

# Current-account breaks and stability spells in a global perspective

Stability spells  
in a global  
perspective

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## Abstract

**Purpose** – This study aims to identify structural breaks in the current account and the periods between these breaks, which the authors name stability spells, and study their characteristics and determinants.

**Design/methodology/approach** – Using data from the IMF and the World Bank, this study applies the Lee and Strazichik test to endogenously identify breaks and the Heckman selection model to simultaneously study the determinants of structural breaks and current-account changes after breaks.

**Findings** – This study identifies 212 significant structural breaks and 341 stability spells. These spells become shorter and more volatile the further they are from equilibrium, and half of them last 10 years or less. The results show that economic growth and foreign-exchange piling are particularly useful to prevent breaks, while lower per capita income increases exposure to break risks.

**Originality/value** – This study introduces the concept of current-account stability spells to refer to the periods between structural breaks. These spells are then studied to determine their main characteristics. The authors also apply a global perspective in their analysis, using a wide sample of 181 economies between 1980 and 2018 and considering positive and negative breaks in both level and trend.

**Keywords** Current-account breaks, Current-account stability spells, Selection model, Unit-root test with structural changes

**Paper type** Research paper

## 1. Introduction

In this paper, we identify current-account structural breaks and stability spells (i.e. periods between two breaks) and analyze their characteristics and determinants by using a sample

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**JEL classification** – F32, F40, F41, F49

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of 181 countries with different degrees of economic development, for the period 1980–2018. To identify current-account breaks, we apply the [Lee and Strazicich's \(2003\)](#) test which, among other advantages, allows the endogenous identification of positive and negative structural breaks both in the levels and trends of current-account series. We examine simultaneously the determinants of both current-account breaks and changes in level after breaks, estimating a selection model based on [Heckman \(1976, 1979\)](#). Studying current-account breaks, the stability periods between them, and their determinants is key to understanding what factors and policies foster external sector stability, a particularly relevant issue at the present time when the pandemic generates so much uncertainty and instability worldwide.

We identify 212 significant structural breaks and 341 stability spells or periods between breaks. We find that half of these spells last a decade or less, and that they tend to be shorter and more volatile the further the current-account is from being balanced. Also, high-income countries tend to have stability spells with structural surpluses or moderate deficits and lower current-account volatility, whereas low-income economies register spells with major structural current-account deficits and high volatility.

Our results show that economic growth and foreign-exchange piling are particularly useful to prevent current-account breaks and enhance external stability. We also observe that low-income countries are more exposed to breaks. Our results also point out that both increases in the real interest or domestic-currency depreciations reduce the risk of breaks. The last finding curtails the effectiveness of the monetary policy in preventing current-account breaks since increasing the real interest rate and depreciating the currency are hard to combine.

The paper is structured as follows. Section 2 reviews the main literature; in Section 3, we identify and analyze the structural breaks and current-account stability spells. In Section 4, we study their determinants and, finally, Section 5 summarizes the main conclusions and policy implications.

## 2. State of the art

Structural breaks are abrupt shifts in the deterministic components in time series data, which could involve changes in the mean or changes in the slope of the process that generates the series. In the case of the current account, these breaks modify the relationship between a country and the rest of the world and alter the long-term level of the current account and/or its trend. The literature links these breaks with modifications in the long-term conditions of an economy, which include different factors related with its economic development, its macroeconomic fundamentals and its economic policies. Yet, there is no consensus about the level of influence of each of these factors on the probability of a break, a key aspect to identify the best policies and structural reforms which increase external-sector stability. Achieving this stability is especially relevant since current-account reversals involve great economic cost, as in the recent Eurozone crisis, where these costs were estimated between 6% and 32% of GDP ([García-Solanes \*et al.\*, 2018](#)).

In general, the literature analyzes the probabilities and determinants of current-account breaks by focusing on specific groups of countries, selected by income level, region or other criteria as, for instance, in [Milesi-Ferretti and Razin \(1998\)](#), [Bagnai, and Manzocchi \(1999\)](#), [Freund \(2005\)](#) or [Aßmann and Boysen-Hogrefe \(2010\)](#). In our paper, we aim to add to these studies taking a world-wide perspective that includes countries with different degrees of economic development with the objective of reducing the biases that can result from a narrow focus on a reduced group of countries. Moreover, in contrast to existing studies, such as [Milesi-Ferretti and Razin \(1998\)](#) and [Adalet and Eichengreen \(2007\)](#), we avoid *ad hoc*

definitions of breaks and do not concentrate exclusively on positive level breaks that occur when countries record current-account deficits (i.e. level current-account reversals). We identify breaks by using a unit-root test suggested by [Lee and Strazicich \(2003\)](#) that verifies whether a series is stationary with one or two breaks, and allows the endogenous identification of up to two structural breakpoints including breaks in both levels and trends of current-account series, and not only level reversals. Moreover, it avoids imposing arbitrary break thresholds, which could either exclude some breaks that do not present a major immediate effect or overstate the number of breaks in countries with a highly volatile current account.

Several previous papers have analyzed the determinants of current-account breaks. [Milesi-Ferretti and Razin \(1998, 2000\)](#) find that the current-account balance, openness, foreign exchange reserves, terms of trade, US real interest rates, real exchange rates and growth in industrial countries are relevant to explain current-account reversals. [Edwards \(2004\)](#) discovers the relevance of external debt, debt service and domestic credit creation; [Liesenfeld et al. \(2007\)](#), which focuses on emerging countries, observe that, apart from the determinants outlined by previous contributions, concessional debts are relevant determinants of current-account reversals in these economies. [De Mello et al. \(2012\)](#) examine the structural breaks in the current-account of 101 countries between 1971 and 2007 and find that, in addition to usual factors mentioned in previous studies, budget balances and the monetary policy stance are also significant determinants of reversals.

