

WORK IN PROGRESS

DRAFT

DO NOT CITE WITHOUT AUTHOR'S PERMISSION

Financial Globalization and Emerging Market Bond Price Bubbles:
Some Historical Lessons

Moritz Schularick
mschularick@yahoo.de
May 2006

Within a few years after the severe financial crisis of the late 1990s, the risk premia on emerging market bonds have fallen to record low levels. This bond price bonanza has incited a lively debate among policy makers, academics and market participants over myopic investors, a mispricing of risk and a potential bubble in the asset class (e.g. IMF, 2004; Roach, 2005). Interestingly, history shows that a comparable compression of emerging market bond spreads took place in the first era of global finance before 1914. This paper asks what the history of the first era of global finance tells us about the factors driving the pricing of risk and potential bubbles in emerging market assets. By analysing the relation between changes in asset prices and changes in fundamentals, I aim to contribute both to the literature on the factors driving country risk in emerging markets before 1914 and to the general understanding of the pricing of emerging market assets in the global capital market as well the identification of potential asset price bubbles.

The paper studies the pricing of developing economies' international bonds in the first era of financial globalization from 1880-1914. More specifically, I look at the pricing of country risk, i.e. the risk premia on international, hard-currency (or gold) bonds of the 28 most important less-developed and independent borrowers from across all continents. The dataset covers virtually the entire universe of development borrowing by independent developing states in the international bond market before 1914. I intentionally concentrate the paper on the experience of independent peripheral countries. I thus exclude both colonies and dominions. The reason is that the market treated the bonds of European colonies differently which was reflected in lower borrowing cost ('Empire effect') and, ceteris paribus, higher amounts of capital flows (Ferguson and Schularick, 2006; Mauro et al., 2006). I also exclude independent European settler economies such as the USA, because their level of development was at least as high as those of the European core economies (Maddison, 2001). They differed strongly from other emerging markets in terms of their institutions, culture and technological capabilities.

The paper builds on the rich literature on country risk perception and interest rate convergence in the first era of financial globalization (Bordo and Rockoff, 1996; Obstfeld and Taylor, 2003; Mauro et al., 2001; Ferguson, 2004; Flandreau and Zumer, 2004; Ferguson and Schularick, 2005, 2006), but it seeks to improve on it in several respects. It is the first paper to study specifically the experience of independent, less-developed countries in Asia, Latin America and peripheral Europe – "emerging markets" properly speaking – and thus allows for a new look at development finance in the first era of globalisation. Thanks to considerable data collection, this focus on independent developing countries – where country risk is likely to be the major determinant for capital flows – does not come at the cost of working with a smaller sample than previous studies. Another possibly important contribution of this paper is the introduction of a comprehensive historical emerging markets bond index (HEMBI), the debt-weighted average spread of the bonds of 28 less-developed, independent borrowers from 1880-1914.

The paper is organised as follows. I first aim to present a number of stylised facts for the reduction in emerging market sovereign bond spreads between the late 1890's and the eve of WW1 by introducing

the new market-wide bond index (HEMBI) and tracing the spread convergence on a country-by-country basis. There are two main findings: the average risk premia on peripheral countries' bonds fell substantially over the period and accelerated sharply after 1900. The available evidence suggests that a market-wide shift in risk pricing took place in the first decade of the 20th century. The spread convergence not only accelerated markedly, but also the intra-country variance of spreads was reduced to levels not seen before making emerging markets a much more homogenous asset class.

The second part of the paper is devoted to the question whether or to what extent improvements in fundamentals can explain investors' sizeable appetite for emerging market debt. I first look at two most prominent explanations put forward in the recent literature. In particular, I review whether the extension of the gold standard (Bordo and Rockoff, 1996; Obstfeld and Taylor, 2003) or improvements in fundamentals – such as debt service ratios – as a result of global growth and inflation (Hobson, 1914; Flandreau and Zumer, 2004) are convincing explanations for the risk reduction. Previous studies have shown that there is little evidence of a credibility effect through gold standard adherence in the poor periphery (Ferguson and Schularick, 2005), I find evidence supporting the thesis that improvements in fundamentals have played an important role. However – in the light of the statistical tests applied – an important part of the spread reduction remains unexplained, and a different story remains to be told.

Before concluding that investors simply grew over-confident in the stability of emerging markets – leading to global mispricing of risk on the eve of WW1 (Ferguson, 2004) – the third part of the paper looks beyond narrow country fundamentals for an explanation for the spread reduction. In particular, I ask whether investors responded rationally to political and institutional factors that changed the landscape for international lending in the final decade before the outbreak of the war. I ask whether the turnaround in market sentiment can be explained by better creditor protection and a more active role of the European powers with regard to policing financial stability in the periphery. My conclusion is that investors had reasons to believe that the political economy of globalization had changed in a way that reduced many of the endemic incentive and enforcement problems of international lending. The market responded by driving down the risk premia of emerging markets, and especially those of high risk markets which had to gain most from ongoing global integration. This process underlines the sensitivity of emerging market risk perception to the political economy of globalization. History shows the pricing of emerging market risk is highly dependent on expectations about the durability and stability of developing countries' integration with global markets.

The final part presents the main conclusions of this paper and briefly discusses the implications for the debate about bubbles in the asset class. In a nutshell, the experience of the first era of global finance underscores that the pricing of emerging market risk is a complex process that takes into account a wide array of domestic and international economic as well as political factors. In addition, the first era of globalization shows that emerging markets' asset prices are highly sensitive to investors' expectations with regard to the durability and stability of global market integration. To the extent that

emerging markets are a “geared play” on the prospects of an integrated global economy, a core risk of “irrational exuberance” in this market stems from the mispricing of the prospects of global market integration. As a consequence, it remains close to impossible for policy-makers to distinguish justified from irrational increases in asset prices as they have virtually no better basis to judge this than the market.

1. Risk reduction in the periphery: stylised facts

The reduction of the interest rate charged to developing country borrowers in the London market is a prominent trait of the first era of financial globalization, from 1880-1914. The interest rates charged to developing country borrowers fell substantially over time, and as a consequence, the amounts of capital transferred from the core to the periphery reached levels not seen before or after (Obstfeld and Taylor, 2003b; Schularick, 2006). As the yield on the British consol, the risk-free rate, remained constant at roughly 3% p.a. over the period, interest rate compression was first and foremost a story of declining country risk. Some authors have called this process „the most striking financial phenomenon of the late 19th and early 20th centuries“ (FZ, 16). The first task here is to establish a number of stylized facts for this risk reduction. Several different routes are taken. First, a new market wide bond spread index is introduced. Second, the spread convergence is studied at the country and regional level. Finally, the intra-group variance of country risk premia is analysed.¹

Looking at the market for developing country, hard-currency debt, the first step is to introduce a new historical emerging market bond index (HEMBI) which allows to track the aggregate emerging market risk over time. The HEMBI is a market-wide bond index comprising of bonds of the 28 most important less-developed independent borrowers in the international capital market before 1914.² The countries covered are: Bulgaria, Serbia, Russia, Italy, Portugal, Spain, Turkey, Romania, Montenegro, Argentina, Brazil, Chile, Columbia, Ecuador, Guatemala, Nicaragua, Peru, Salvador, Uruguay, Venezuela, Liberia, China, Persia, Siam and Japan. The HEMBI is constructed as a debt-weighted average, i.e. each country’s bond spread contribution is weighed by its overall share in outstanding public debt. Details and actual values are presented in the data appendix. Figure 1 traces the development of the index over the 30-year period.

