DISCUSSION PAPER SERIES

DP13465

THE TRIALS OF THE TRILEMMA: INTERNATIONAL FINANCE 1870-2017

Rui Esteves and Barry Eichengreen

ECONOMIC HISTORY AND INTERNATIONAL MACROECONOMICS AND FINANCE

THE TRIALS OF THE TRILEMMA: INTERNATIONAL FINANCE 1870-2017

Rui Esteves and Barry Eichengreen

THE TRIALS OF THE TRILEMMA: INTERNATIONAL FINANCE 1870-2017

Abstract

In this paper we survey the history of international finance spanning a century and a half. We start by characterizing capital flows in the long run, organizing our discussion around six facts relating to the volume and volatility of capital flows, measured in both net and gross terms. We then connect up the discussion with exchange rates and monetary policies. The organizing framework for this section is the macroeconomic trilemma. We describe where countries situated themselves relative to the trilemma over time and consider the political economy of their choices. Finally, we study the connections between international finance and economic and financial stability. We present consistent measures of growth and debt crises over the century and a half covered in this paper and discuss how their incidence is related to those institutional and political circumstances and, more generally, to the nature of the international monetary and financial regime.

Rui Esteves - rui.esteves@graduateinstitute.ch
Graduate Institute of International and Development Studies and CEPR

Barry Eichengreen - eichengr@berkeley.edu
University of California, Berkeley

The Trials of the Trilemma:
International Finance 1870-2017

Barry Eichengreen[*] and Rui Esteves[†]

Abstract

In this paper we survey the history of international finance spanning a century and a half. We start by characterizing capital flows in the long run, organizing our discussion around six facts relating to the volume and volatility of capital flows, measured in both net and gross terms. We then connect up the discussion with exchange rates and monetary policies. The organizing framework for this section is the macroeconomic trilemma. We describe where countries situated themselves relative to the trilemma over time and consider the political economy of their choices. Finally, we study the connections between international finance and economic and financial stability. We present consistent measures of growth and debt crises over the century and a half covered in this paper and discuss how their incidence is related to those institutional and political circumstances and, more generally, to the nature of the international monetary and financial regime.

[*] University of California, Berkeley, eichengr@berkeley.edu
[†] Graduate Institute of International and Development Studies, rui.esteves@graduateinstitute.ch

1. Introduction

"International finance" is a deceptively simple term. "Finance" of course refers the management, creation and study of money, banking, credit, investments, assets and liabilities.[1] It follows that any study of finance, much less one spanning a century and a half, will have to cover a lot of ground. It will have to cover, among other things, a multitude of different transactions, instruments and institutions. The qualifier "international" would seem at first glance to require less nuance and helpfully restrict the investigation to financial transactions across borders. But this observation begs the question of whose borders exactly. Early in the period we consider here, starting in 1870, a considerable volume of cross-border finance flowed from the metropolitan financial centers to colonial dependencies and was not, therefore, international in the strict sense of the word – although these flows raise many of the same analytical issues as financial transactions between the residents of separate sovereign nations.

Challenges of definition and coverage notwithstanding, a substantial literature has taken a historical perspective on the development of international finance. Early contributions contrasted the large volume of international financial transactions before 1914 with their more limited extent in the 1920s and 1930s (Keynes 1919, Feis 1930); these authors were interested in why the 19th century network of international finance was not successfully reconstructed after World War I. A subsequent literature in the second half of the 20th century drew casual connections from the instability of international finance in the interwar years to the development of a more tightly regulated environment with a lower volume of cross-border financial transactions after World War II (Nurkse 1944, Eichengreen 1996). It focused on how lessons drawn from the global financial crisis of the 1930s shaped and informed the institutional framework devised at the 1944 Bretton Woods Conference. Most recently, a comparative literature considered what have come to be known as the two eras of financial globalization, before 1914 and in the last quarter century, asking how these two episodes differ and what lessons, if any, that earlier history provides for the contemporary world (Baldwin and Martin 1999, Bordo, Eichengreen and Irwin 1999, Bordo 2002).

Any survey like this one, spanning an extended period, encounters empirical difficulties. Data on capital flows, exchange rate regimes and capital account restrictions today are gathered, standardized and published by multilateral organizations like the International Monetary Fund. Analogously comprehensive and standardized measures are lacking for earlier historical periods because analogous organizations were absent. Before 1914, to be sure, committees of bondholders, like the British Corporation of Bondholders, took it upon themselves to gather and publish information on foreign bond issuance (Esteves 2013). Governments provided information on the balance of trade, central banks on changes in their reserves, from which net capital flows could be inferred. In the interwar years, the League of Nations and then the Bank for International Settlements published statistics on capital movements, exchange rates and capital controls (see e.g. League of Nations 1938). In a number of respects, however, those data were more limited and not strictly comparable to what became available after World War II and, especially, in the last quarter century. Country coverage similarly became more complete. Inevitably, there is the historian's dilemma that the number of countries is increasing over time, raising the question of whether it makes more sense and provides more insight to follow a constant set of countries, or to progressively expand the list in order to capture the reality of an increasing number of

---

[1] This according to "Investopedia" (http://www.investopedia.com/terms/f/finance.asp).

1

independent nations active in the international financial arena – whether it makes more sense to analyze a balanced or unbalanced panel, in econometric terms.

We grapple with these puzzles in what follows. We start by characterizing capital flows in the long run, organizing our discussion around six facts. First, the volume and extent of international capital flows trace out a U-shaped pattern, high before 1914 and after 1989 but lower in between. This pattern is especially evident when capital flows are weighted by country GDP, as is appropriate when adopting a global perspective. Second, some measures point to larger capital flows in recent decades than prior to 1914. Whereas capital flows to emerging markets rarely exceeded 2 per cent of their GDP before 1914, they have consistently exceeded that threshold more recently, suggesting that financial globalization has now gone further than before. Third, this increase in the level of flows has been accompanied by an increase in their volatility. While that volatility reached a maximum in the interwar period, it has also been some 70 per cent higher since the 1970s than in the pre-1914 period. Fourth, trade balances are a poor proxy for the capital account of the balance of payments. Put another way, investigators should be cautious in using readily available trade balances as a proxy for (the inverse of) capital flows. As we show, this problem grows increasingly serious as one moves backward in time, reflecting the prevalence of foreign exchange market intervention (reserve accumulation) and service income in the earlier period. Fifth, data on net capital flows are imperfectly informative about much larger two-way (gross) capital flows. Lack of detailed information on gross flows before 1914 is a serious problem, but it is if anything an even more serious problem today. Sixth and finally, crisis episodes are marked by exceptionally large capital flows in both the inward and outward directions. This observation highlights possible connections between capital flows and crises, to which we return below.

In the second part of the paper, we connect up the discussion of capital flows with exchange rates and monetary policies. The organizing framework for this section is the "trilemma," the idea that countries cannot simultaneously attain the three desiderata of free international capital mobility, exchange rate stability and monetary autonomy. We present visual depictions of their choices and discuss how these have changed over time. Having described where countries situated themselves relative to the trilemma, we then turn to the political economy of their choices. We ask why countries have chosen the policy regimes they have, focusing on economic growth, financial development, the political regime, trade links, colonial relationships and other factors.

In the third part of the paper, we study the connections between international finance and economic and financial stability. Whereas historians argue that pegged exchange rates and open capital accounts are engines of instability, theorists and others have been known to counter that these policies have been successfully reconciled with economic and financial stability under suitable institutional and political circumstances, and to go on and recommend that modern economies do their best to emulate those circumstances. In an effort to adjudicate this dispute, we present and analyze consistent measures of growth and debt crises over the century and a half covered in this paper and discuss how their incidence is related to those institutional and political circumstances and, more generally, to the nature of the international monetary and financial regime.

2. Six Facts about Capital Flows

Figure 1 and Table 1 present data on a century and a half of international capital flows. We split the timeline into four familiar periods: pre-World War I, the interwar years,

the Bretton Woods period, and the period of financial liberalization since the early 1970s. To the best of our knowledge, we are the first to compile a continuous series for *de facto* capital market integration over this arc of history.[2] Because capital flows are a bilateral phenomenon, we are forced to choose one side of the equation to normalize the flows. We chose the viewpoint of the main recipients of foreign capital in history, i.e. the emerging and developing nations. All figures are normalized by the GDP of net recipients, and we exclude from the figures the main capital exporting nations.

Figure 1 and Table 1 around here

Net flows have long been used in the empirical literature on financial crises and current account reversals (Feldstein and Horioka 1980, Jones and Obstfeld 2001). They are also a natural counterpart to the predictions of growth theory for international factor flows. Risk- or productivity-adjusted differentials in rates of return on capital should lead to capital flowing from capital-rich nations to capital-poor countries (Lucas 1990, Clemens and Williamson 2004, Gourinchas and Jeanne 2013), these theories suggest, fueling economic growth in the latter.

The preferred measure of net capital flows is the financial account of the balance of payments. Unfortunately, a consistent dataset on financial accounts (provided by the IMF) is available only from 1970. For earlier periods, researchers must therefore use as proxies other components of the balance of payments. The mirror image of the current account is frequently utilized, motivated by the balance of payments identity.[3] It is generally a good proxy, aside from specific periods of large official interventions in the balance of payments. Intra-government loans, official development assistance, and the accumulation of large foreign exchange reserves by emerging nations since the 1990s are examples of such exceptions.