[Catão and Milesi-Ferretti \(2014\)](#) analyze the determinants of external crisis and obtain that, while the level of foreign liabilities and the current-account balance are powerful predictors of those crisis, foreign exchange reserves reduce the probability of that event and does so more effectively than foreign asset holdings. [Das \(2016\)](#) observes a relationship between the current-account balance and a group of variables including exchange rate stability, commodity prices and real GDP growth. This author also suggests that the determinants might differ between developed, emerging and developing countries. Finally, other researchers investigate the impact of structural reforms on competitiveness and current-account stability. For instance, [Xifré \(2020\)](#) summarizes the literature on this issue and underlines the relevance of structural reforms focused not only on reducing wages, but mainly on increasing non-price competitiveness such as amending the education system, increasing R&D investments and improving the quality of institutions.

Most of these authors use probit modeling to examine the determinants of a current-account break or a reversal (for instance, [Freund, 2005](#), or [Catão and Milesi-Ferretti, 2014](#)). Yet, this methodology does not allow for the analysis of the impact of the determinants on the magnitude of the change after a break, a relevant issue to minimize the impact of these breaks. [Das \(2016\)](#) performs dynamic panel regressions to assess the influence of each variable on the current-account, but he does not investigate the specific causes of breaks.

In our paper, we examine what factors cause breaks and post-break changes in the current account using a selection model. This way, we can examine the determinants of the probability of breaks and the magnitude of the subsequent changes while avoiding selection bias, as not all countries present breaks. Our methodology is in line with [De Mello et al. \(2012\)](#), adding to it several novelties: first, we apply a more global perspective, nearly doubling the countries in the sample from 101 to 181 and investigate a more recent period (1980–2018); second, according to this we discover a different set of breaks' determinants, which prove to be relevant for the period span of our analysis, such as the real interest rate, GDP per capita or foreign reserves level. Finally, our paper innovates by examining current-account stability spells with the conviction that the changes that follow the breaks are significant not just for their magnitude but also because of their duration and stability.

3. Identification of structural breaks

3.1 First look at the data

We obtain the current-account data as a percentage of GDP from the IMF World Economic Outlook (April 2020). Taking all the countries with available data, resulted in a relevant dataset of 181 economies. The timeframe studied was determined by data availability, which goes from 1980, the earliest year available, to 2018. For countries with incomplete databases in the IMF, we start from the earliest year available.

For a first visual understanding of the issue, Figure 1 reports time series of the current account in a sample of 20 economies from various regions and different levels of economic development. In all cases, current accounts exhibit structural shifts in both levels and trends, understanding the current-account level as the mean of a given period, and trend as the slope of the linear tendency in the period.

3.2 Methodology: identification of structural breaks

The literature includes different approaches in identifying current-account reversals. On the one hand, several authors, such as Milesi-Ferretti and Razin (1998) and Adalet and Eichengreen (2007), establish *ad hoc* reduction levels on current-account deficits to GDP to identify reversals, such as a reduction of 3 percentage points over three years. This method

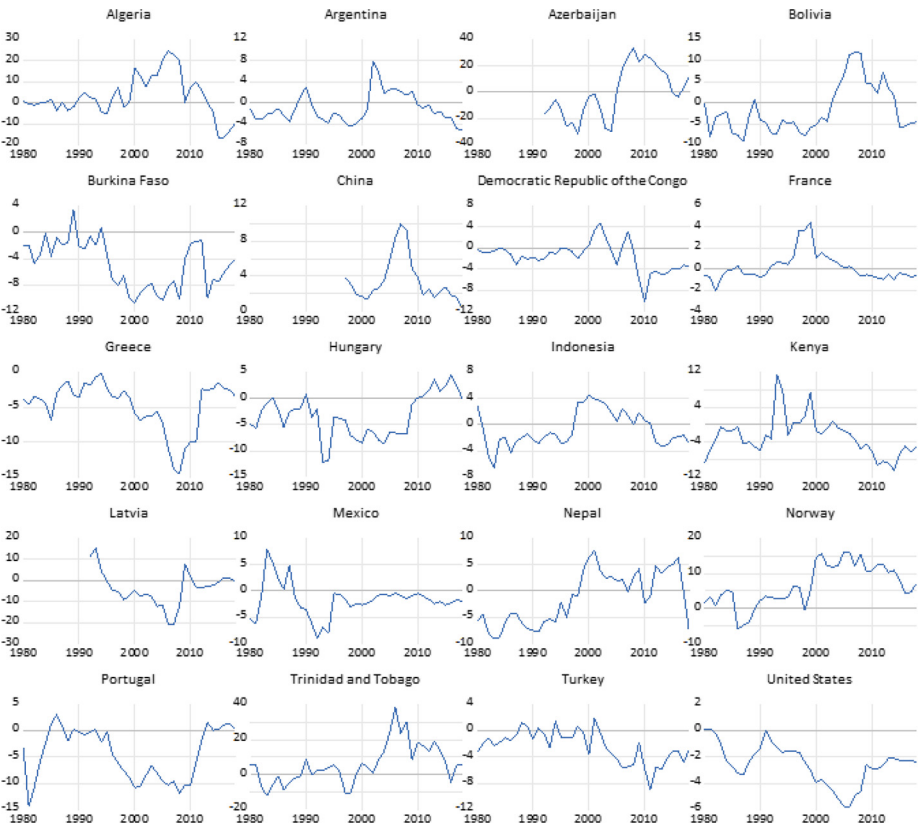


Figure 1.  
Current-account  
balance (% GDP) –  
selected countries

suffers from the limitation that it can overlook relevant structural changes that do not cause immediate shifts. In addition, as [Aßmann and Boysen-Hogrefe \(2010\)](#) pointed out, it could over-identify breaks when the external accounts of a country exhibit high volatility. As an alternative, [Bagnai and Manzocchi \(1999\)](#) and [De Mello \*et al.\* \(2012\)](#) use unit root tests that endogenously identify these breaks without imposing thresholds.