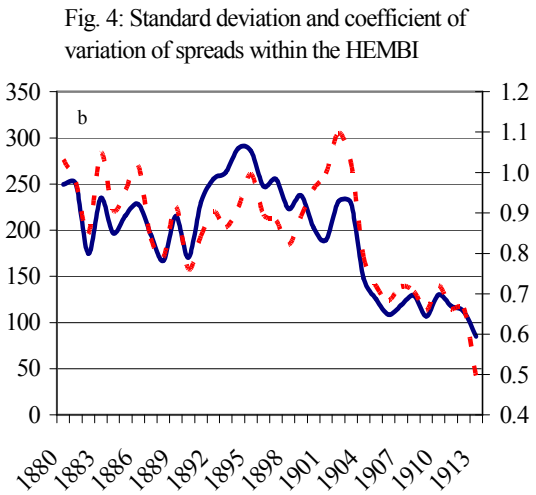
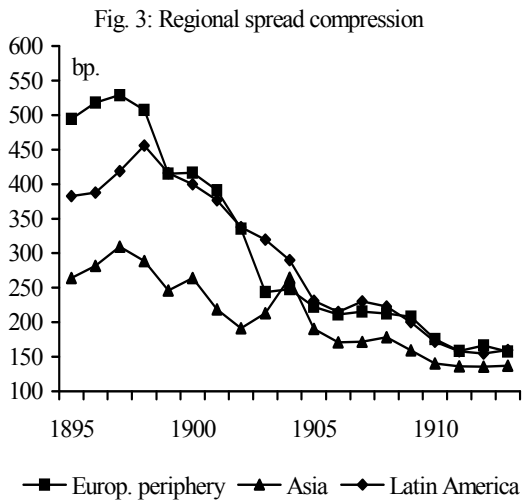
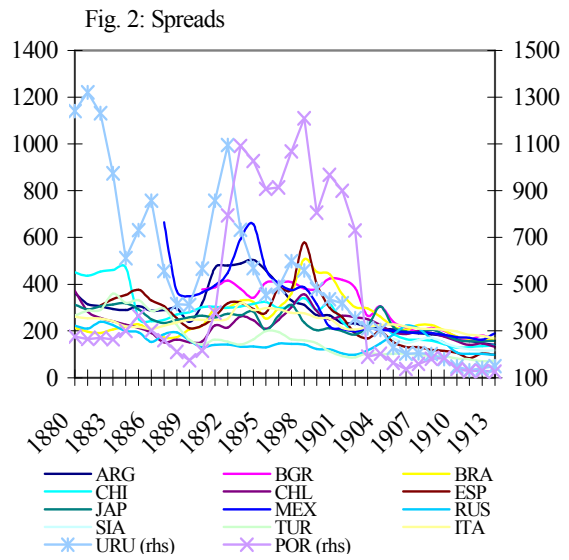
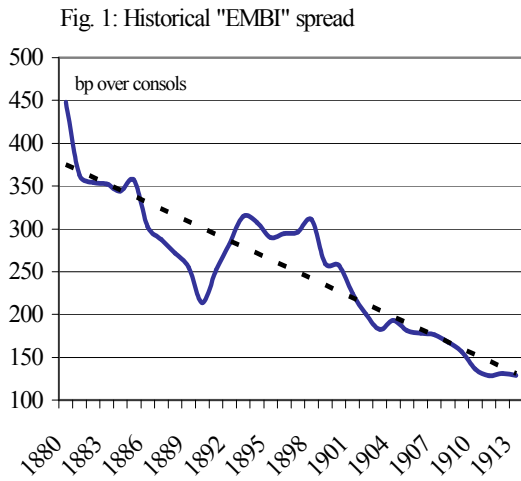
The chart clearly demonstrates that, by the end of the period, the market-wide risk premia stood at less than one third of the original value. The HEMBI reached barely 130-140 bp for the whole market in 1913, down from a starting level of 450 bp in the early 1880s. In the eyes of the market, default of

¹ I always work with the largest disposable country sample, but the actual N’s differ slightly as not all indicators are available for all years.

² As often with historical data, not all series are available for all countries in all years. In this case I have always worked with the largest available subset of countries.

emerging markets on their debt had become three times less probable. The story behind the movements of the HEMBI is quickly told. The preconditions for a pick-up in emerging markets finance looked hardly promising in the late 1870s. Big borrowers such as Spain, the Ottoman Empire, Greece and Egypt were in financial trouble. On top of this, a total of 10 Latin American borrowers were in default for most or parts of the decade of the 1870s (Suter, 1990; Rippy, 1959). But the rescheduling agreements at the end of the 1870s and at the beginning of the 1880s prepared the ground for a first massive wave of European investment. Argentina, Brazil, the Ottoman Empire and Greece became major destinations for foreign investors in the 1880s (van Oss, 1895; Hobson, 1914). The Argentinian financial crisis and the near collapse of Baring's Bank in London (1890/91) put an end to this first wave of emerging market finance. When Brazil slipped into civil war in 1893, also the second big Latin American debtor went into financial difficulties. However, in the second half of the 1890s, the markets started to recover. By 1901, the HEMBI had reached again the historical lows of the boom year 1889/90. After that date the market-wide spread ran from record to record and settled at roughly 130-140 bp.

Figures 1-4



A look at the individual country level reveals a second important fact. Figure 2 shows that for most of the period the differences between individual countries were substantial. Yet after 1900 the homogeneity of risk assessment increased rapidly. The differences within the group fell sharply as countries that were considered very risky in earlier years saw the most pronounced decline in risk premia. As a result, the bird's-eye picture of the developing country bond market on the eve of WWI is a surprisingly homogenous one. By 1910, the risk premia were not only half as high as 10 years before, but they had come extremely close together. Bonds of countries that differed widely in terms of economic structure and development, such as Japan, Brazil, and Serbia, all traded within a very narrow range yielding between 150 and 170 bp more than the British consol. This signals that the high-risk countries in Latin America and in the European periphery have made far above average gains in creditworthiness. This is also illustrated by figure 3 that shows that the average bond spreads in the three regions (ex countries in default) had started from different levels. By 1910, all three sub-regions were on the same level.