A more imperfect proxy is the trade account, the net balance of trade in goods and services. The accuracy of this proxy depends not only on the capital account being small but also on net income from abroad being unimportant. The latter condition is frequently assumed but may not be warranted, e.g. in periods or countries that pay or receive large labor income transfers (emigrant remittances) or capital returns. Nevertheless, in the absence of a coordinated reconstruction of historical balance of payments, researchers regularly resort to this proxy.

A different perspective comes from the predictions of macro-finance, which emphasizes the incentive to diversify and pool risk through cross-border capital flows. Gross flows are the empirical counterpart of these models, pointing up the problem that small net capital flows may disguise the existence of large cross-country gross flows. Moreover, the literature on capital-flow bonanzas and sudden stops emphasizes how not only flows, but also large cross-country gross positions may spread financial instability, particularly during periods of global crisis (Obstfeld 2012, Forbes and Warnock 2012, Cavallo et al 2015).

For purposes of this paper we assembled a historical data set on gross capital flows into and out of emerging and developing nations. This combines data on international capital exports prior to World War I with the data made available by the IMF since 1990. Although

---

[2] We stand on the shoulders of giants, of course. For previous empirical reconstructions of long-term capital flows see Taylor (1996), Jones and Obstfeld (2001) and Obstfeld and Taylor (2004). A different literature takes the dual approach of quantifying financial integration by the covariance of the returns of domestic assets and a measure of global returns. For recent attempts along these lines see Quinn and Voth (2008) and Bekaert and Mehl (2017).

[3] *Current Account + Financial Account + Capital Account* should theoretically add up to zero, although this does not usually happen because of errors and omissions.

these data straddle only half of our period, they cover the two phases of intense financial globalization.

Figure 1 is divided into two panels that plot the same yearly averages of each of the series. Panel A plots the series as unweighted averages of individual country' values, whereas panel B weighs each country's data by its share in total GDP. The values in Table 1 are unweighted. Unweighted averages are more representative of the significance of capital flows to individual nations, whereas their weighted equivalents are a better representation of the aggregate flows. The contrast is obvious, for instance, by comparing the sign of the trade and capital accounts in the last two decades. In panel A, the average emerging economy ran a trade deficit, whereas in panel B, the GDP-weighted trade balance was positive most of time, owing to large net exports from China and other South-East Asian nations.

From these series, we can extract six stylized facts about capital flows in the long run.

1. International capital flows were more economically significant in the pre-1914 world and since the breakdown of the Bretton Woods System. This is especially evident when we weigh flows by the size of each nation's GDP (Figure 1 panel B), reflecting the fact that unweighted averages (panel A) are more sensitive to outliers.[4]

2. Before the late 1970s, the only instance when (weighted) average capital inflows, as measured by the current account, exceeded 2% of GDP was immediately after World War I. Apart from this period of postwar readjustment and recovery, emerging nations' net inflows consistently remained below 2% of GDP. In contrast, the median current account in the last five decades increased by half to 3% of GDP.

3. This rise in the volume of flows has been accompanied by an increase in their volatility. The coefficient of variation of the current account reached a maximum in the interwar years. It has been about 70% larger since the 1970s than it was in the pre-1914 period.

4. Trade accounts are poor proxies for net capital flows. Even though the correlation between trade and current accounts is positive and significant throughout, the current account is a better proxy for the financial account in the period for which we have information on the latter. Nevertheless, the correlation between the three variables appears to have increased during the Bretton Woods period and until the late 1990s.

5. Net measures disguise much larger gross capital flows in the two periods for which we have data. The scale of the cross-border flows in recent times is also roughly twice of the gross flows in the earlier period.

6. Systemic crises are associated with large gross flows in both directions. Spikes in capital inflows and outflows are as evident around the Baring crisis of 1890 and the 1907 crisis, as around the 1998 East Asian crisis and the more recent Global Financial Crisis of 2007-09.

Facts 1 and 2 are consistent with accounts of the two the eras of financial globalization, interrupted by the autarkic interregnum of the interwar period and the relative closure of the financial account during the Bretton Woods years (Eichengreen 1996). Within this consensus, there are authors who offer a stylized view of a U-shaped evolution of financial integration, bookended by similar levels of financial integration pre-1914 and post-1980 (Obstfeld and Taylor 2004, Goetzmann et al. 2005), or of even higher levels of international capital mobility in the pre-World War I period than today (Bordo and Flandreau

---

[4] We excluded from Figure 1 and the Table 1 the largest 1% and the smallest 1% countries by GDP, but there are still some outliers by scale of capital flows in particular periods.

2003, Bordo and Murshid 2006). This view is supported by a measure of *de jure* capital openness compiled by Quinn (2003), which is reproduced in Figure 2. According to this measure, capital market openness has not yet fully recovered the level reached before 1914. Other authors disagree, arguing that capital market integration is greater today than before World War I (Bordo, Eichengreen and Irwin 1999, Mauro et al. 2002, Quinn and Voth 2008).

Figure 2 around here

The data here are more consistent with the view that financial integration today has overtaken its historical counterpart and exceeded it already in the 1970s. Rather than an inverted U, financial globalization appears to have followed a "swoosh" pattern (Bekaert and Mehl 2017). But more than just the scale of capital flows changed over the century and a half covered in this paper. Their composition and the financial architecture conveying them changed as well.

A standard classification distinguishes private capital flows by the nature of the investment motive. Portfolio flows reflect investment dominated by the investors' desire to reap the benefits of diversifying their portfolios by acquiring foreign securities (equity and debt). If, however, investors send their money abroad to acquire a controlling interest in foreign businesses, the flow is classified as foreign direct investment (FDI).[5]

Portfolio investment dominated prior to World War I, as the investments in emerging markets were securitized by the main European stock markets and widely distributed to the public of retail investors (Edelstein 1982; Eichengreen 2003).[6] A large fraction of this portfolio was composed of foreign government bonds, followed by investments in infrastructure (railways) and extractive sectors (Feis 1930, Fishlow 1985, Woodruff 1966).[7]

This composition started to change in the interwar years, as multinational companies (MNC) became a major vehicle for US and European FDI (Wilkin 1991).[8] Capital controls and domestic financial regulation in the Bretton Woods period reinforced this tendency, when MNCs directly acquired assets in foreign nations as a way of avoiding new regulatory barriers (Desai et al. 2004). At the same time, the market for sovereign bonds of developing nations was replaced by direct lending by commercial banks in the US and Europe (Eichengreen 2003). The rise of a new market for emerging markets bonds and equity in the 1990s then changed the structure of capital flows once more. Even though the new pattern is similar to that of the pre-1914 era, the greater importance of FDI and MNCs are still distinctive features.[9] They have substantive implications, since FDI is generally thought to

---

[5] This can be accomplished by setting up new production facilities abroad ('greenfield' FDI) or acquiring existing companies ('brownfield' FDI). The distinction between portfolio flows and FDI is not obvious to the historian or statistician. International organizations classify a firm as "foreign-owned" if a non-national investor holds at least 10 percent of its equity (OECD 2008). Outside of this classification there are still other forms of private flows, such as bank deposits, corporate and bank loans, and trade credit.

[6] Even if the majority of these companies were public and used the markets to raise capital, they were frequently under control of European (and later US) entrepreneurs, who set them up as 'free-standing companies' under European law (Eichengreen 2003). This exposes the problems with defining FDI by a threshold investment share.

[7] This ordering of sectors is related to 19th century information asymmetries. In a world without easy access to reliable information, European investors preferred to apply their money to better-documented industries such as railways and governments (Eichengreen 2003).

[8] Simultaneously, the US became the main market for securitising investment in emerging countries, at least until the Great Depression (Accominotti and Eichengreen 2016).

[9] According to the IMF, FDI has averaged well over half of capital inflows to emerging economies during the last two decades (IMF 2014).

have a greater positive impact on the growth of recipient nations and is less associated with financial volatility (see section 3).[10]

Fact 3 is consistent with the temporal incidence of financial crises, although it should be emphasized that the direction of causality between the volatility of capital flows and crises is not obvious. The frequency of crises since the collapse of Bretton Woods is more than double that in the classic gold standard era (Bordo et al. 2001). But it is also much higher in the interwar years, as expected, and even during the Bretton Woods era. This rise in frequency is primarily due to the increasing incidence of currency crises and twin crises, which were relatively rare before 1914 (Eichengreen and Bordo 2003, Bordo and Flandreau 2003). Measured by output loss or time to recovery, however, the intensity of crises is not significantly different across periods, apart from the traumatic interwar years (Reinhart and Rogoff 2009).

The correlation between trade and current accounts (fact 4) also varies over time. It is much tighter in the post-World War II than before 1914, especially when we use the GDP-weighted averages of the two net measures (Figure 1, panel B). In contrast, the correlation is negative in the last decade of the 19th century and the first two decades of the 20th.[11]

To understand the implications of this reversal, it is useful to return to the balance of payments identity: *Current Account + Financial Account + Capital Account*. If we assume that official interventions registered in the capital account were negligible, then we can approximate the financial account with the current account.[12] If we then decompose the definition of the current account, we get:

-Financial Account = Current Account = Trade Account +Net Income from Abroad

This expression implies that a negative correlation between current and trade accounts, as observed in the late 19th century, is only consistent with large income flows from foreign investment. It has long been known that the core European nations in the 19th century ran weak or even negative trade balances that were financed by large invisible receipts and a strong current account, attributable to income from investment abroad (Cairncross 1953, Obstfeld and Taylor 2004, White 1933, Woodruff 1966). Emerging markets for their part were able to run large current account deficits, funded by capital exports from the European core and later the United States. But they had to pay their creditors via trade surpluses.