To identify the structural breaks, and following [De Mello \*et al.\* \(2012\)](#), we apply a unit-root test proposed by [Lee and Strazicich \(2003\)](#), a methodology that circumvents the spurious rejection problems associated with the [Perron \(1989\)](#) and [Zivot and Andrews \(1992\)](#) endogenous break test. The Lee and Strazicich's test is a minimum Lagrange Multiplier test that verifies whether a series is stationary with one or two breaks and allows to endogenously identify up to two structural breakpoints, including breaks in both levels and trends. The null hypothesis of this test is that the series has a unit root with one or two breaks and, thus, it is not stationary with one or two breaks, while the alternative hypothesis is that the series does not have a unit root with one or two breaks. Hence, rejecting the null unambiguously implies a trend stationary process, indicating that the series is stationary with one or two breaks, confirming the stationarity of the series around breaks. This test contemplates a maximum of two breaks, a limit which, following our results, ensures that the external position is stationary for the majority of countries, in line with [De Mello \*et al.\* \(2012\)](#). This limit is also consistent with the general stability of the global macroeconomic policy framework from the beginning of the 80s onwards, a period frequently referred to as "the great moderation" with no major global shocks other than the 2009 crisis. In addition, the number of years of our sample is not particularly long and, therefore, it is unlikely that a significant number of countries present more than two structural breaks.

Overall, the Lee and Strazicich's test allows us to avoid arbitrary thresholds to identify breaks and to include breaks both in current-account deficit and in surplus situations. Furthermore, it is able to discover breaks in situations in which, although current-account figures are not seemingly worrying, they do have important structural consequences for the country's economy. Finally, this methodology avoids the potential biases that arise in the identification of breaks when economies present different patterns of volatility.

We apply this test to the current-account balance data of 181 economies between 1980 and 2018. To choose the number of lags, we follow [Campbell and Perron \(1991\)](#) and [Ng and Perron \(1995\)](#), among others, and apply the t-sig procedure, which selects the lag through a general-to-specific recursive procedure that is based on a t-statistic of the coefficient linked with the last lag. As we are using annual data, we set the maximum lag in 2 periods ( $k = 2$ ), as in [De Mello \*et al.\* \(2012\)](#), and we set the minimum significance level at 10%, which requires a t-statistic greater than 1.645 in absolute value. The existence of two structural breaks is allowed, both in levels and in trends, in a first assessment, and for countries where the result for two breaks is not significant, we proceed by applying the test allowing one break in levels and trends.

After identifying the structural breaks, and for the series where the null is rejected and thus are stable around breaks, we also estimate the current-account linear trendline for each of the periods separated by these breaks, periods that we call current-account stability spells. This is a similar concept to "growth spells" that can be found in the literature, for instance in [Berg \*et al.\* \(2012\)](#). In order to estimate these linear trendlines for each country and stability spell,  $i$ , we pose the equation:

$$CA_i = a_i + b_i T \quad (1)$$

Where  $CA_i$  is the current-account in percentage of GDP,  $a_i$  is the constant parameter,  $b_i$  is the slope parameter, which we use as a reference for the trend of a given spell, and  $T$  is the time variable which includes all years of each spell, being 1 the value of the first year in a given stability spell. We estimate equation (1) using OLS linear regression for each of the stability spells that starts either with a series or, alternatively, with the year after a break, and finish a break year or at the end of the series.

Due to space limitations, Table 1 presents the results of this test for 20 selected economies, the same presented in Figure 1, which are a variated sample of countries with significant breaks from diverse regions and with different income levels. The results for the full sample of our study (181 countries) are available online. In the first left columns of Table 1, under the heading “Breaks”, we present the year of the breaks (Columns 2 and 3), the significance levels (Column 4) and the number of lags selected by the test (Column 5). Hence, for instance, Table 1 indicates that Argentina presents 1 break in 2000 and rejects the null at 5% significance level, while China registered 2 breaks, in 2004 and 2011, with a significance level of 1%. The results for the full sample show that 129 economies of the 181 examined have at least 1 significant structural break at 10% significance level or higher (83 economies have 2 breaks, and 46 have 1), while 52 economies do not present significant breaks. Therefore, 71% of our world-economies sample have suffered at least one structural break in their current-account in the last four decades, totaling 212 significant structural breaks during the period.

In the three major sections under the headings “First Spell”, “Second Spell” and “Third Spell” of Table 1, we present the results of the linear trendline estimations for each country and the stability spells of this sample of 20 economies, where countries with one break have two stability spells while countries with two breaks have three spells. In these three columns, for each country and stability spell, the level parameter is under column “Const.” and the slope parameter can be found in the column “Slope”. In addition, we also measure the duration of each spell in years and include it in the column “spell”. For each spell, we present its mean in the column ‘mean’ and standard deviation under “S.d.”. The mean of the spells has a particular relevance in our analysis, since we use it as a reference for the structural position, or level, of the current-account during each stability spell. Finally, in the right side of the two last sections we include three columns under the heading “Change” which present the variation of the mean, slope and s.d. in relation with the previous spell. For instance, Argentina has two stability spells as it registered only one break: the first one (third block of Table 1) with a linear trendline where the constant parameter is  $-1.23$ , the slope  $-0.08$ , the spell lasts 21 years, it has a mean of  $-2.14\%$  of GDP and a standard deviation of 1.78. Argentina’s second stability spell (fourth block in Table 1) has a constant parameter of 5.25, trend of  $-0.53$ , it lasts 18 years, has an average of  $0.23\%$  of GDP and a standard deviation of 3.33. Finally, since the last three columns in the right side of the fourth and fifth block present the change between spells, we observe that, after the break in Argentina, the mean increased by 2.37 ( $0.23 - (-2.14)$ ), the slope fell by  $-0.45$  and the s.d. rose by 1.55. This indicates that, after the break in 2001, Argentina’s current account became more positive in its level, while it reduced its slope and increased its standard deviation and, thus, its volatility.