What we can observe in the data is that not only the mean comes down over time, but at the same time the dispersion of the individual bond spreads around the mean – as measured by the standard deviation and the coefficient of variation – falls markedly after the turn of the century. Figure 4 gives a clear illustration of this phenomenon. It shows the standard deviation and the coefficient of variation of spreads within the 28 countries in the HEMBI over time. The coefficient of variation as a measure for intra-group spread deviation that takes into account the falling mean, was nearly half as high at the end of the first era of global finance. Clearly, something different was going on the international bond market after the turn of the century. Investors had concluded that the world had become a much safer place for international finance and that emerging market risk had become very similar.

If we summarize this information, two stylized facts emerge. The first is the market-wide reduction in country risk as implied by the bond spreads. Second, the variance of spreads within the emerging market group was substantially reduced as higher risks caught up with the less risky economies. This would seem to suggest that any hypothesis that wants to explain these phenomena has to name the factors that drove down general emerging market risk perception and that led to the equalization of yields among the countries.

2. Explaining risk reduction in emerging markets' assets

In this part, I address the question whether improvements in country fundamentals – in a broad sense – can explain the pricing behaviour of the market. The literature on interest rate convergence before 1914 is rich and growing. It has focused on three issues: credibility effects from gold standard adherence (Bordo and Rockoff, 1996; Obstfeld and Taylor, 2003; Ferguson and Schularick, 2005), improvements in country fundamentals (Sussman and Yafeh, 2001; Flandreau and Zumer, 2004), and the role of Empire and political hegemony in reducing the risk of foreign investment (Mitchener and

Weidenmier, 2005; Ferguson and Schularick, 2006). Before addressing the first two themes more in detail – the role of Empire seems less relevant in the present context as the focus is on the independent periphery – one issue needs to be discussed briefly that is named frequently in the contemporary debate about low emerging market spreads, namely liquidity. In this view, the exceptionally low nominal and real interest rate levels in the major economies since 2001 have caused a global wave of liquidity as a broadening investor base searched for yield outside the established markets. The argument is less convincing for the historical period. As mentioned above, long term interest rates measured by the consol rate have remained constant. Also with regard to real UK interest rates, no clear trend emerges. On the contrary, during the 1900-1905 period British real interest rates were at their highest levels in a decade.

Gold standard adherence

One hypothesis for the decline in country risk perception centres on the spread of the gold standard and the associated credibility gains for monetary policy (Bordo and Rockoff, 1996; Obstfeld and Taylor, 2003). However, a recent detailed study has shown that gold standard adherence probably made little difference for poor developing countries outside the “Atlantic economy” (Ferguson and Schularick, 2005). The bottom line of this study is that, whatever the significance of gold for relatively rich countries, gold adoption made little, if any, difference to the country risk premia of poor independent countries. Below a certain income threshold, policy credibility remained by and large unaffected by changes in the monetary regime. The authors argue that the market is unlikely to automatically reward gold standard adherence, because investors think about the likely sustainability of the “promise of self-restraint”, which itself is highly contingent on a country’s economic and political situation and prospects. Agrarian lobbies, with their fondness for currency devaluations and low interest rates, were even more powerful in poor countries than in rich precisely because the interest-groups supportive of gold commitments (notably bankers and bourgeois rentiers) were much smaller and weaker. A rational investor had good reasons to believe that Sweden would be less likely to suspend convertibility than Siam or Venezuela. In the eyes of the market, the credibility gains through gold standard adoption may have been low in poor countries simply because political instability was high. In other words, where the political and social fabric of a country is still crisis-prone, its monetary regime is likely to be a second-order concern for the market. Investors in Colombian, Greek, or Persian bonds were most of the time concerned with permanent threats to internal or external security that could have ruined the credit of the country. Monetary clauses mattered much less in such cases.

It is also true that many countries that exhibited considerable spread convergence were never, or only for a short period, *de iure and de facto* on the gold standard – for instance China, Spain, Italy, Portugal, and Bulgaria. And there were other countries that were on gold for most of time, but converged only marginally – like Russia. Japan is in many respects a special case (Sussman and

Yafeh, 2001). But the apparent credibility gains Japan reaped from going on gold look much less exemplary when compared to its “peers” at roughly the same state of development. In 1895, the country risk of Chile, a country which experimented unsuccessfully with gold adherence for a short time, was roughly at the same level as Japan. In the following two decades Chilean spreads fell stronger – despite the paper standard – than in Japan. Also Japan’s western neighbour, China, much poorer, backward, and politically unstable was seen as a better credit risk by the market than the gold standard economy Japan.

Last but not least, there is a simple quantitative argument. Even in the studies which are most favourable to the “good housekeeping seal of approval” the estimated magnitude of this effect is, 20-40 bp, is far below what would be necessary to explain the massive yield compression in the periphery.

Improvements in fundamentals

A second hypothesis aims to explain the reduction of emerging market bond spreads with improvement in measurable macro-economic fundamentals. I will name this “Hobson-thesis” as C.K. Hobson already noted in 1914 that improved debt fundamentals were the cause for the boom in emerging market finance:

„The rise of prices enabled them [the recipient countries] to gather in a larger revenue, and so lightened the burden of their outstanding debts.“ (Hobson, 1914, p.158)

A reduction of the debt burdens could indeed be observed in many peripheral countries, mainly as a consequence of robust growth and rising public revenues. However, it remains debatable if this suffices to explain the risk reduction. Recently, Flandreau and Zumer (2004) have taken up the Hobson-thesis and have focused their analysis of country risk assessment before WW1 on reductions of debt service levels (Flandrea and Zumer, 2004). They can also present convincing evidence that contemporary financial and economic thinking about creditworthiness was based on relative assessment of indebtedness. The Hobson-thesis is open to an easy test. If public debt or debt service levels – in relation to disposable public revenues – were indeed the main determinant of country risk – and the fall in these ratios the main driver of the decline in country risk – then interest rate convergence before 1914 should have moved in tandem with a reduction of public debt. Flandreau and Zumer do find indeed a positive relationship:

„ ... the story we tell is that investors monitored debt burdens and these were reduced dramatically. They thus concluded that the world was turning into a much safer financial place, and became increasingly eager to lend abroad.“ (FZ, p.57)

As a result of higher growth and higher inflation the real value the incurred debts fell over time as public revenues grew much quicker than new debt issuance. Developing countries were growing their way out of debt, and continuously improved their financial situation:

„One correlate of the overarching importance of the debt burden is that interest rate convergence (...) occurred because countries were able to achieve a significant reduction of these burdens. Our conclusion therefore is that the root of pre-1914 financial globalization was the improved prospects concerning the sustainability of public debts.“ (FZ, p.75)

It will be important to see if these findings can be confirmed in the present sample which is both larger and more closely focused on emerging markets. Can improvements in fundamentals explain the patterns of country risk reduction observed in the first era of global finance? Several routes are taken to test this proposition. First, I correlate the HEMBI to market-wide measures of public and foreign debt burdens and external balances. Second, I correlate spread reductions with improvements in key fundamentals such as levels of debt and debt service on the country level. Last but not least, I run a comprehensive panel-regression on the spread data for these 28 countries and trying to discern individual improvements from market-wide factors.