One possible explanation is that the rate of return of European investment in emerging nations was relatively high in the late 19th century, higher than the growth rate in capital exporting nations.[13] Emerging countries were only able to foreign investors by generating foreign exchange through large trade surpluses. Capital exporters could easily fund their trade deficits with this income stream (Chabot and Kurz 2010, Edelstein 1982, Parent and Rault

---

[10] On this topic see, among many, Alfaro et al. (2004), Eichengreen (2003) and Blalock et al. (2008).

[11] The correlations are -0.38*** in the 1890s, -0.62*** in the 1900s and -0.56*** in the early 1910s (before the war).

[12] This is probably not a bad approximation for the pre-1914 period when emerging nations did not typically accumulate significant gold or foreign exchange reserves. According to Flandreau (2003), Russia was an exception in the early 20th century, a period when the Witte government built up large balances abroad.

[13] This condition is referred to as 'dynamic efficiency' and implies that foreign investment is more attractive than domestic investment, such that capital exports are an efficient application of the nation's capital. See Eugeni (2015, 2016) for details.

2004).[14] Conversely, the positive correlation between trade and current accounts after World War II would imply lower rates of return on foreign investment. This is consistent with a situation of capital over accumulation, where the return on foreign investment is below the domestic growth rate. This "global savings glut" was highlighted by Bernanke (2005) for the recent period and could have contributed to the historically low yields on the eve of the 2007-09 financial crisis.

This interpretation of the relation between the trade and capital accounts raises some interesting questions about the nature of capital flows in different periods. For instance, was the tight correlation between the trade balance and the current account in the Bretton Woods period driven by low perceived returns on foreign investment because of closed capital accounts? Why was the same correlation so high in the 1980s and 1990s, a period of increasing capital flows and high global returns?

Any attempt to answer these questions must cope with the fact that official capital transactions may confound or exaggerate the correlation between the trade and current accounts. For instance, the accumulation of large foreign exchange reserves by emerging economies is part of the explanation for the high correlation observed over the last two decades. Another measurement problem has to do with the accounting of "invisibles." Modern balance of payments accounting lumps invisible returns (mostly trade in services) with the trade balance, but the historical figures presented here are exclusively for 'visible' trade in goods. This means that invisible revenues are included in the current account, which partly explains the divergent behavior of the trade and current accounts before 1914.

Despite the larger size of bilateral gross flows in the recent period (fact 5), the median capital outflow from emerging nations before World War I was still substantial, on the order of 1% of GDP (Table 1). This period has frequently been characterized as one of "development finance," when capital flowed from capital-rich mature economies to capital-poor emerging nations (Feis 1930, Fishlow 1985, Clemens and Williamson 2004, Schularick and Steger 2010, O'Rourke and Williamson 1999). That this was not entirely the case, as shown by these outflows, again points to the need for further investigation. That investigation could start by attempting to determine what fraction of these capital outflows from emerging markets may reflect measurement error. First, the database of gross flows prior to 1914 was built from the perspective of the capital exporters, such that we only have indirect information on capital inflows to emerging nations.[15] Therefore, the capital outflow figures were derived from the balance of payments identity: *Gross outflows = Gross inflows – Current Account – Capital Account*, assuming again that transaction on capital account averaged zero. Nevertheless, any official interventions in the capital account will be recorded incorrectly as private capital flows.

Second, there are problems with accurately reconstructing cross-border flows from the available historical sources (Tiberi 2005). Greenfield investments are seldom captured in historical sources, except if funded with securities sold in European capital markets. This may lead, e.g., to an underestimation of FDI in the earlier historical period (Twomey 2000).

The bias introduced by these two sources of measurement error is not clear. The last example (under-enumeration of private investment flows) is more likely to lead to

---

[14] This despite the international downward convergence of yields between 1890 and 1914 noted by Mauro et al. (2002). An older literature on 'Victorian decline' blamed the inefficient export of capital from the UK for economic for the stagnation of the UK economy in the late 19th-early 20th centuries (Cain and Hopkins 1980, Rubinstein 1987, Temin 1987).

[15] See Stone (1999) and Esteves (2007, 2011) on the methodology used to compute gross capital flows.

underestimation of capital inflows in emerging nations and, hence, overestimation of our measure of capital outflows.

A third potential source of error is trade in invisibles. These flows, recorded today in the balance of trade in services, are difficult to reconstruct from 19th century sources. Compared to very detailed returns on trade in goods, reliable sources on tourism, transportation, financial or legal services are rare. The direction of the bias in this case is clear: any omissions of invisible payments to the rest of the world would bias upward the estimate of gross outflows. However, it is not clear how important these payments were for the typical emerging economy in the late 19th century, since very few comprehensive balance of payments accounts, including the invisibles account, have been fully reconstructed for this period.[16]

Subject to this caveat, fact 6 suggests that our estimates of gross capital flows behave as expected, especially in periods of generalized financial instability. If we equate the severity of a crisis to the scale of combined gross inflows and outflows, the Baring crisis of 1890 and the 1907 US stock market crash are the most dramatic such events before 1914.[17] The scale of these two crises is comparable to the retrenchment at the time of the 1998 East Asian crisis, but it is dwarfed by the 2007-08 subprime crisis, when inflows and outflows were twice as large. It would be interesting to compare this episode with the 1929 crash, but gross flows have not been reconstructed for this period.[18] These spikes in capital flows have been investigated by Forbes and Warnock (2012), who distinguish between "surges" and "stops" of foreign capital inflows and the "flight" and "retrenchment" of domestic capital outflows. The authors show how foreign stops and domestic flights react more to global factors–particularly uncertainty and risk appetite–than to local shocks.

When one looks more closely, it emerges that the timing of the peaks in the two gross flows series is not necessarily coincident. Table 2 lists the peak years for the four crises mentioned above. In the historical crises, the peaks happened between one and two years prior to the actual financial panic, with a shorter gap for the two recent crises. During the crisis, capital flows tail off dramatically. This time pattern is broadly consistent with the sudden stop view of financial crises in emerging nations (Calvo and Mendoza 2000 Bordo, Cavallo and Meissner 2010).

Table 2 around here

3. Trilemmas in History

The trends documented in Table 1 and Figure 1 illustrate the ebb and flow of financial globalization but say nothing about the causes of those fluctuations or the policy choices adopted by countries with respect to financial openness and capital-flow management. While

---

[16] Morys (2005) has a disaggregation of the balance of payments of the Austro-Hungarian Empire (1880-1913) and Italy (1868-1913). In his estimation, the average difference between the balance of trade in goods and the trade balance (goods+services) is of only 0.4% of GDP for Austria-Hungary and 0.02% for Italy. Likewise, in Butlin's (1962) reconstruction of the Australian balance of payments (1861-1930), the corresponding figure is 1.7% of GDP. This contrasts with a 7% difference for the UK in the same period (Feinstein 1972).
[17] The hierarchy of the two depends on whether we use unweighted flows (Figure 1, panel A) or flows weighted by GDP (panel B).
[18] Accominotti and Eichengreen (2016) compare the scale of the net capital flows reversals after 1929 and after 2007 and conclude that it was dramatic in both cases.

most countries did not avoid the large cycles depicted in Figure 1, this does not mean that they necessarily embraced financial integration to the same extent.

As a first step in disaggregation, Figure 2 plots a measure of *de jure* financial openness for three groups of countries, as classified by a League of Nations study of exchange rate policies in the 1930s. So-called "gold bloc" countries persisted in pegging their currencies to gold and maintaining an open financial account for longer than others; "devaluers" were first to drop their pegs and allow their currencies to depreciate; while "exchange control" countries kept their pegs but only by imposing strict capital controls. This ordering is reflected in the average values of the indices of capital openness for the three groups of countries. A striking aspect of Figure 2 is the remarkably high persistence in attitudes toward capital controls among these groups of countries. The previous members of the gold bloc were the first to liberalize after World War II, and mostly persisted on that track subsequently, while the exchange control countries reverted to stricter capital account restrictions after the collapse of the Bretton Woods System in 1971.

Large countries ("hegemons") and small open economies, sovereign nations and colonies, richer and poorer economies, nations with different levels of political democracy and openness to trade plausibly behave differently. We organize our discussion of their behavior around the concept of the "trilemma" and ask how structural factors affected their choice among the three irreconcilable objectives of exchange rate stability, monetary autonomy and financial openness.

Others have also sought to investigate the trilemma. Obstfeld, Shambaugh and Taylor (2004, 2005), for example, showed how monetary policy autonomy was conditioned by exchange rate regimes and financial openness in different periods. Although their results are consistent with the trilemma broadly defined, they found a surprisingly high degree of monetary autonomy, including for countries on a peg and with an open financial account.[19] Other authors focusing on the recent period have attributed this departure from a binding trilemma to the large foreign exchange reserves by emerging nations, especially since the late 1990s (Aizenman, Chinn and Ito 2013, Blanchard et al. 2015). By accumulating reserves, countries are able to sterilize capital inflows or, when needed, insulate the current account and domestic financial conditions from capital outflows. Whether this explanation is pertinent to earlier historical periods is an open question (to which we return below).