All in all, we find that a majority of countries experience current-account breaks, and we detect 341 stability spells; 92 of them for the economies with one structural break, and 249 for the economies with two breaks. In the next sections, we analyze these results.

### 3.3 Chronology of structural breaks

We obtain a chronology of structural breaks from the 212 significant breaks, and we present it in Figure 2 and Figure 3, where we differentiate, respectively, for income levels and



Country	Breaks			Sig.	lags	First Spell $CA_{t1} = a_{t1} + b_{t1} T$				Second spell $CA_{t2} = a_{t2} + b_{t2} T$			
	Break 1	Break 2				$a_{t1}$ Const.	$b_{t1}$ Slope	Spell	Mean	S.d.	$a_{t2}$ Const.	$b_{t2}$ Slope	Spell
Algeria	1993	2007	***	1	-1.35	0.21	14	0.23	2.31	-6.85	2.15	14	9.25
Argentina	2000		**	1	-1.23	-0.08	21	-2.14	1.78	5.25	-0.53	18	0.23
Azerbaijan	2006		***	2	-20.37	0.91	15	-13.13	13.10	35.00	-2.78	12	16.91
Bolivia	2001	2007	***	2	-3.97	-0.09	22	-4.96	2.56	-6.58	3.32	6	5.05
Burkina Faso	1995		**	0	-2.61	0.11	16	-1.69	1.87	-9.48	0.20	23	-7.05
China	2004	2011	***	2	2.74	-0.04	8	2.55	0.84	9.98	-0.93	7	6.27
D.R.Congo	1999	2009	***	1	-0.98	-0.01	20	-1.11	0.88	3.78	-0.62	10	0.35
France	1995	2002	***	2	-1.12	0.10	16	-0.30	0.67	3.42	-0.25	7	2.41
Greece	1993	2010	***	2	-5.00	0.25	14	-3.13	1.56	-0.14	-0.73	17	-6.72
Hungary	1991	2009	***	1	-3.83	0.20	12	-2.51	2.01	-7.27	0.08	18	-6.48
Indonesia	1998		***	1	-2.73	0.08	19	-1.90	2.21	4.72	-0.40	20	0.52
Kenya	1998		**	1	-5.84	0.44	19	-1.42	4.57	1.75	-0.54	20	-3.94
Latvia	2008		***	1	9.21	-1.68	17	-5.89	9.30	1.48	-0.30	10	-0.15
Mexico	1986	1994	***	1	-5.30	1.45	7	0.51	4.83	3.31	-1.66	8	-4.14
Nepal	1997		***	1	-7.65	0.20	18	-5.76	2.11	4.16	-0.16	21	2.34
Norway	1984	2000	**	1	0.71	0.77	5	3.03	1.59	-3.51	0.70	16	2.48
Portugal	1995	2010	***	1	-6.85	0.54	16	-2.25	4.41	-6.41	-0.31	15	-8.87
Trinidad and Tobago	2004		***	2	-4.12	0.34	25	0.34	6.54	31.95	-2.17	14	15.67
Turkey	2003	2013	**	1	-1.50	0.05	24	-0.87	1.41	-3.70	-0.27	10	-5.18
United States	2010		*	2	-0.39	-0.14	31	-2.57	1.69	-2.59	0.05	8	-2.35
<b>Average<sup>(a)</sup></b>					<b>-4.11</b>	<b>0.33</b>	<b>15</b>	<b>-2.2</b>	<b>6.07</b>	<b>-2.95</b>	<b>0.44</b>	<b>12</b>	<b>-2.82</b>

**Notes:**  $H_0$ : the series has a unit root with one or two breaks. Ha: series does not have a unit root with one or two breaks. \*\*\*: Indicates significance at 1% level; \*\*5% level; \*10% level. (a)average for the 181 country sample

(continued)

**Notes:**  $H_0$ : the series has a unit root with one or two breaks. Ha: series does not have a unit root with one or two breaks. \*\*\* Indicates significance at 1% level; \*\* 5% level; \* 10% level. (a)average for the 181 country sample

(continued)

Stability spells  
in a global  
perspective

**Table 1.**  
Structural breaks  
and linear  
estimations –  
selected countries  
(full table of 181  
countries available  
online)

Table 1.

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Country	Second spell $CA_{12} = a_{12} + b_{12}T$				Third spell $CA_{13} = a_{13} + b_{13}T$								Change		
	S.d.	Mean	Slope	S.d.	$a_{13}$ Const.	$b_{13}$ Slope	Spell	Mean	S.d.	Mean	Slope	S.d.			
Algeria	9.64	9.02	1.94	7.33	16.98	-3.07	11	-1.46	11.29	-10.71	-5.22	1.65			
Argentina	3.33	2.37	-0.45	1.55											
Azerbaijan	11.44	30.04	-3.69	-1.66											
Bolivia	5.76	10.01	3.41	3.20	10.71	-1.56	11	1.33	5.59	-3.72	-4.89	-0.17			
Burkina Faso	2.84	-5.36	0.09	0.97											
China	2.78	3.71	-0.89	1.95	2.80	-0.24	7	1.83	0.74	-4.44	0.68	-2.05			
D.R.Congo	3.07	1.47	-0.61	2.19	-7.61	0.55	9	-4.89	1.93	-5.24	1.17	-1.15			
France	1.36	2.71	-0.35	0.69	0.35	-0.08	16	-0.36	0.52	-2.77	0.17	-0.84			
Greece	3.97	-3.59	-0.98	2.41	-5.88	0.55	8	-3.39	2.53	3.33	1.28	-1.44			
Hungary	2.85	-3.97	-0.12	0.84	0.95	0.17	9	1.79	1.48	8.27	0.09	-1.37			
Indonesia	2.51	2.42	-0.48	0.30											
Kenya	4.03	-2.52	-0.98	-0.54											
Latvia	3.21	5.74	1.38	-6.09	-1.30	-0.02	24	-1.53	0.79	2.61	1.64	-3.41			
Mexico	4.21	-4.65	-3.11	-0.63											
Nepal	3.48	8.10	-0.36	1.37											
Norway	4.80	-0.55	-0.07	3.21	16.12	-0.51	18	11.29	3.40	8.81	-1.21	-1.40			
Portugal	1.94	-6.62	-0.85	-2.47	-3.44	0.69	8	-0.34	2.33	8.53	1.00	0.39			
Trinidad and Tobago	10.76	15.33	-2.51	4.21											
Turkey	1.76	-4.31	-0.32	0.34	-3.99	0.14	5	-3.58	0.76	1.60	0.40	-0.99			
United States	0.26	0.22	0.19	-1.43											
Average <sup>(a)</sup>	7.87	-0.62	0.11	1.8	-3.17	0.48	11	-1.59	5.37	1.22	0.04	-2.5			