Looking at the overall market, figure 5 shows indeed that the nominal public debt of the emerging markets in our sample grew strongly over the period. It reached 1.5 bn pound in 1913. However, as figure 6 makes clear, in relation to public revenues real debt burdens actually fell from roughly eight times the amount of yearly revenues to about four times on the eve of WW1. In general, the HEMBI spread seems to track the trend decline in the ratio of debt to revenues. However, both in the first boom years before the Baring crisis and then after 1900, the HEMBI fall was much steeper than the decline in debt burdens. Moreover, figure 7 illustrates that spreads continued to fall in the first decade of the 20th century whereas the debt burden remained roughly stable in relation to export revenues which would be needed to pay off the large share of foreign debt. Finally, the aggregate external balance, here simply defined as the import cover ratio (ratio of exports over imports), actually worsened over time. There can be no doubt that the aggregate financial situation of emerging markets improved, especially with regard to the public revenue side. However, these aggregates are heavily influenced by some big countries. It is thus necessary to look closer at the country level.

Figures 5-8

Fig 5: Total foreign debt of 28 developing countries

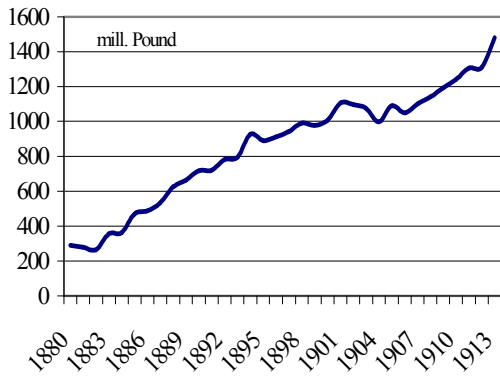


Fig 6: Debt-to-revenue and HEMBI

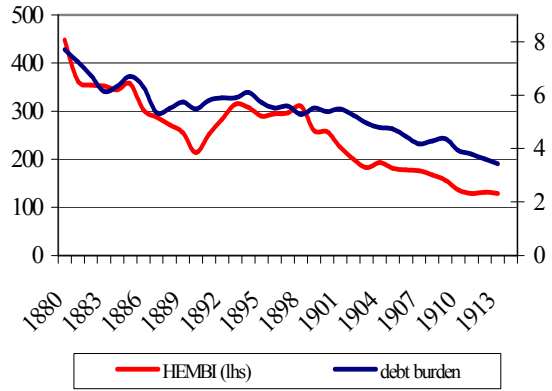


Fig 7: Total foreign debt to exports and HEMBI

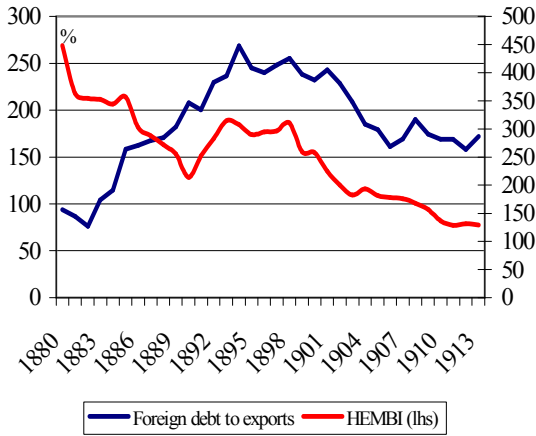
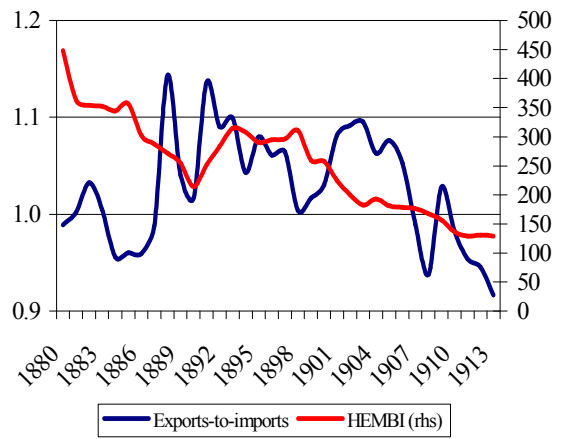


Fig 8: External balance and HEMBI



The purpose of the following part is to contrast improvements in spreads with improvement in fundamentals on the country level. Did the process of spread convergence go hand in hand with, and was it ultimately a response to, improving fundamentals? Or did spreads decouple from fundamentals which would make it harder to reject the idea that something unusual was going on in the international bond market after 1900?

More specifically, if the thesis that country risk premia mainly responded to improving fundamentals is correct, it should be possible to observe both a general reduction in debt levels (which is indeed suggested by the aggregate data presented above) and a correlation between relative debt reduction and country risk gains. In other words, we would expect to see these countries whose debt levels witnessed the strongest decline to converge the most. Flandreau and Zumer (2004) have reached the conclusion that the available data confirm both hypotheses. However, their analysis comprised only of seven peripheral economies according to the strict definition used here.

A first step is thus to look at simple correlations between improvements in key solvency ratios and declines in bond spreads. The partial decomposition of pricing uses data for two representative period averages, the 1880's (1882-1890) and the last eight years before the outbreak of the war (1905-1913). The test effectively excludes the troubled decade of the 1890's. Figures 9-11 graphically illustrate the correlations between debt reduction and spread reduction (ignoring all other factors). First, there is solid evidence supporting the idea that lower spreads were – to a certain extent – a response to lower effective debt burdens. The great majority of countries had lighter debts by the end of the first globalization wave. The more troublesome point that emerges from the figures is that the relative relation between the two is rather loose. Spreads declined across the board, but debt level reductions varied a great deal. And even countries whose debt burden actually increased by significant amounts could see their spreads fall by half over the period.