In this section, we extend our trilemma indices back to the 1890s and test a number of possible drivers of countries' revealed preferences over time. Figure 3 and Table 3 summarize the averages of the three indices by period and type of economy (advanced vs. emerging/ developing).[20]

Figure 3 and Table 3 about here

Each index is normalized to run between zero (no attainment of the policy objective in question, where the policy objectives are exchange rate stability, monetary autonomy and an open capital account) and one (full attainment).[21] We distinguish eight periods: the classical gold standard (pre-1914), the early 1920s float, the interwar gold exchange standard (1925-

---

[19] They also found that capital controls per se did not allow for much autonomy, perhaps because of the "fear of floating" on the part of emerging markets (Calvo and Reinhart 2002).

[20] From 1987 on, we define as advanced all economies above the threshold for high income economies as classified by the World Bank. We extended this income threshold back to World War II by deflating it by the US GDP deflator. Prior to World War II we used our own discretion, building on the qualitative literature, in classifying nations as advanced.

[21] For a description of the methodology used in constructing these indices see Aizenman, Chinn and Ito (2013).

31), the Great Depression years (after 1931), the early postwar period (prior to the removal of controls on current account transactions at the end of 1958), the heyday of the Bretton Woods System (through the end of the 1960s), the three decades following its demise, and the new millennium (since the turn of the century).

The broad trends are well known, from the clear preference for open capital accounts and exchange rate stability during the two periods under gold, to lower financial openness during Bretton Woods and the more recent recovery of openness at the expense of monetary independence. In particular, the 21st century inaugurated a period when, despite less frequent pegs, exchange rate stability and monetary independence have returned to the levels last seen under the interwar gold standard.[22] Consistent with Obstfeld, Shambaugh and Taylor (2004), the monetary autonomy index displays less variation over time and across type of economy. If foreign exchange reserves have indeed been accumulated as a substitute for capital controls, then these seem to have been used to protect a degree of monetary autonomy, at least in emerging economies.[23] In general, advanced countries had a greater preference for exchange rate stability and financial openness than emerging and developing economies, except in the periods following the breakup of the two main international fixed exchange rate regimes (the classical gold standard and the Bretton Woods System).[24]

Because averages may obscure a substantial degree of underlying variation across periods and countries, we used country data to estimate a model of the determinants of trilemma choices. Since the three trilemma indices are bounded between 0 and 1, we have to transform first the left-hand side variables to give them full support, which we do by running pseudo-logit models.[25] Each of the trilemma indices is represented by a probability distribution that is equally bounded between 0 and 1.[26] On the right-hand side, we include six explanatory variables in the vector x_{it} for each country i and time t, as well as dummies for the eight periods in Table 3 (τ_t). The left-hand side in this regression is then similar to a log odds ratio, and we can recover the marginal effects of each of the explanatory variables x on the actual trilemma indices.[27]

---

[22] Rey (2015) refers to this as the macroeconomic dilemma, given her view that floating exchange rates are not an effective protection of monetary autonomy with open financial accounts.

[23] We cannot test this hypothesis for lack of historical data on reserve accumulation. Moreover, part of this stability may be illusory, since the three indices were constructed separately, whereas the trilemma assumes that there is a binding constraint connecting them ("pick two out of three").

[24] The advanced country preference for stable exchange rates is driven by euro-area membership in the most recent period, when we follow Aizenman, Chinn and Ito (2013) in coding these countries as possessing fixed rates.

[25] Because the logistic function has a cumulative density function of $F(x_{it}) = \frac{1}{1+e^{\alpha+\beta'x_{it}}}$

where x is a particular vector of covariates, we can invert the function and get a linear regression:

$$ln\left(\frac{F(x_{it})}{1-F(x_{it})}\right) = \alpha + \beta'x_{it} + \tau_t + \varepsilon_{it}$$

[26] This is equivalent to interpreting the trilemma indices as probabilities, i.e. the probability of full exchange rate stability or full financial openness. A final adjustment is required for countries where one of the indices was exactly one. Since the left-hand variable is undefined in these cases, we substituted the value one by its closest numerical approximation allowed in standard statistical packages: 1-2.225e-308. It is important to get a close approximation because the left-hand side function is convex in the vicinity of one.

[27] The formula for the marginal effects is simply $\frac{\partial F(x)}{\partial x} = \beta F(x)[1 - F(x)]$.

Table 4 lists these marginal effects for a large sample of between 35 and over 170 countries and territories between 1890 and 2014.[28]

Table 4 about here

In the first three columns, we list the estimates of model (5) for emerging and developing economies. The results for advanced countries are then in the last three columns. All regressions include period effects, so the estimates represent the impact of the explanatory variables on individual nations' choices over and above the common trends apparent in Table 3.

Consistent with the predictions of standard open-economy macroeconomic models, large advanced nations (as measured by real GDP) are less likely to adopt a peg and able to sustain a relatively high degree of monetary autonomy. This would be the situation of countries issuing reserve currencies, such as Great Britain before World War I or the United States more recently, whose size and economic clout allowed them to act, effectively, as price-setters in international capital markets (a situation referred to as "exorbitant privilege," as in Eichengreen 2011).

Conversely, large developing countries tend to be financially less open yet, despite this to possess less monetary autonomy. If we compare countries by their standards of living (GDP per capita) instead of their size, it appears that richer nations in both groups gravitate toward the gold-standard combination of exchange rate stability and financial openness, while forsaking monetary autonomy. The results suggest further that trade and financial openness are complementary – countries that depend more on trade have a tendency to open the capital account. They are also consistent with the idea that trade openness, because it encourages countries to open the capital account, limits monetary independence, although this pattern comes through strongly only for emerging economies.[29]

Colonial status shows up as a significant determinant of exchange rate stability, not surprisingly, since colonies tended to peg to their colonizer.[30] Interestingly, there is no correlation of colonial status with capital account openness or monetary autonomy, although some historical literature suggests that there should be an association.

Finally, we test the effect of democracy on the trilemma by considering two indices from the POLITY IV project (Marshall et al. 2016). The first is a measure of institutionalized democracy, while the second is the difference between that measure of institutionalized democracy and an index of autocratic or authoritarian regimes. These measures are denoted "Democracy" and "Polity 2," respectively. In both cases, larger values correspond to more democratic polities.

The results are that more democratic regimes prefer financial openness and monetary autonomy to pegging their currencies. This is consistent with the conclusions of earlier studies (e.g. Eichengreen 1996). The pattern is evident in the interwar period, when the rise of universal suffrage was partly responsible, in this view, for the difficulty in returning to the gold standard after World War I, since the newly empowered working classes refused to sacrifice domestic economic conditions to the target of a fixed peg and pressured their governments to exercise their monetary autonomy. Given the opposition to capital controls of

---

[28] The country coverage changes not only because of varying data availability but also because of the increasing number of nations and territories reporting data over time.

[29] We measure trade openness as the sum of exports and imports over GDP.

[30] Some colonial pegs persisted after the end of colonial administration; examples include the CFA franc of the former French West African colonies and some members of the former Sterling Area.

financial interests, which also have a voice in democratic political systems, the trilemma was then resolved by floating the exchange rate, either as a conscious policy choice or due to a crisis.

A similar association between democracy and floating exchange rates is evident in the estimates the postwar period, where the explanation is plausibly similar (see e.g. Leblang 1999). The pattern in this period may also reflect the fact that authoritarian governments find it expeditious to control inflation through the adoption of a peg, since they are better insulated than democracies from domestic political pressure to direct exchange rate policy toward other goals (Broz and Frieden 2001).

Future researchers could extend these results in a number of directions. One extension would consider the interaction between political regimes, economic structure and party politics or ideology, related literature having shown that different political parties (Right Wing vs Left Wing) tend to support pegs in certain circumstances and floating exchange rates in others (Berdiev et al. 2012). Another might consider the role of larger systems, from the gold standard and the Sterling and Dollar Areas to the European Monetary System and now the Euro Area. A model predicated on individual country preferences and decisions like that specified and analyzed here does not capture the influence of these group choices and interdependencies. A third important extension would be to expand the database. When working with long time horizons, one is necessarily limited by the availability of data, heightening dangers of omitted variable bias. This should make expanding the data set to include additional country characteristics a priority.[31]

Finally, our model does not distinguish between policy preferences and the capacity of governments and societies to deliver on those preferences. The negative sign in Table 4 for exchange rate stability can be interpreted as an expression of policy preferences, but equally as an indication of the prevalence historically of weak pegs owing to the existence of weak institutions that are obstacles to making credible commitments.[32] Likewise, the prevalence of capital controls can be both a policy preference and an indication of the difficulty of making credible commitments to the pursuit of stable monetary, exchange rate and financial policies. Better measures of the strength of institutions and the capacity of governments and societies to make credible commitments would enable investigators to distinguish between these interpretations.

4. Crises of International Finance

The history of international finance is all but synonymous with the history of financial crises. Crises tend to be the precipitating events occasioning the transition from one regime to another. The Great Depression, a macroeconomic crisis if there ever was one, and the 1931 financial crisis precipitated the transition from the gold-exchange standard to the dirty (managed) float of the 1930s and from open capital accounts to capital controls. The 1971 run on the dollar was similarly the event precipitating the transition from the Bretton Woods gold-dollar standard to the post-Bretton Woods float. Financial crises are evident throughout

---

[31] The number of observations in Table 4 varies precisely because of data availability. Reassuringly, the results did not change change when we ran the models for the subsample of countries with complete information. Note also that, according to the logic of the trilemma, the three indices should be dependent. When we re-estimated the models by SURE to take account of this fact, the results again did not change significantly.