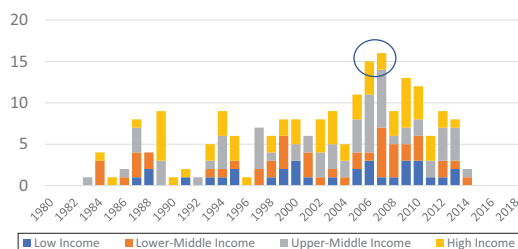


regional structure. In [Figure 2](#), we use the World Bank income classification of July 2020 to divide countries into 4 income levels: low-income (GNI per capita of 1,035\$ or less in 2019), lower-middle income (1,036\$–4,045\$), upper-middle income (4,046\$–12,535\$) and high income (12,536\$ or more). In [Figure 3](#), countries are categorized in 6 regions: Asia and Pacific, Latin America and Caribbean, Europe, Middle-East and North Africa (MENA), North America, and Sub-Saharan Africa.

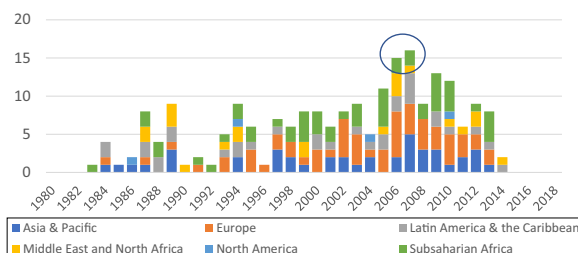
Looking at [Figures 2 and 3](#), we observe a certain stability in the number of breaks, with a peak, unsurprisingly, around 2007. Nevertheless, in general, the 1990s present a lower number of breaks, suggesting more stability during that decade, while the first 15 years of the XXI century show more breaks, especially in Europe and Asia and Pacific ([Figure 3](#)) and in middle and high-income countries ([Figure 2](#)), which suggests that breaks have become more common in the last 20 years. Our chronology updates previous chronologies of authors such as [Milesi-Ferretti and Razin \(2000\)](#), [Adalet and Eichengreen \(2007\)](#) and [De Mello \*et al.\* \(2012\)](#), which study periods previous to the ‘Great Recession’. Comparisons with these chronologies are difficult since they use different size samples and dates. [Milesi-Ferretti and Razin \(2000\)](#) study 105 low and middle-income countries between 1973 and 1994 finding 100 to 167 reversals, depending on the definition of reversals, which they define as sharp reductions of at least 3 or 5 percentage points in current-account to GDP deficits, in contrast with our definition of structural breaks as abrupt shifts in the deterministic components in time series data. [Adalet and Eichengreen \(2007\)](#) analyze 49 countries between 1972 and 1997, finding 106 reversals, and [De Mello \*et al.\* \(2012\)](#) use a sample of 101 countries between 1971 and 2007 to find 159 reversals.

### 3.4 Analysis of structural breaks and current-account stability spells

[Figure 4](#) presents the frequency of stability spells for each duration. It is apparent that 168 spells (49%) last 10 years or less, while their average duration is 13 years and their median



**Figure 2.**  
Chronology and  
income levels of  
structural breaks



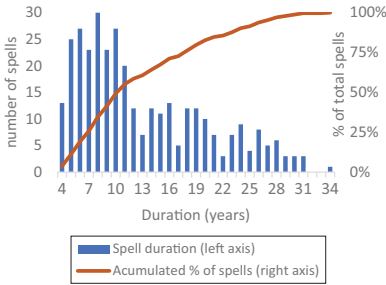
**Figure 3.**  
Chronology and  
geography of  
structural breaks

Figure 4.  
Duration of current-  
account stability  
spells

duration is 11 years, as presented in Table 2. Figure 5 plots the mean of spells against their standard deviation, while Figure 6 reports the relationship between the mean of spells and their duration in years. From Figures 5 and 6, we observe that as spell means separate from zero, with positive or negative value but especially with negative value, they tend to have higher standard deviations (Figure 5) and shorter spell durations (Figure 6), which suggests that high current-account deviations from their balance tend to be more volatile and less sustainable.

In Table 2, we present the combined statistics of the 341 current-account spells, also grouping them by income levels and regions. For instance, low-income countries present a mean current-account deficit of  $-5.95\%$  of GDP, with a slightly negative average slope, an average standard deviation of 5.91 and an average duration of their spells of 13.34 years. They registered 33 breaks (1.65 breaks per country), 12 of them resulting in a positive variation of the mean and 21 in a negative one.