This is in many cases confirmed by narrative evidence. In Turkey and Brazil, then as now two important debtor countries, debt service obligations increased towards the end of the period. The public debts of the Ottoman Empire were converted in 1903 for the financing of the Bagdad railway and the amortization of old debts was accelerated. In Brazil, debt service payments increased substantially when the country had to resume full repayments on debts contracted before 1900. In addition to these two countries, the data suggest an increase in debt service obligations for a number of other countries, among them Chile and Bulgaria. However, country risk still declined markedly in all these countries. Some countries registered massive gains in creditworthiness with the international market even if their debt burdens remained essentially unchanged. This does obviously not imply that the reduction of debt burdens was a negligible factor. Yet other factors must also have played an important role.

Figures 9-12

Fig 9: Reduction in spreads and debt to revenue

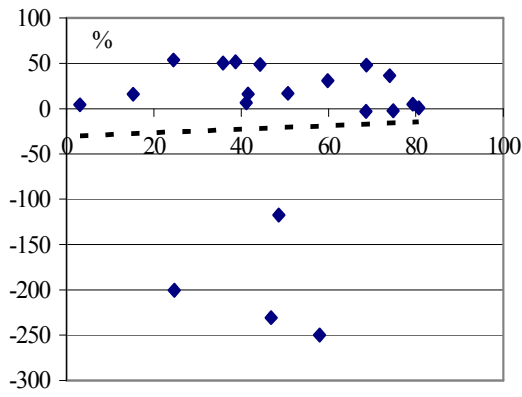


Fig 10: Reduction in spreads and debt to exports

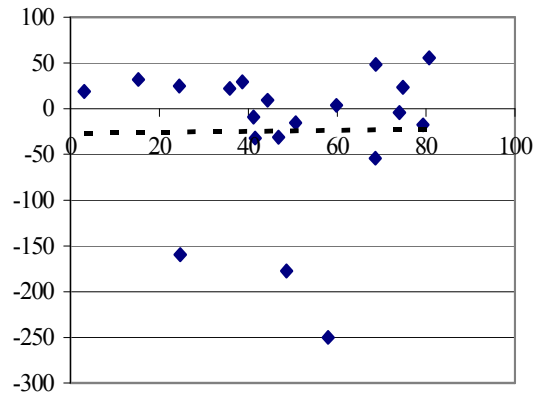


Fig 11: Reduction in spreads and debt service to revenue

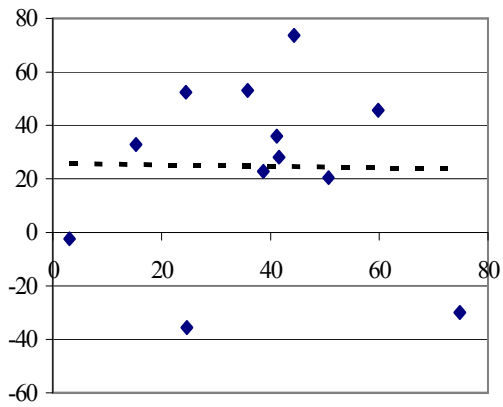
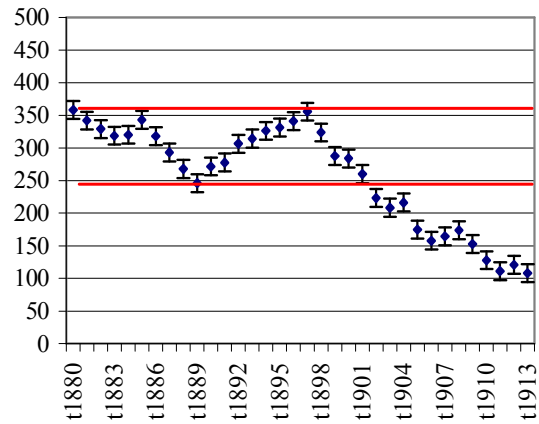


Fig. 12: Time-effects from GLS-panel estimation



So far, we have not addressed the possibility that improvements in debt ratios in combination with other factors could still deliver a fundamental explanation for the spread compression. What is needed is hence a multivariate analysis that estimates the relationship between spreads and fundamentals over the entire period. I therefore specify a panel model similar to those employed in the recent literature. The strategy is as follows.

The spread is estimated as a function of economic fundamentals – debt burden, budget and trade balances, exports per capita (as a proxy for the income level, but GDP per capita delivers similar results) – while a number of other important structural variables that are likely to influence spreads – such as gold standard adherence, defaults and previous defaults, international and civil wars – are controlled for. To control as much as possible for unobserved differences between countries in the panel, I also stuck to a standard fixed effects model, where individual country dummies capture the effects of constant but unmeasured factors such as geography, institutions, or other economic characteristics.³ Last but not least I follow standard practice by employing time-dummies to control for changes that affect all spreads in a given year. These time dummies are important for the analysis of the pricing behaviour of the market as they capture the “swings” in market sentiment that are not accounted for by the economic control variables. In case the fundamental model adequately describes the variations in spreads over the period, we would expect these time dummies to fluctuate in a narrow range, following the temporary ups and downs of market sentiment, but to exhibit no clear trend.

The results are presented in table 1. In total, the regression uses slightly more than 600 observations for the 28 countries in the analysis. Coefficients and significance levels are generally in line with previous studies. There is little evidence of a gold standard effect, while debt levels and other fundamentals seem to have had a more prominent effect on the pricing of risk. However, it is interesting to note that in this pure emerging markets sample, the relationship between fundamentals and spreads seems to be somewhat looser than in studies that included the developed markets in Western Europe and North America. This could suggest a greater role of third factors, especially political developments and external events.

But the most interesting insight stems from the time-effects. Recall that these are yearly dummies that capture the market-wide movements in risk perception over time while movements in economic fundamentals are separately controlled for. They hence give the best approximation to what can be called swings in market sentiment. The time-dummies are not only highly significant, but also exhibit a clear downward trend which is represented in figure 12. It seems, as if the larger part of the reduction in spreads was not attributable to combined improvements in the economic control variables, but to a downward shift in the time effects, i.e. swings in market sentiment seemingly unrelated to the

³ Like previous authors, I found strong evidence of serial and cross-sectional correlation and of heteroskedasticity in our large panel, which makes ordinary least squares (OLS) invalid. Both feasible generalized least squares (FGLS) and panel-corrected standard errors (PCSE) are alternatives. Given higher efficiency, the first is used, but PCSE deliver identical results.

underlying economic variables. These time-effects which remained in a relatively narrow range between 1880 and the turn of the century, fell sharply after 1900 and contributed a large share to the accelerating interest rate convergence in the final years before WW1.

If the model – which is very much in line with the recent literature – is anywhere close to being accurate, a major factor behind the improvement in emerging market risk perception was a market-wide shift in sentiment. Was this after all the first emerging market bubble in the first era of financial globalization? The answer depends very much on whether we can identify a third factor that correlates and eventually explains the marked trend decline of time-effects after 1900?