[32] This would be responsible for the hollowing out of the distribution of exchange rate regimes, polarized between countries able to retain their pegs and those unable to do so and therefore forced to float (Bordo and Flandreau 2003).

international financial history. Not for nothing did Charles Kindleberger entitle the first chapter of his classic *Manias, Panics, and Crashes* "Financial Crisis: A Hardy Perennial" (Kindleberger 1978).

To a large extent, the debate over desirable trilemma choices is a debate over the susceptibility of those different regimes to crisis risk. Modern conventional wisdom is that pegged exchange rates, when operated in an environment of open capital accounts and high capital mobility, are dangerously susceptible to speculative attack and collapse. But this modern conventional wisdom is hard to reconcile with the observation that exchange rates were successfully stabilized, often for long periods, under the classical gold standard. The IMF's "new" or "institutional" view suggests that governments should move cautiously when contemplating the removal of capital controls, since open capital accounts can be associated with serious economic excesses and imbalances, in developing countries in particular.[33] Again, however, this view sits uneasily with the observation that open capital accounts were successfully maintained, in advanced and developing countries alike, prior to 1913. Whether one set of arrangements, or regime, is more crisis prone than another is, as economists like to say, an empirical question.

Eichengreen and Bordo (2003) provide an early summary of the historical evidence. They tabulate and compare the frequency of currency crises, banking crises and twin crises since 1880, contrasting the various international monetary and financial regimes. Currency crises are episodes when there is a forced change in party, abandonment of a pegged exchange rate, or an international rescue. Banking crises are episodes when one observes either bank runs, widespread bank failures and the suspension of the convertibility of deposits into currency, or else significant banking sector problems resulting in the erosion of most or all banking-system collateral and a fiscally-underwritten bank restructuring. In twin crises both types of events occur in the same or immediately adjoining years. The authors follow a constant sample of 21 countries over time.[34]

Currency crises, they show, were less frequent under the classical gold standard than in the interwar years, the Bretton Woods period, or the post Bretton Woods float (the frequency of these crises was more than three times as high under each of these subsequent regimes). This finding confirms the truism that there was something special about currency stability under the classical gold standard. Eichengreen (1996) emphasizes distinctive aspects of not just the economic but also the political context. Governments and societies prioritized exchange-rate stability relative to other economic policy goals. Stabilizing the exchange rate was seen as the principal means by which the authorities could ensure a relatively stable price level. There was limited awareness of other goals. Unemployment was not conceived as a macroeconomic phenomenon that might be targeted by policy; instead, contemporaries referred to and thought of the unemployed as casual laborers, vagrants and the destitute. Lacking an agreed definition of unemployment, governments did not gather data on its extent. There was no agreed theory linking central bank policy to unemployment or even the trade cycle, as macroeconomic fluctuations were known. The electoral franchise was limited and, in many countries, subject to a property requirement, so even had workers wanted central banks to prioritize and target unemployment, they had limited ability to make their preferences felt.

---

[33] See IMF (2012).

[34] For the recent period they compare an expanded sample of 56 countries. Recall the discussion in our introduction of the dilemma of whether to consider a balanced or unbalanced panel.

A qualification is that currency crises were noticeably more frequent in emerging markets, in Latin America for example, than in the industrial core. Although there have been a number of studies of these so-called peripheral economies (see inter alia Ford 1962, de Cecco 1974, Keynes 1913, della Paolera and Taylor 2003), there is little agreement on what explains the contrast; there is a tendency to wave one's hands, to say "weaker institutions" and to move on. A number of these countries had broader electoral franchises, preventing the monetary authorities from prioritizing exchange rate stability above all other goals. They sometimes lacked a central bank to accumulate reserves and manage the capital account. Some were specialized in the production and export of a narrow range of commodities, exposing them to unusually high price-level and balance-of-payments volatility. They were often on the receiving end of the substantial capital flows described in Section 2 above, exposing them to the sudden-stop problem.

In addition, emerging markets often had narrower and less developed banking and financial systems. When the direction of capital flows reversed, or even when inflows slowed, liquidity and solvency problems could therefore develop; investors would flee not just the banking system but also the country, and the currency could come crashing down. Banking crises and twin crises were more frequent in emerging markets than industrial countries in the 1880-1913 period. But banking crises in the advanced countries were far from unknown, something to which the rich literature on the United States attests (Sprague 1910, Jalil 2015). The frequency of banking crises was not less under the gold standard than subsequently. Eichengreen and Bordo estimate banking crisis frequency to have been higher in 1880-1913 than under both Bretton Woods (1945-1971) and the post-Bretton Woods float (1973-1997). And, as 21st century experience reminds us, the banking-crisis problem is still with us.

From this point of view, the interwar period stands out. The two decades from 1919 to 1939, and especially the 1930s, saw a higher incidence of crises than in any of these other periods. Crises in these decades were spread evenly between banking crises, currency crises, and twin crises. Economic historians have ascribed the exceptionally unstable nature of this period to changes in economic and political circumstances. Kindleberger (1973) emphasizes the change in the source of capital imports relative to the prewar period, as a less experienced set of New York-based financial institutions replaced the London financial houses as the principal source of international finance. Foreign investment, in his view, became more volatile, less discriminating, and more prone to reversals. Eichengreen (1996) emphasizes changed political circumstances. The electoral franchise had been broadened, consciousness of unemployment was greater, and central banks now found it more difficult to credibly elevate exchange rate stability above all other policy goals. International political tensions associated with the reparations tangle in the 1930s and re-militarization in the 1930s made it more difficult for European countries to agree on the cooperative management of exchange rates and capital flows, especially once an isolationist United States withdrew from the international stage. Just as our analysis of trilemma choices in Table 4 of Section 3 highlights the influence of both economic and political factors, this discussion of crises suggests that their incidence cannot be understood by considering either economics or politics in isolation from one another.

In Table 5 we extend the historical comparison to growth crises and sovereign debt crises. Growth crises are defined, following Ghosh, Ostry and Qureshi (2014), as episodes that are in the bottom fifth percentile of growth declines (current year relative to the average of the previous three years). Sovereign debt crises are identified defaults on interest or principal and/or restructuring, including instances where rescheduled debt is extinguished on

terms less favorable than the original obligation. Data on growth rates are from the Maddison database and the IMF's International Financial Statistics; data on external debt crises are from the database underlying Reinhart and Rogoff (2009). Here we follow an unbalanced panel of countries, with coverage expanding over time.

For external debt crises the picture is broadly consistent with what we see for currency crises. Debt defaults were far from unknown under the classical gold standard, but they were less frequent than they became subsequently. In the same way that countries were able to stabilize successfully their exchange rates more frequently than was the case subsequently, they were able to repay what they borrowed; it is not surprising that these two aspects of international financial stability went hand in hand. The interwar period again stands out for the opposite reason: just as there was an exceptionally high instance of banking and currency crises, there was an exceptionally high incidence of debt defaults. The frequency of external debt crises rises between the Bretton Woods years 1946-71 and the remainder of the 20th century, as capital controls are relaxed and the volume of international capital flows recovers. It then falls back subsequently, creating the hopeful possibility that emerging markets, in particular, made progress in learning how to manage external debt.

Growth crises look similar with one prominent exception. Growth crises or collapses were relatively frequent during the classical gold standard years – as frequent or more frequent as under Bretton Woods, in the last quarter of the 20th century, and in the first decade of the 21st. The gold standard, it would appear succeeded in reconciling exchange rate stability with high international capital mobility, including a relatively stable record of external debt repayment, but not in delivering a high level of macroeconomic stability. Whether this real-sector volatility reflected the banking-crisis problem, whether the exchange rate stability and record of relatively smooth external debt repayment were achieved at the expense of macroeconomic stability, or whether the explanation lies elsewhere is an important question to pursue.

5. **Conclusion**

In this paper, divided into three main sections, we have provided three perspectives on the last century and a half of international finance. The first perspective emphasizing international capital flows, shows how international capital mobility and extent of financial integration trace out a U-shaped pattern over time, high before the Great Depression, low from the 1930s to the 1970s, and then increasingly high again in the years that follow. The second perspective describes the policy tradeoffs between capital mobility, exchange rate stability and monetary autonomy that provide the starting point for understanding these intertemporal changes. The third perspective looks in more depth at the consequences of those choices, for economic and financial stability in particular.

These three perspectives provide a framework for thinking about the evolution of the international monetary and financial system. Our three perspectives also point to an agenda for research. Many readers will have already thought of important topics that bear further investigation, focusing perhaps on particular countries, markets and events. We would point as well to the importance of gathering additional historical data on the operation of the international financial system. Information on gross capital flows, for example, remains spotty. The contribution of service income to the current account remains all but unknown. Country coverage of many variables is incomplete. Shaping the future of the international and monetary system in positive directions requires better understanding its history. But better

understanding its history requires not just developing and testing hypothesis but also continuing with the hard work of filling in the data gaps.

References

Accominotti, Olivier and Barry Eichengreen (2016), "The Mother of All Sudden Stops: Capital Flows and Reversals in Europe, 1919-32," *Economic History Review* 69: 469-92.

