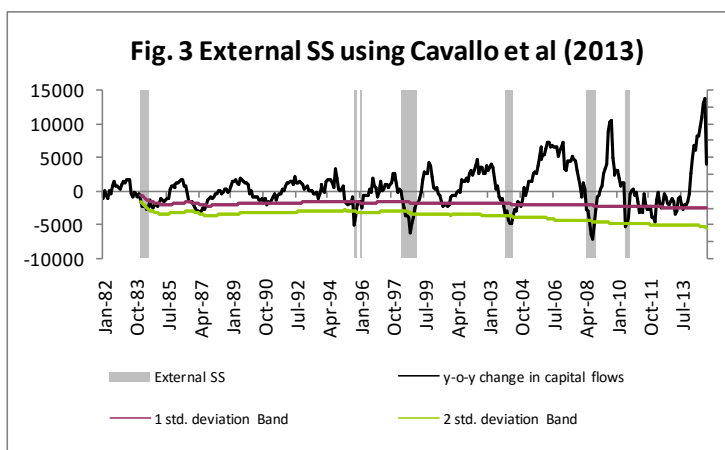
Fig. 3 External SS using Cavallo et al (2013)

This note uses the above algorithm on quarterly series of Current Account flows of Pakistan obtained from IMF-IFS to identify any episodes of SS. The note also calculates net external sudden stop as defined by (Cavallo, Powell, Pedemonte, & Tavella, 2015). They define net external sudden stop as summation of real exports, imports and changes in real reserves. The idea is to see if episodes of sudden stops coincide with exchange rate volatility and thus the

fear of floating. The data on Current account, exports, and imports have been taken from IMF's International Financial Statistics database after adjusting for inflation.

Figure 3 shows episodes of external sudden stops. As expected the sudden stops for Pakistan coincide with Asian financial crises of 1998-99 and great financial crisis which saw large outflows from emerging markets. The episodes occurring around 1998-99 are probably more pronounced due to capital controls imposed by the country following the events of May 28, 1998. Pakistan became nuclear power on that day which inflicted western economic sanctions on it resulting in lower investor confidence.

Fig. 4 Suddent Stops in Current Account
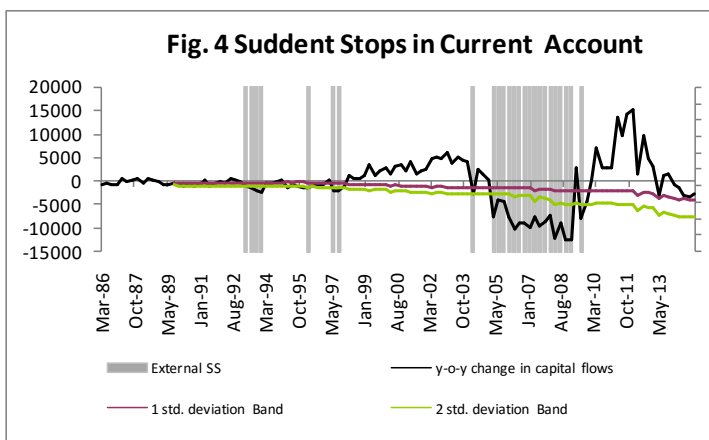
Compare this with the situation in Figure 4 which shows sudden stops based on real current account balances. The country experienced continuous episodes of SS around financial crisis of 2007-2009 thus inflicting a big deficit on external sector. The average monthly exchange rate on the eve of September 2007 (when crisis is believed to have hit the US first) was standing at 60.63 PKR/USD which had deteriorated to 84 PKR/USD by December 2009 (when the crisis had

appeased following a well coordinated global monetary policy response. Nevertheless a key finding is that episodes of SS are associated with deteriorating CA balances and exchanger rate volatility. This volatility can be seen in Figure 5. Clearly heightened volatility in exchange rate appears to be associated with episodes of sudden stops indicating depreciation. (Calvo,

Figure 5. Pakistan- Fear of Floating
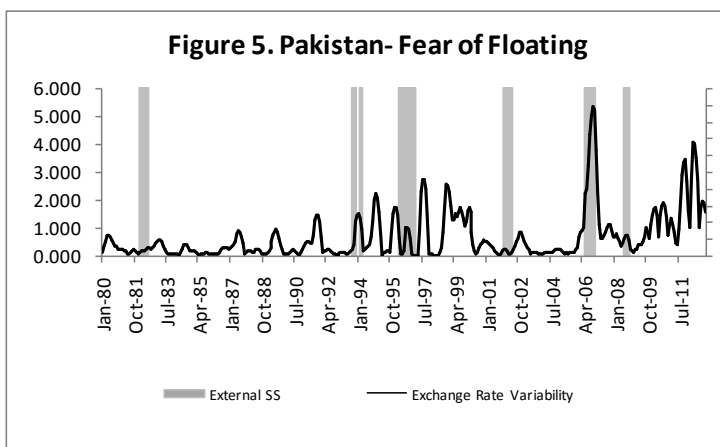
Izquierdo, & Mejía, NBER , 2004) Concluded that openness[3] of a capital account, coupled domestic liability dollarization[4] (DLD) were key determinants of the probability of Sudden Stops.

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[3] They use large supply of tradable goods that reduces leverage over the current account deficit as a proxy for openness.

In the case of Pakistan, it is conjectured that SS are more likely due to openness and less due to DLD as share of financing in dollar by domestic borrowers is dwarfed by borrowing in domestic currency.

dangerous cocktail.

Bibliography

Calvo, G. A. (1998). Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops. *Journal of Applied Economics , 1* (1), 35-54.

Calvo, G. A., Izquierdo, A., & Mejía, L.-F. (2004, May). *NBER* . Retrieved July 11, 2017, from ON THE EMPIRICS OF SUDDEN STOPS:THE RELEVANCE OF BALANCE-SHEET EFFECTS: http://www.nber.org/papers/w10520.pdf

Cavallo, E., Powell, A., Pedemonte, M., & Tavella, P. (2015). A new taxonomy of Sudden Stops:Which Sudden Stops should countries be most concerned about. *Journal of International Money and Finance* , 47-70.

Izquierdo, A. (2013). The Evidence and Impact of Financial Globalization.

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[4] Liabilities of the private sector with the domestic banking system denominated in foreign currency. A large share of these liabilities relative to GDP is considered a source of vulnerability in the event of Sudden Stops in capital flows accompanied by large real exchange rate depreciation. (Izquierdo, 2013)