Table 1
Cross-sectional time series regression (FGLS)

Coefficients:	generalized least squares	
Panels:	heteroskedastic, correlated	
Groups/years	28/34	
Observations:	609	
Autocorrelation:	common	
Spread	Coef.	z-value
Debt to revenue	4.50	1.76*
Public balance	-22.59	-1.97**
Trade balance	16.16	1.25
Exports per cap.	11.73	0.57
Default	386.46	14.00***
Previous default	79.17	3.46***
Gold x Nondefault	8.29	0.57
International war	21.23	1.33
Civil war	27.10	1.09

3. Risk perception and the changing political economy of globalization

What explains the downward trend of the time effects over time? Why did investors grow ever more confident in the security of emerging market lending, above and beyond what observable fundamentals suggested? The hypothesis put forward in this final part of the paper is that investors responded to the changing political economy of globalization as it was taking shape after the turn of the century. In essence, the idea put forward and substantiated in this part is that the main correlate of the declining time-effects was a change in the institutional and political framework for international lending. Sovereign risk became a smaller problem, simply because the financial sovereignty of the periphery was reduced. From an investor's perspective this reduced both *ex-ante* the likelihood and *ex-post* the costs of defaults. The factors driving this change in the political economy of international lending after 1900 were a) a much extended role of the European powers (and increasingly of the US) in policing the financial stability in the periphery; and b) the consequences of the debt work-outs of the 1890s which left creditors with much extended rights vis-à-vis developing country governments

and conveyed the impression that future defaults would not only be less likely, but also less costly. These changes in the political economy of globalization reduced many of the endemic incentive and enforcement problems of international lending and tied emerging markets closely to the expanding world economy.

The recent literature has not wholly ignored the changing political landscape of financial globalization after the turn of the century. Following an intense debate about the link between finance and imperialism that occupied the older literature, some authors have again come to acknowledge the importance of institutional and political aspects of international finance after 1900 (Kelly, 1998; Goetzmann and Ukhov, 2001; Mitchener and Weidenmier, 2005; Ferguson, 2004; Ferguson and Schularick, 2006). What follows is an attempt to bring the available evidence together.

The first important development around the turn of the century was that the European powers and increasingly the US became much more stringent in policing and enforcing financial stability in the periphery. With the Anglo-German intervention in Venezuela 1903, the Roosevelt-Corollary of 1904 and the British expedition to Guatemala in 1913, three of the most prominent examples of open display of political hegemony took place in this decade. Especially the blockade of Venezuela is a story that tells a lot about the political economy of financial relations between core and periphery at the beginning of the 20th century. In the wake of the intervention, a number of Latin American governments reacted to the Anglo-German blockade of Venezuela by pushing the so-called Drago-Doctrine, named after the Argentine foreign minister. The aim was to declare unlawful military actions for the collection of due debt payments. Two things are noteworthy. First, the Drago-Doctrine was rejected by the Hague Conference. The legitimate right to use force to secure debt payments was actually confirmed. Second, it showed to what extent Latin American governments were alarmed by the incident. However, not only the Latin Americans were concerned. So was the US president Theodore Roosevelt who saw the treatment of Venezuela as a dangerous precedent. The *Roosevelt-Corollary*, pronounced in 1904, was partly an attempt to prevent further European interventions in American affairs, and hence to re-establish the Monroe-Doctrine. Instead of European intervention the President proclaimed that the US would take on the role as the chief financial officer in Central America. In Roosevelt's words:

„If a nation shows that it knows how to act with reasonable efficiency and decency in social and political matters, it keeps order and pays its obligations, it need fear no interference from the United States. Chronic wrongdoing ... may in America, as elsewhere, ultimately require intervention by some civilized nation, and in the Western Hemisphere... may force the United States...to the exercise of an international police power.“ (Roosevelt, 6th Dec 1904)

Financial markets reacted quickly to the announcement. The prices of Central American bonds rose by 74 percent within a year after the announcement of the corollary. Two years later, they were

roughly twice as high as before as investors grew confident that the US would secure debt service in the region and hence provide two essential public goods – financial stability and peace (Mitchener and Weidenmier, 2005). The US intervention in the Dominican Republic in 1904/05 was a practical application of the new principle. US-marines secured the collection of export duties used for debt payments. In 1905, marines helped the Mexican President Diaz to fight-off a rebellion; in 1906 American troops landed in Cuba; in 1907 the military intervened in the conflict between Honduras and Nicaragua; in 1908 the US got engaged in Panama to secure a lawful transition of power. The *Roosevelt Corollary* and its practical implementation is a prime example for the growing interventionism of the powers during this period which clearly had repercussions on investor sentiment.

The extension of financial intervention after 1900 was also evident in Asia. China, besides Japan, Siam and Persia, one of the few nominally independent countries in the region, became over the years de facto a financial protectorate of the powers. The defeat in the war against Japan in 1895 and in the Boxer-uprising in 1901 triggered massive interference with Chinese financial affairs. The influence of the *Maritime Customs Administration*, headed by a British general inspector, grew continuously. Over time, the debt service payments for nine major bonds and for the imposed reparations for the Boxer war were put under the control of the foreign-controlled Customs Administration. The reduction of Chinese country risk – starting at more than 300 bp in the 1890s and falling to less than 150 in the first decade of the 20th century despite a massive increase in real debt burden – can only be explained by the confidence foreign investors drew from the presence of the administration:

„The protections for foreign investors in Chinese government bonds were even more extraordinary. Beginning in the mid-19th Century the Chinese Maritime Customs revenues were collected and controlled by the British. Payments on foreign debt could thus be taken directly from customs revenues before going to the treasury – effectively giving foreign bond holders senior claim to China’s primary source of revenue. While this undoubtably lowered the Chinese Government’s cost of capital by reducing the probability of default, it also limited the fiscal options of the Chinese state, and put her purse-strings in the hands of a foreign power“. (Goetzmann and Ukhov, 2001, p.3)

In the European periphery, there was a long tradition of political intervention in response to financial difficulties. The early examples for such arrangements were the Ottoman Empire and Egypt. Both economies defaulted on their debts after prolonged periods of economic mismanagement and irresponsible fiscal policy. In the case of the Ottoman Empire, more than half of public revenues had to be paid out to creditors as debt service. In 1876, the country suspended interest rate service. The European powers saw the danger of disintegration of the Empire and installed an international commission that supervised the debt service. The *Caisse de la Dette Ottomane* directly controlled roughly a third of the Ottoman budget. New loans could only be contracted with the consent of the

Caisse and were usually guaranteed by additional public revenues which were put under its administration. The effect on investors' risk perception was substantial. Herbert Feis notes:

“The existence of the Debt Administration secured it trust that otherwise would have been denied, trust on interest terms lower than 5 per cent up to 1914.” (Feis, 1930, p.337)

In Southern and Eastern Europe the Turkish example became the blueprint for the reorganisation of stretched finances. The clearest parallel is Greece that pronounced a unilateral suspension of debt service payments in May 1893. Unsurprisingly, the Greek action was heavily criticised by the Corporation of Foreign Bondholders. When Greece lost a war against Turkey in 1898, the time had come for the European powers to put Greek finances under multilateral oversight. Bulgaria was another country on the Balkan peninsula that was heading for bankruptcy. The following restructuring agreement was guaranteed by the French government. The so-called consolidation bond was backed by the revenues of the tobacco monopoly of the Bulgarian state. A very similar arrangement was put to work in the kingdom of Serbia that had to suspend debt service in 1895. Serbia pledged the revenues of its state monopolies and a number of taxes directly to the creditors. Similar stories can be told from Morocco whose public revenues were controlled by French administrators from 1903 onwards, and from Liberia where the US took the lead in setting-up an international debt commission in 1913.

The debt administrations have in all countries had a distinctly positive effect on investors' risk perception. Unsurprisingly, the arrangements proved very popular with the bondholders. A significant share of public revenues came under international creditor control, and new debt could in general only be contracted if further revenues were pledged to the international debt commissions. Only in a few cases it was possible for the governments of these countries to place additional loans in London, Paris or Berlin without further cuts into financial sovereignty.

Increasing financial policing of the periphery was not the only development that is likely to have improved investors' risk perception after the turn of the century. It is often overlooked that the debt work-outs of the 1890s also left creditors of peripheral governments in a much stronger position than before. The thesis here is that in many Latin American economies the rescheduling agreements in the wake of the financial crises of the 1890s had substantially changed the debtor-creditor relations. The main difference was that great power politics played a less open role. The negotiations took place directly between banks and bondholders. Creditors and their organizations managed to gain control over an important part of public revenues – usually the entire or a share of customs revenues or certain monopolies – and controlled new debt issuance in the financial centers of Europe. In general, creditors

have come out of the crisis decade of the 1890s in a much strengthened strengthened position vis-à-vis the Latin American governments.⁴

The two most prominent examples of this are Argentina and Brazil. The Argentinian financial crisis of 1890/91 was by far the most important financial event of the decade as it brought Barings's Bank in London to the brink of collapse. The City reacted quickly. An international commission headed by Lord Rothschild had the task of re-organizing the Argentinian debt service. The agreement reached with the Argentine authorities was extremely unpopular in the country, because it went hand in hand with massive cuts to financial sovereignty. Customs revenues needed to be pledged and no further loans could be issued without the consent of the creditors. Foregone debt service was capitalized, and also the Arreglo Romero of 1893 (which replaced the first agreement) implied no "haircut" for investors.

Also the restructuring loan that was arranged for Brazil by the Rothschilds made a number of cuts to the country's financial sovereignty. In return for a three year liquidity loan that was used to keep current on interest rate payments, Brazil had to accept a number of harsh conditions. Again, no new loans could be contracted without bondholder's consent. The country had to pledge its entire customs revenues and had to withdraw paper money in circulation equal to the amount of the consolidation loan. Fishlow (1985) summarises:

„... not only was it necessary to pledge the entire customs receipts of the country and to accept a moratorium on new debt issues, internal or external, and even governmental guarantees, but the government was committed to withdrawing from circulation paper money equal in value to the 10 million loan.“ (p. 411)

Comparable arrangements took place in other countries: Uruguay had to pledge no less than 45 percent of its custom revenues to the bondholders. By 1906, a total of 75 percent of revenues were pledged to creditors which were collected by representatives of the Corporation of Foreign Bondholders. In Peru, Ecuador and Salvador creditors took over control public railways and mining monopolies (Mauro and Yafeh, 2003).

In all these cases a number of common patterns could be observed which are likely to have had considerable consequences for the risk perception of the market. Only in very few exceptional cases, the face value of debt was actually reduced. The capitalization of interest payments in return for considerable influence on economic policy and the collateralization of public revenues was ultimately a very creditor-friendly solution to the financial difficulties. Moreover, creditors gained new possibilities to limit the risks *ex ante*. New loans were frequently subjected to additional pledges of

⁴ The following paragraphs build on Corporation of Foreign Bondholders (1880–1914), *Annual General Report*; Suter (1990), *Debt Cycles in the Third World*; Marichal (1989); Fishlow (1989); Kelly (1998); Mitchener and Weidenmier (2005).

revenues from customs or state monopolies. Especially the British Corporation of Foreign Bondholders usually demanded new collateral in forms of additional public revenues under her control for new loans (Kelly, 1998).

The practice of placing revenues under the control of the bondholders had serious implications for the legal position of creditors - which explains in part the interest of the Corporation of Foreign Bondholders. The British government had - throughout the 19th century - rejected automatic interventions on behalf of its bondholders (Platt, 1968). The reasoning was that bondholders knew about the risk of foreign lending before buying the debts of remote countries. Westminster did not want to be responsible for financial risks of private agents. But it always tried to limit political risk for international trade, f.i. if foreign governments expropriated the property of British citizens. Expropriations of foreign residents were unlawful under international law and the foreign office felt entitled to take action in such cases. The restructuring agreements of the 1890s have changed this policy. This is because through the cession of customs revenues British citizens had de facto acquired property rights abroad. Thanks to the "pledged revenues" the bondholders were thus entitled to diplomatic protection from Her Majesty's Government. Unsecured financial claims became diplomatically protected property. These fine legal distinctions could explain the interest of the *Corporation of Foreign Bondholders* had in securing customs revenues:

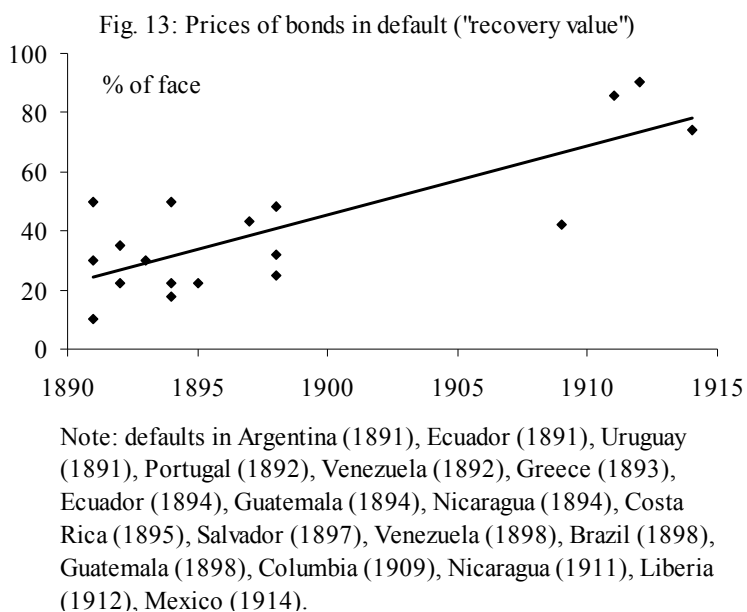
„...the Foreign Office considered itself throughout the period entitled to secure the inalienability of securities already hypothecated to British bondholders ... Law officers agreed (1895) that Britain would be entitled to protest against any diversion of the Nicaraguan export duties secured to the bondholders of the railway loan (...) As late as 1913 a British warship was sent to Guatemala to assist Lionel Carden in his efforts to obtain the return of the alienated coffee duties to the payment of the coupon of the British loan.“