Alfaro, L., A. Chanda, S. Kalemli-Ozcan and S. Sayek (2004), "FDI and economic growth: The role of local financial markets," *Journal of International Economics*, 64(1): 89–112.

Aizenman, Joshua, Menzie Chinn and Hiro Ito (2013), "The 'Impossible Trinity' Hypothesis in an Era of Global Imbalances: Measurement and Testing," *Review of International Economics* 21: 447-458.

Baldwin, Richard and Philippe Martin (1999), "Two Waves of Globalization: Superficial Similarities, Fundamental Differences," in Horst Siebert ed., *Globalisation and Labour*, Kiel: J.C.B. Mohr.

Beakert, Geert and Arnaud Mehl (2017) "On the Global Financial Market Integration "Swoosh" and the Trilemma" NBER Working Paper 23124.

Berdiev, Aziz, Yoonbai Kim and Chun Ping Chang (2012) "The Political Economy of Exchange Rate Regimes in Developed and Developing Countries," *European Journal of Political Economy* 28: 38-53.

Bernanke, Ben (2005), "The Global Savings Glut and the US Current Account Deficit," Sandrigde Lecture, Virginia Association of Economics, Richmond, Virginia.

Blalock, G., P. Gertler, and D. Levine (2008), "Financial constraints on investment in an emerging market crisis," *Journal of Monetary Economics*, 55(3): 568–591.

Blanchard, Olivier, Gustavo Adler and Irineu de Carvalho (2015), "Can Foreign Exchange Intervention Stem Exchange Rate Pressures from Global Capital Flow Shocks," NBER Working Paper 21427.

Bordo, Michael (2002), "Globalization in Historical Perspective," *Business Economics* 37: 20-29.

Bordo, Michael, Alberto Cavallo, and Christopher Meissner (2010), "Sudden Stops: Determinants and Output Effects in the First Era of Globalization, 1880-1913," *Journal of Development Economics* 91(2): 227-241.

Bordo, Michael, Barry Eichengreen and Douglas Irwin (1999), "Is Globalization Today Really Different from Globalization a Hundred Years Ago?" *Brookings Trade Forum 1999*: 1-72.

Bordo, Michael, Barry Eichengreen, Daniela Klingebiel Maria Martínez-Peria and Andrew Rose (2001), "Is the Crisis Problem Growing More Severe?" *Economic Policy* 16(32): 51-82.

Bordo, Michael, and Marc Flandreau (2003), "Core, Periphery, Exchange Rate Regimes, and Globalization" in Michael Bordo, Alan Taylor and Jeffrey Williamson, eds., *Globalization in Historical Perspective*, Chicago: University of Chicago Press: 417-472.

Bordo, Michael, and Antu Murshid (2006), "Globalization and Changing Patterns in the International Transmission in Financial Markets," *Journal of International Money and Finance* 25: 655-674.

Broz, J. Lawrence and Jeffry Frieden (2001), "The Political Economy of International Monetary Relations," *Annual Review of Political Science* 4: 317–343.

Butlin, N. (1962) *Australian domestic product, investment and foreign borrowing 1861-1938/39*, Cambridge: Cambridge University Press.

Cain, Peter and A. Hopkins (1980), "The Political Economy of British Expansion Overseas, 1750-1914," *Economic History Review* 33(4): 463-90.

Cairncross, Alexander (1953), *Home and Foreign Investment: 1870-1913: Studies in Capital Accumulation*, Cambridge: Cambridge University Press.

Calvo, Guillermo and Enrique Mendoza (2000), "Capital Markets, Crises and Economic Collapse in Emerging Markets: An Informational-Frictions Approach," *American Economic Review Papers and Proceedings* 90(2): 59-64.

Calvo, Guillermo and Carmen Reinhart (2002), "Fear of Floating," *Quarterly Journal of Economics* 107(2): 379-408.

Cavallo, Eduardo, Mathieu Pedemonte, Andrew Powell and Pilar Tavella (2015), "A New Taxonomy of Sudden Stops: Which Sudden Stops Should Countries be Most Concerned About?" *Journal of International Money and Banking* 51: 47-70.

Chabot, Ben and Charles Kurz (2010) "That's Where the Money Was: Foreign Bias and English Investment Abroad, 1866–1907," *Economic Journal* 120: 1056-79.

Clemens, Michael and Jeffrey Williamson (2004), "Wealth Bias in the First Global Capital Market Boom, 1870-1913," *Economic Journal* 114: 303-37.

De Cecco, Marcello (1973), *Money and Empire: The International Gold Standard, 1890-1914*, Oxford: Blackwell.

Della Paolera, Gerardo and Alan Taylor, eds. (2003), *A New Economic History of Argentina*, New York: Cambridge University Press.

Desai, M., C. Fritz Foley, and J.R. Hines (2004), "A Multinational Perspective on Capital Structure Choice and Internal Capital Markets", *Journal of Finance*, 59(6): 2451–2487.

Edelstein, Michael (1982), *Overseas Investment in the Age of High Imperialism. The United Kingdom, 1850-1914*, London: Methuen.

Eichengreen, Barry (1996), *Globalizing Capital: A History of the International Monetary System*, Princeton: Princeton University Press.

Eichengreen, Barry (2003), *Capital Flows and Crises*, Cambridge, Mass: MIT Press.

Eichengreen, Barry (2011), *Exorbitant Privilege. The Rise and Fall of the Dollar*, Oxford: Oxford University Press.

Eichengreen, Barry (2008), "Sui Generis EMU", NBER Working Paper 13740.

Eichengreen, Barry and Michael Bordo (2003), "Crises Now and Then: What Lessons from the Last Era of Financial Globalization," in Paul Mizen, ed., *Monetary History, Exchange Rates and Financial Markets: Essays in Honour of Charles Goodhart*, London: Edward Elgar: 52-91.

Esteves, Rui (2007), "Between Imperialism and Capitalism. European Capital Exports Before 1914", *Mimeo*.

Esteves, Rui (2011), "The Belle Époque of International Finance. French Capital Exports, 1880-1914", Oxford Department of Economics Discussion Paper 534.

Esteves, Rui (2013), "The Bondholder, the Sovereign and the Banker: Sovereign Debt and Bondholders' Protection Before 1914," *European Review of Economic History* 17: 389-407.

Eugeni, Sara (2015), "An OLG Model of Global Imbalances," *Journal of International Economics* 95 (1): 83–97.

Eugeni, Sara (2016), "Global Imbalances in the XIX, XX and the XXI Centuries," *Economics Letters* 14: 69-72.

Feinsten, Charles (1972), *National Income, Expenditure and Output of the United Kingdom, 1855-1965*, Cambridge: Cambridge University Press.

Feis, Herbert (1930), *Europe, the World's Banker, 1870-1914*, New Haven: Yale University Press.

Fishlow, Albert (1985), "Lessons from the Past: Capital Markets During the 19th Century and the Interwar Period," *International Organization* 39: 38-93.

Feldstein, Martin and Charles Horioka (1980) "Domestic Saving and International Capital Flows," *Economic Journal* 90: 314-29.

Flandreau, Marc (2003), "Crises and Punishment: Moral Hazard and the Pre-1914 International Financial Architecture," in Marc Flandreau, ed., *Money Doctors: The History, Theory and Policy of International Financial Advice*, London: Routledge: 13-48.

Forbes, Kristin and Frank Warnock (2012), "Capital Flow Waves, Surges, Stops, Flight and Retrenchment," *Journal of International Economics* 88: 235-251.

Ford, A.G. (1962), *The Gold Standard, 1880-1914: Britain and Argentina*, Oxford: Clarendon Press.

Ghosh, Atish, Jonathan Ostry and Mahvash Qureshi (2014), "Exchange Rate Management and Crisis Susceptibility: A Reassessment," IMF Working Paper WP/14/11 (January).

Goetzmann, William, Lingfeng Li, and Geert Rouwenhorst (2005), "Long-Term Global Market Correlations," *Journal of Business* 71: 1-38.

Gourinchas, Pierre-Olivier and Olivier Jeanne (2013), "Capital Flows to Developing Countries: The Allocation Puzzle," *Review of Economic Studies* 80(4): 1484-1515.

International Monetary Fund (2012), "The Liberalization and Management of Capital Flows: An Institutional View" (14 November).

International Monetary Fund (2014), "How Do Changes in the Investor Base and Financial Deepening Affect Emerging Market Economies?" in *Global Financial Stability Report*, April, Chapter 2.

Jalil, Andrew (2015), "A New History of Banking Panics in the United States, 1825-1929: Construction and Implications," *American Economic Journal: Macroeconomics* 7, pp.295-330.

Jones, Matthew and Maurice Obstfeld (2001), "Saving, Investment, and Gold: A Reassessment of Historical Current Account Data," in Guillermo Calvo, Rudi Dornbusch, and Maurice Obstfeld, eds., *Money, Capital Mobility, and Trade: Essays in Honor of Robert Mundell*, Cambridge, MA: MIT Press: 303-63.

Keynes, John Maynard (1913), *Indian Currency and Finance*, London: Macmillan.

Keynes, John Maynard (1919), *The Economic Consequences of the Peace*, London: Macmillan.

Kindleberger, Charles (1973), *The World in Depression, 1929-1939*, Berkeley: University of California Press.