Analysis of the spells' characteristics reveals a relevant heterogeneity between income levels and regions. As regards the relationship between income levels and current-account stability spells, the results show that high-income countries have a positive average mean in their spells of  $0.69\%$  of GDP, while low-income countries' spells register a negative mean of  $-5.95\%$  of GDP, as can be observed in the second column of Table 2. The distribution of spells



	Average				Median	N° countries	N° breaks	Breaks per country	Av.mean change post-break	
	Mean	Slope	S.d.	Duration					Increase	Decrease
Low Income	-5.95	-0.09	5.91	13.34	10	20	33	1.65	12	21
Lower-Middle Income	-1.34	0.33	9.38	14.43	13	32	48	1.5	26	22
Upper-Middle Income	-4.12	0.34	6.57	11.82	10	38	66	1.74	38	28
High Income	0.69	0.78	4.87	13.05	11	39	65	1.67	33	32
Asia and Pacific	4.08	0.68	9.14	12.71	10	27	42	1.56	28	14
Europe	-2.83	0.13	3.32	11.61	10	36	60	1.66	32	28
Latin America and Caribbean	-3.46	-0.10	4.71	13.66	11.50	18	32	1.78	17	15
Middle-East and North Africa	0.49	2.27	11.48	12.19	10.50	11	21	1.91	11	10
North America	-3.11	-0.11	2.69	16.71	14	3	4	1.33	2	2
Sub-Saharan Africa	-7.01	0.14	7.83	14.54	12	34	53	1.56	19	34
Eurozone	-1.11	0.20	2.56	11.88	10.50	15	25	1.66	14	11
Spells w/positive av.mean	8.65	0.25	8.33	11.79	10	106*	59	0.55**	22	37
Spells w/negative av.mean	-7.21	0.48	5.83	13.60	11	235*	153	0.65**	87	66
<b>Total</b>	<b>-2.28</b>	<b>0.41</b>	<b>6.61</b>	<b>13.04</b>	<b>11</b>	<b>129</b>	<b>212</b>	<b>1.64</b>	<b>109</b>	<b>103</b>

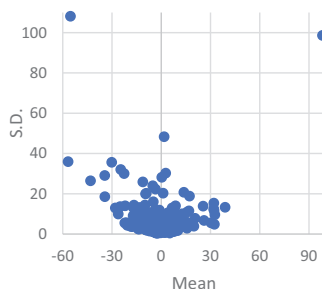
**Notes:** \*Number of spells. \*\*Breaks per spell

by region indicates that Asia and Pacific presents an average mean surplus of 4.08% of GDP. On the other extreme, Sub-Saharan Africa has an average stability spell deficit of  $-7.01\%$  of GDP and a relatively high volatility, while Europe and the two American regions show a more moderate average deficit and relatively low volatility. Lastly, from a global perspective, spells with a positive average mean, or a structural current-account surplus, account for 106 of 341 spells (31%), and thus are less common than deficits spells. In addition, surplus spells are more volatile and somewhat shorter than spells with structural deficits.

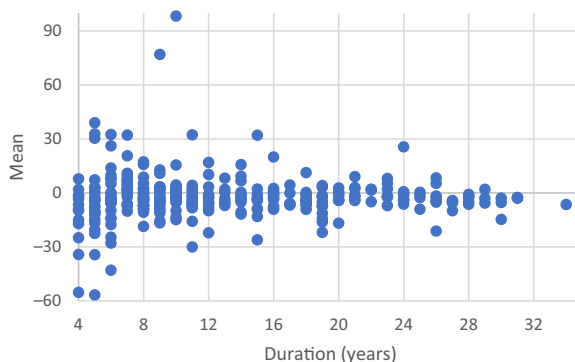
#### 4. Determinants of the current-account breaks

In this section, we study what elements are related with higher probabilities of a break and, in the event of a break, which factors determine the magnitude of the structural variations on the current-account level. A majority of the literature uses probit modeling to assess the probability of a current-account break or reversal (for instance, [Freund, 2005](#), or [Catão and Milesi-Ferretti, 2014](#)). We choose to use a selection model, as in [De Mello \*et al.\* \(2012\)](#), on the basis of two advantages of this econometric methodology: a) it avoids selection bias, and b) it allows for the simultaneous analysis of determinants of the probability of a break and the extent of the changes. Indeed, focusing the analysis only on break years could cause a selection bias as not all countries present current-account breaks. Additionally, economies that record breaks present them only in specific years. We use the [Heckman \(1976, 1979\)](#) selection model to avoid this bias and to study, simultaneously, the determinants of the structural breaks and the determinants of the magnitude of the structural level variations after these breaks.

The Heckman selection model uses two equations:



**Figure 5.**  
Current-account  
stability spells



**Figure 6.**  
Spell duration and  
current-account mean

$$B_{it} = \alpha X_{it} + \epsilon_i \quad (2)$$

$$V_{it} = \beta Y_{it} + u_i \quad (3)$$

The first selection equation, shown here as [equation \(2\)](#), where  $B_{it}$  is a binary variable for country  $i$  and period  $t$ , indicating the occurrence or not of a break. Its value is 1 in a break year, and 0 otherwise (a 0–1 dummy for breaks, a common approach in the literature on the issue). In this selection equation,  $X_{it}$  is the vector of explanatory variables of the model for each country  $i$  and year  $t$ ,  $\alpha$  is a vector of parameters for each explanatory variable and  $\epsilon_i$  is the error term with zero average and constant variance. The second equation of the model – [equation \(3\)](#) – is the response equation:  $V_{it}$  is the value of the mean change for country  $i$  and period  $t$  between stability spells after a break,  $Y_{it}$  is the vector of explanatory variables,  $\beta$  is a vector of parameters for each variable and  $u_i$  is the error term with zero average and constant variance.