Kindleberger, Charles (1978), *Manias, Panics and Crashes: A History of Financial Crises*, New York: Basic Books.

League of Nations (1938), *Report on Exchange Control*, Geneva: League of Nations.

Leblang, David (1999), "Political Institutions and Exchange Rate Commitments in the Developing World," *International Studies Quarterly* 43: 599–620.

Lucas, Robert (1990), "Why Doesn't Capital Flow from Rich to Poor Countries?" *American Economic Review* 80(2): 92-96.

Marshall, Monty, Ted Gurr and Keith Jaggers (2016), *Polity IV Project. Political Regime Characteristics and Transitions, 1800-2015*, Center for Systemic Peace.

Mauro, Paolo, Nathan Sussman and Yishay Yafeh (2002), "Emerging Market Spreads: Then versus Now," *Quarterly Journal of Economics* 117(2): 695-733.

Morys, Matthias (2005), "The Classical Gold Standard in the European Periphery: A Case Study of Austria-Hungary and Italy, 1870-1913," Ph.D. dissertation, London School of Economics and Political Science.

Nurkse, Ragnar (1944), *International Currency Experience*, Geneva: League of Nations.

Obstfeld, Maurice (2012), "Does the Current Account Still Matter?" *American Economic Review Papers and Proceedings* 102(3): 1-23.

Obstfeld, Maurice, Jay Shambaugh and Alan Taylor (2004), "Monetary Sovereignty, Exchange Rates, and Capital Controls: The Trilemma in the Interwar Period," *IMF Staff Papers* 51: 75-108.

Obstfeld, Maurice, Jay Shambaugh and Alan Taylor (2005), ""The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility," *Review of Economics and Statistics* 87(3): 423-438.

Obstfeld, Maurice and Alan Taylor (2004) *Global Capital Markets: Integration, Crisis, and Growth*, Cambridge: Cambridge University Press.

OECD (2008) *OECD Benchmark Definition of Foreign Direct Investment*, fourth edition.

O'Rourke, Kevin and Jeffrey Williamson (1999), *Globalization and History: the Evolution of a Nineteenth-century Atlantic Economy.* Cambridge, Mass.: MIT Press.

Parent, Antoine and Christophe Rault (2004), "The Influences Affecting French Assets Abroad Prior to 1914," *Journal of Economic History* 64 (2): 328-62.

Quinn, Dennis (2003), "Capital Account Liberalization and Financial Globalization, 1890-1999: A Synoptic View," *International Journal of Finance and Economics* 8: 189-204.

Quinn, Dennis, and Hans-Joachim Voth (2008), "A Century of Global Equity Market Correlations," *American Economic Review Papers and Proceedings* 98: 535-540.

Reinhart, Carmen and Kenneth Rogoff (2009), *This Time Is Different: Eight Centuries of Financial Folly*, Princeton: Princeton University Press.

Rey, Hélène (2015), "Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence," NBER Working Paper 21162.

Rubinstein, William (1987), *Elites and the Wealthy in Modern British History*, Brighton: Palgrave Macmillan.

Schularick, Moritz and Thomas Steger (2010) "Financial Integration, Investment, and Economic Growth: Evidence from Two Eras of Financial Globalization," *Review of Economics and Statistics* 92(4): 756-68.

Solow, Robert (1956) "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics* 70, 65-94.

Sprague, Otto (1910), *History of Crises under the National Banking System*, Washington, D.C.: National Monetary Commission.

Stone, Irving (1999) *The Global Export of Capital from Great Britain, 1865-1914: A Statistical Survey*, London: Macmillan.

Taylor, Alan (1996), "International Capital Mobility in History: The Savings-Investment Relationship" NBER Working Paper 5743.

Temin, Peter (1987), "Capital Exports, 1870-1914: An Alternative Model," *Economic History Review* 40(3): 453-58.

Tiberi, Mario (2005), *The Accounts of the British Empire. Capital Flows from 1799 to 1914*, Aldershot: Ashgate.

Twomey, Michael (2000), *A Century of Foreign Investment in the Third World*, London: Routledge.

White, Harry (1933), *The French International Accounts*, Cambridge, Mass: Harvard University Press.

Wilkin, Mira, ed. (1991) *The Growth of Multinationals*, Aldershot: Elgar.

Wolf, Nikolaus (2010), "Europe's Great Depression: Coordination Failure after the First World War," *Oxford Review of Economic Policy* 26(3): 339–369.

Woodruff, William (1966), *Impact of Western Man. A Study of Europe's Role in the World Economy 1750-1960*, London: Macmillan.

Table 1: Summary statistics of capital flows, 1870-2010

| | 1870-1913 | | | | 1914-1945 | | 1960-1979 | | | 1980-2010 | | | | |
| | Net flows | | Gross flows | | Net flows | | Net flows | | | Net flows | | | Gross flows | |
	TA	CA	Inflows	Outflows	TA	CA	TA	CA	FA	TA	CA	FA	Inflows‡	Outflows‡
Average†	-0.89	-2.66	3.75	2.43	0.22	-1.55	-6.22	-2.88	-7.02	-3.94	-3.53	9.41	5.03	-7.02
Median	-0.08	-1.92	2.95	1.05	0.07	-0.56	-4.25	-3.17	-4.00	-3.32	-2.84	6.64	2.88	-4.00
CV	-5.53	-1.47	1.36	1.66	23.55	-3.67	-2.06	-2.49	-2.45	-2.56	-2.54	1.08	1.55	-2.45
Correlations														
TA	1				1		1			1				
CA	0.40***	1			0.52***	1	0.53***	1		0.64***	1			
FA							0.40***	0.64***	1	0.43***	0.74***	1		

Sources: see text. All variables in percentage of individual countries' GDP. TA = trade account, CA = current account, FA = financial account. † unweighted. ‡ 1990-2010.*** significant at 1%.

Table 2: Peak years in gross capital flows

| Crisis | Unweighted | | Weighted | |
	Inflows	Outflows	Inflows	Outflows
Barings	1888	1888	1888	1888
1907	1905	1906	1905	1906
1998	1998	1996	1996	1996
2007	2007	2007	2006	2006

Sources: see text. Variables defined as in Figure 1

Table 3: Trilemma indices, 1890-2014

	ER Stability		Monet autonomy		Fin openness	
	AE	**EDE**	**AE**	**EDE**	**AE**	**EDE**
1890-1913	0.898	0.775	0.244	0.442	1.000	0.997
1919-24	0.214	0.328	0.444	0.481	0.523	0.577
1925-31	0.706	0.657	0.404	0.444	0.855	0.785
1932-39	0.411	0.327	0.419	0.471	0.706	0.475
1950-58	0.868	0.789	0.448	0.495	0.458	0.519
1959-69	0.837	0.925	0.421	0.475	0.589	0.535
1970-99	0.590	0.653	0.373	0.474	0.746	0.467
2000-14	0.723	0.642	0.229	0.440	0.879	0.474

Sources: see text. AE = advanced economies. EDE = emerging and developing nations.

Table 4: Determinants of trilemma choices

Variables	(1) ER Stab	(2) Monet aut	(3) Fin open	(4) ER Stab	(5) Monet aut	(6) Fin open
GDP	-0.003	-0.055***	-0.029***	-0.093***	0.043***	0.005
	(0.012)	(0.009)	(0.006)	(0.010)	(0.012)	(0.007)
GDP per capita	0.006***	-0.003**	0.017***	0.002	-0.005**	0.010***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
Trade openness	0.013	-0.115***	0.025***	-0.007	0.014	0.035***
	(0.011)	(0.017)	(0.005)	(0.009)	(0.010)	(0.009)
Colony	0.147***	-0.015	0.019			
	(0.040)	(0.031)	(0.012)			
Democracy	-0.004***	0.005***	0.006***	-0.004**	-0.002	-0.005*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)
Polity2	-0.002***	0.002***	0.004***	-0.002**	-0.000	-0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Period effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,792	1,814	2,840	1,355	1,092	1,344
R-squared	0.128	0.076	0.163	0.342	0.210	0.322