We obtain the break  $B_{it}$  years from the estimations presented for a sample of countries in [Table 1](#), and the value of the mean change after a break  $V_{it}$  from the two columns “Change Mean” also in [Table 1](#). We use the literature as a reference to select the variables for our model, including some classic papers on external crisis as [Krugman \(1979\)](#), [Flood and Garber \(1984\)](#) or [Obstfeld \(1994\)](#), and also others as [Milesi-Ferretti and Razin \(1998, 2000\)](#), [Lane and Milesi-Ferretti \(2012\)](#), [De Mello \*et al.\* \(2012\)](#), [Catão and Milesi-Ferretti \(2014\)](#), [Das \(2016\)](#), and the IMF External Balance Assessment Methodology ([Cubeddu \*et al.\*, 2019](#)). In particular, we use the current-account balance as a percentage of GDP, rate of GDP growth, real GDP per capita, net inflows of foreign direct investment (FDI) as a percentage of GDP, the real interest rate as a proxy of monetary policy stance, the net government lending/borrowing as a percentage of GDP as a proxy of fiscal policy, foreign reserves in months of imports and, finally, the year-on-year percentage variation of the average exchange rate of local currency units (LCU) per US\$ of each period. As in [Milesi-Ferretti and Razin \(1998\)](#), [Adalet and Eichengreen \(2007\)](#) and [De Mello \*et al.\* \(2012\)](#), we use a three-year moving average for all the variables. To build our data panel from these variables, we use annual data from the IMF and World Bank between 1980 and 2018 as in the identification of breaks for the same 181 economies (details in [Table 3](#)).

[Table 4](#) shows the results of the estimation of factors that influence the probability of a break. In particular, [Table 4](#) presents in the first column the variables used in the estimation. In the next three columns of this Table, we present the estimated coefficient and significance levels of the selection equation. Finally, the three columns on the right present the estimated coefficients and significance levels of the response equation, which indicates how much each variable influences the magnitude of the change in mean when a break occurs, and whether each variable is significant. [Table 4](#) also includes the results of a Wald test of independent equations, which verifies whether the selection equation and the response equation are independent. This is relevant since this model is only appropriate if these two equations are not independent. The results of this tests indicate that the null hypothesis of independence between these equations is rejected, and thus this selection model is appropriate.

In [Table 4](#), the first column presents the estimated coefficients of the “Selection Equation – Break”, which indicate how much each variable affects the probability of a break, including positive and negative breaks in level or trend. This shows that the following variables are statistically significant at high standards: growth, GDP per capita, and the level of reserves are significant at a 1% level, and the current-account balance and the real interest rate are significant at a 5% level, while variation in the exchange rate is significant at a 10% level. In particular, our results indicate that increases of the current-account to GDP ratio, lower GDP growth and lower

**Table 3.**  
Data sources and  
definitions

<i>Source: IMF WEO April 2020</i>	
Current-account balance (%GDP)	All transactions between an economy and the rest of the world other than those in financial and capital items.
<i>Source: World Development Indicators, World Bank (July 2020)</i>	
FDI, net inflows (%GDP)	Net inflows of investment to acquire a lasting management interest ( $\geq 10\%$ of voting stock) in an enterprise operating in an economy other than that of the investor, divided by GDP.
GDP growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency.
GDP per capita (constant 2010 US\$)	GDP divided by midyear population, in constant 2010 US\$.
Net lending (+)/net borrowing (–) (%GDP)	Government revenue minus expense, minus net investment in nonfinancial assets.
Official exchange rate (LCU per US\$, period average)	The exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market, calculated as an annual average based on monthly averages (LCUs relative to the US\$).
Real interest rate (%)	Lending interest rate adjusted for inflation as measured by the GDP deflator.
Total reserves in months of imports	Holdings of monetary gold (valued at year-end London prices), special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities. Reserves are expressed in terms of the number of months of imports of goods and services each country could pay for [ $\text{Reserves}/(\text{Imports}/12)$ ].

real interest rates raise the probability of a break. Moreover, increasing foreign reserves, currency depreciation against the dollar and higher per capita income decrease the probability of a break. And, for all these results, the opposite would also be true.

Results in [Table 4](#) indicate that high growth and reserve accumulation are particularly effective in order to curb the probability of a break, possibly because they provide authorities with more flexibility in policy design to avoid breaks and, also, facilitate better access to international funding due to lower perceived risk of default. Estimations in the same Table show that low-income countries are more exposed to suffer these breaks, an unsurprising result since they are usually more unstable and show higher dependence on external financing and present more volatile stability spells, as observed in the previous section. Monetary policy can also help either by raising real interest rates or allowing currency depreciation. Nevertheless, as basic macroeconomic theory illustrates, it could be difficult to raise the real interest rate and depreciate one country's currency at the same time, a circumstance that might limit the effectiveness of monetary policy to prevent breaks in some cases. Our results are in line with [De Mello et al. \(2012\)](#) in that the current-account level, GDP growth and monetary policy affect the probability of a break. Yet we do not find evidence that FDI net inflows nor current-account changes are significant, while we find evidence that foreign reserves, currency rate of change and per capita income influence the possibilities of a break.