Note: estimates of marginal effects with robust standard errors in parentheses. Periods defined as in Table 3, excluding war years (1914-19 and 1940-49). *** p<0.01, ** p<0.05, * p<0.1
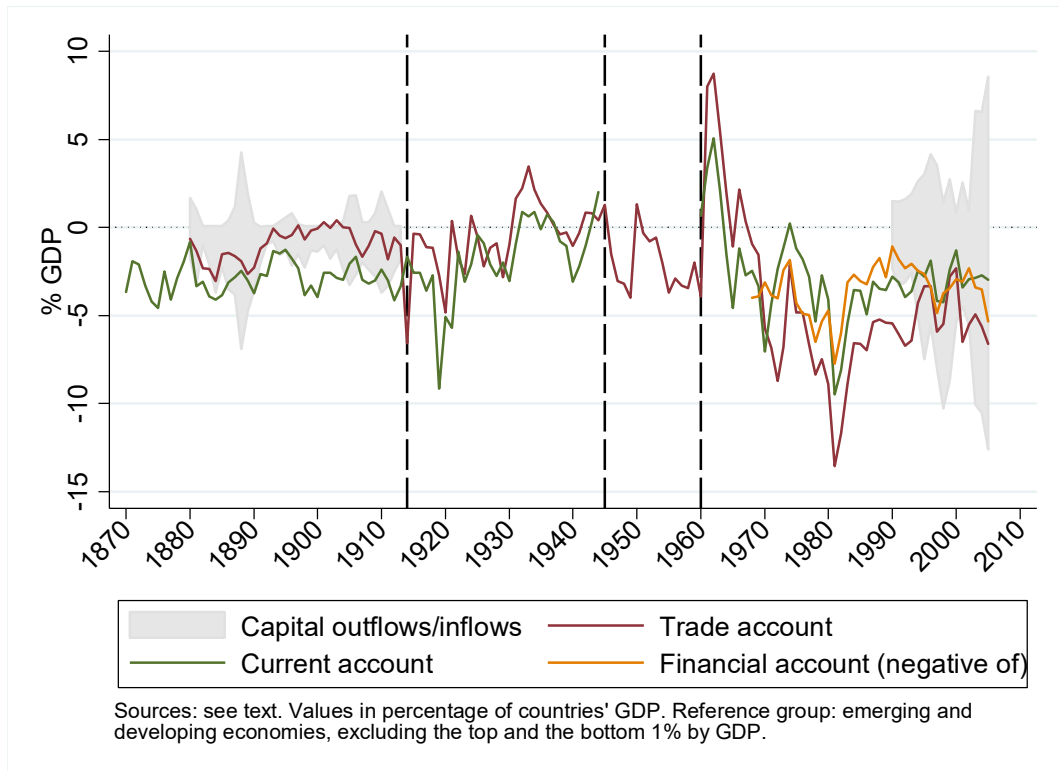
Table 5: Crisis Frequency

Period	External Debt Crises	Growth Crises
1880-1913	0.097	0.054
1919-1939	0.236	0.103
1946-1971	0.117	0.027
1972-1999	0.188	0.054
2000-2010	0.119	0.021

Source: see text.

Figure 1: Capital Flows, 1870-2010

Panel A: Unweighted Averages

Sources: see text. Values in percentage of countries' GDP. Reference group: emerging and developing economies, excluding the top and the bottom 1% by GDP.

Panel B: Weighted Averages (by GDP)

Sources: see text. Values in percentage of countries' GDP. Reference group: emerging and developing economies, excluding the top and the bottom 1% by GDP.
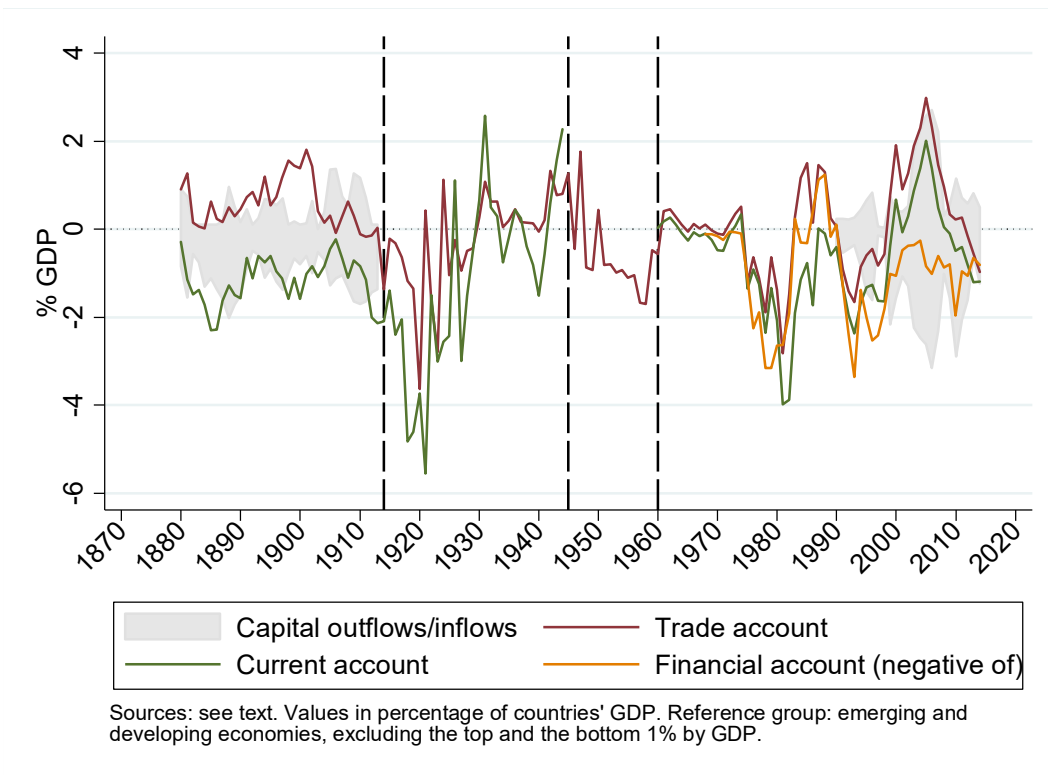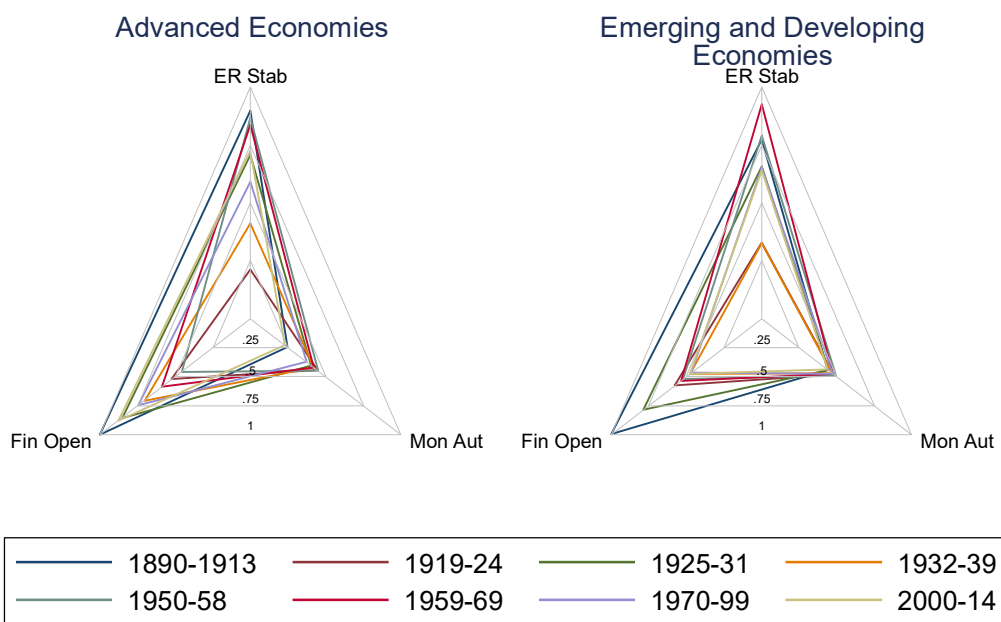
Figure 2: *De jure* financial account openness, 1890-2004
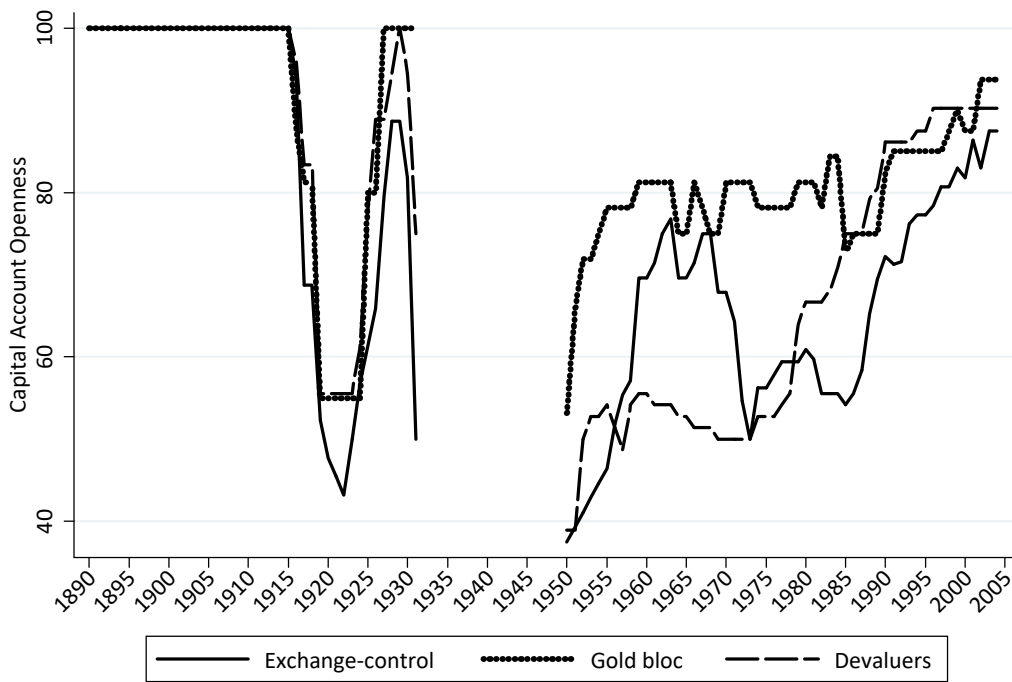
Source: Quinn (2003)
Average values by group of nations, normalized for 100=total openness

Figure 3: The trilemma indices, 1890-2014

Source: see text. War years excluded.