We use the same variables in the response [equation \(3\)](#), with the addition of the breaks, to analyze the extent to which they affect the magnitude of the variation of the mean of stability spells before and after a break. The results, in “Response Equation – Mean Variation” columns of [Table 4](#), show that GDP per capita, FDI net inflows, real interest rates, foreign exchange reserves and break years are significant at least at a 10% level, while we do not find that the other variables are significant. Therefore, FDI net inflows are not

**Table 4.**

Determinants of the current-account breaks and of its impact on the current-account stability spell mean

Variable	Selection Equation – Break			Response Equation – Mean Variation		
	Coefficient	Prob.	Sign.	Coefficient	Prob.	Sign.
Current account (%GDP)	0.0247	0.036	**	−0.2968	0.440	
GDP growth (%)	−0.1157	0.000	***	12,533	0.127	
GDP per capita (per 1,000 US\$)	−0.0258	0.000	***	0.288	0.060	*
FDI net inflows (%GDP)	−0.0040	0.522		0.3363	0.076	*
Real interest rate (%)	−0.0348	0.025	**	0.5062	0.073	*
Government net lending/borrowing (%GDP)	−0.0186	0.119		0.5580	0.113	
Reserves (months of imports)	−0.1556	0.000	***	19,689	0.042	**
Official exchange rate (% change of LCU per US\$)	−0.0146	0.055	*	0.1843	0.162	
Break	N.A	N.A	N.A	75,964	0.006	***
Wald test of independent equations (rho = 0)	chi2(1) = 20.03			Prob > chi2 = 0.0000		
<b>Notes:</b> Method – ML Heckman Selection (Newton–Raphson/Marquardt steps) using a Maximum Likelihood estimation method, with robust standard errors, estimated using Stata 16.1. *** Indicates significance at 1% level; ** 5% level; * 10% level						

significant in influencing the probability of a break but, when the break happens, it affects the magnitude of the mean variation. This result could indicate that external stability is compatible with different levels of FDI but, when a break occurs, higher levels of FDI facilitate an increase in the mean. Finally, the other significant variables affect both the probability of a break and the magnitude of the mean variation.

Focusing on the other significant variables, the estimation in Table 4 indicates that a break tends to increase the mean. Furthermore, higher real interest rates increase the mean after a break, a possible consequence of its contractive effect on domestic demand. Greater foreign reserves and per capita income also increase the mean variation after a break. Regarding fiscal policy, we do not find that it has a significant impact on the magnitude of the mean change after a break, since its significance level is again slightly over 10%. Our results are in line with De Mello *et al.* (2012) in that most significant factors influence both the probability of a break and the magnitude of the change that follows it.

## 5. Conclusions and policy implications

The present research is focused on the characteristics and determinants of current-account breaks and current-account stability spells – i.e. the periods between breaks and/or the start or end of the studied period – from a global perspective. In this way, we aim to understand which factors, structural reforms and policies promote stability in the external sector, which is now particularly relevant due to the current fragile economic situation, high volatility and uncertainty as a result of the pandemic. In our analysis, we use a wide sample of 181 countries so as to avoid a possible selection bias. We identify breaks endogenously, avoiding *ad hoc* break definitions which could exclude some breaks and including positive and negative breaks in both levels and trends.

We identify 212 significant breaks in 129 economies between 1980 and 2018, and observe that breaks have become more common in the XXI century and, unsurprisingly, they peak around the Great Recession. From the breaks, we obtain 341 stability spells, half of them lasting a maximum of 10 years. Results also suggest that major deviations from its equilibrium tend to make the current account more volatile and less sustainable.

We note that current-account behavior varies substantially depending on countries' income levels. Thus, while high-income countries have an average structural surplus in their spells of 0.69% of GDP, low-income countries have a major average structural current-account deficit: -5.95% of GDP. Differences are also remarkable in view of the geographical situation of countries: Asia and Pacific presents a moderate surplus in their spells and a low number of breaks per country despite the fact that the spells are highly volatile; Sub-Saharan Africa has a major average deficit, -7.01% of GDP, and a relatively high volatility in the current-account spells. Finally, Europe, North America and Latin America and Caribbean show moderate average deficits and lower volatility. Therefore, results confirm the general assumption that advanced economies record a more balanced and less volatile current-account position in comparison with the rest, while Sub-Saharan Africa presents particularly high deficits and volatility.

Regarding the determinants of the breaks, our estimations indicate that the possibility of a current-account break can be reduced by an increase in growth levels, real interest rates and foreign reserves, or by currency depreciation. Additionally, we do not find strong evidence that neither fiscal policy nor FDI net inflows have significant influence on the probability of a break. We also find that lower income levels increase the probability of suffering breaks. With respect to the variables that influence the magnitude of the level change after a break, income per capita, FDI net inflows, real interest rates, and the level of foreign reserves have a positive impact on this level change.

From these results, the important effect of foreign reserves in the prevention of breaks could be highlighted, which is in line with both what the literature indicates and with widespread policies applied especially by emerging economies. Furthermore, foreign reserves not only reduce the chance of a current-account break, but they also help to achieve positive variations in level when the break happens, a common objective in countries that register important current-account deficits. GDP growth is also relevant in the prevention of breaks, and thus policies and structural reforms that boost growth can enhance external stability while recessions can increase break risks. Our results also indicate that the effectiveness of the monetary policy in reducing the probability of breaks is seriously curtailed by the fact that the required variations in the two monetary weapons included in our analysis (real interest-rate variations and exchange-rate changes) are difficult to achieve simultaneously.

Results allow us to derive some policy implications. First, since growth levels and foreign reserves are particularly efficient in order to curb the probability of breaks, governments should take them into account to enhance external stability. Structural reforms might be particularly effective in the reduction of break risks since, as shown by numerous papers, they can provide a sustainable economic boost. For instance, [Bouis and Duval \(2011\)](#) estimated potential gains from product and labor markets reforms in OECD countries to be close to 10% of GDP in 10 years. Yet, as pointed out in [Xifré \(2020\)](#), structural reforms should be aimed not only at moderating wages, but also fostering productivity and improving institutional quality. Second, governments of low-income countries should be particularly careful when designing measures to prevent current-account break risks, since lower income per capita increases their exposure to these risks. Finally, governments can use contractive monetary policies to reduce the probability of a break, but they must take into consideration that this policy will be useful if it increases real interest rates without appreciating the exchange rate. Therefore, monetary policy could require a careful design and application to curb break risks since it could be ineffective, or even counterproductive, in some cases, when the exchange-rate reacts strongly to these measures.



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