From the experience of the defaults and the debt restructurings of the 1890s, investors could draw the conclusion that future defaults would be both less costly and less probable. In other word, expectations regarding the “loss given default” are likely to have changed. This latter point is important for the pricing of spreads. It is sometimes overlooked that the risk premia do not only reflect the probability of default, but also expectations with regard to the loss in the case a default happens. In theory, in a world of risk-neutral investors the following identity must hold:

$$(1) \quad (1-P) (1+r+s) + P(1-q) (1+r+s) = 1+r;$$

with P being the probability of default, r being the risk-free interest rate and q the expected loss given default, and s the risk spread over the risk free interest rate. Changes with regard to the expected loss given default can thus have an important influence on spreads. Assuming the risk-free interest rate is 3 percent and the default probability 5 percent, risk neutral investors would expect a premium of no less

than 265 bp to take over the risk if they expect a loss of 50 percent in a default situation. Would investors conclude their capital loss would only be 25 percent, because various mechanisms would enable them to get back most of their money, the spread would, *ceteris paribus*, fall to roughly 130 bp. In reality, it is often difficult to quantify the markets' expectations of recovery values. However, the prices of bonds in default can give some interesting insights. The difference between face value and the actual price can be thought of an implicit measure for the loss the market expects. Figure 13 shows an interesting development. The prices of bonds of countries in default rose in value over the period. In the early 1890's, prices of 20 to 30 percent of the nominal value could be observed frequently – equivalent to capital losses of 70-80 percent. In the last years of the first era of globalization such bonds traded at 80 percent or more of their face value. Despite the suspension of the debt service, the market feared far lower losses in Colombia (1908), Nicaragua (1911), Liberia (1912) or Mexico (1914) than 15 years before. Creditors grew increasingly optimistic that they would get back the lion share of their investment even after a default happened.



In other words, there is substantial evidence that the general political economy of globalization had changed. Consider the following points. First, creditor rights vis-à-vis peripheral governments were much extended and backed by increasingly credible threats and examples of interventions. Second, emerging markets had made the experience in the 1890s that the costs of default were relatively high. Incentives to invest the capital wisely increased. Last but not least, the frequent practice of pledging of revenues to creditors had blurred the old foreign policy line of abstention from financial disputes between bondholders and peripheral governments. The power of the creditor organizations to act collectively and successfully had grown.

In brief, the landscape for emerging market investment had changed. Investors acknowledged the much greater constraints put on peripheral governments. Most importantly, a global economic setting developed that tied emerging markets closely to the global economy through political, legal and economic bounds. Investors could conclude that integration and globalization were to endure. To the extent that emerging markets would remain tied to the expanding global economy and that political and fiscal constraints would anchor policies and policy-making, the market is likely to have upgraded its expectations about future fundamentals – as opposed to already observable improvements.

Whether or not this response of investors to the new political economy of globalization was wholly rational is a more difficult question. After all, the first globalization ended in tears in August 1914 with heavy losses for overseas investors. But the reason was not a major emerging markets crisis, but the imploding political constellation in the core which destroyed the global economic order that had tied emerging markets to the expanding global economy. In the fragile and protectionist world economy of the inter-war period, the value of emerging markets investments was much lower and bonds never recovered to their pre-war heights.

This first era of global finance thus underlines one central feature of emerging market risk pricing, namely their property as a “geared play” on the durability and sustainability of globalization and hence of a global economic order that ties the periphery to the core. In other words, the bonds of a poor remote country are worth very little for a foreign investor who would be fully subject to the vagaries of internal politics, closed markets and the governments’ willingness to repay its debt. However, if there are powerful political, institutional and economic forces that anchor the country in an open and expanding world economy, the same countries’ bonds become a sustainable play on the economic benefits of globalisation.

4. Conclusions

Then as now, it is close to impossible to explain the reduction of emerging markets spreads by narrow solvency criteria alone. While improvements in country fundamentals such as debt levels were observable, there remains considerably need for market-wide sentiment swings and shifts in expectations with regard to future fundamentals to fully explain the decline in risk pricing before 1914.

A crucial factor for the re-pricing of country risk before 1914 was a shift in expectations with regard to the political and economic stability of peripheral countries in an environment of European and American political and economic hegemony (Mitchener and Weidenmier, 2005; Ferguson and Schularick, 2006). Open political hegemony provided a more favourable institutional framework for market integration as many of the endemic incentive and enforcement problems of international lending became less prevalent. Investors grew more optimistic with regard to recovery rates in case of

default, the willingness-to-pay of emerging markets governments, and their incentives to invest the money wisely. One can thus see investor behaviour as a rational response to the patterns of economic globalization as they developed in the early 20th century. As it turned out, the big disruption came from the core, not from the periphery.

The first era of financial globalization underscores that the pricing of emerging market risk in the international bond market is a complex process that takes into account both economic and political factors. In the case of emerging markets as an asset class, history shows that broad shifts in market sentiment are driven by expectations regarding the prospects of global political, economic and financial stability. To the extent that emerging markets are a “geared play” on the durability and sustainability of global market integration, a core risk of “irrational exuberance” stems from the mispricing of global political risk. As a consequence, it remains close to impossible for policy-makers to distinguish justified from irrational increases in asset prices.

HEMBI spread
bp

1880	448.20
1881	363.09
1882	354.30
1883	352.41
1884	344.21
1885	356.80
1886	302.49
1887	287.59
1888	271.57
1889	254.95
1890	213.85
1891	251.84
1892	282.93
1893	314.46
1894	307.50
1895	289.95
1896	294.65
1897	296.34
1898	310.54
1899	259.49
1900	257.49
1901	224.69
1902	200.20
1903	182.60
1904	193.09
1905	181.09
1906	178.16
1907	176.14
1908	167.65
1909	156.46
1910	136.29
1911	128.59
1912	131.02
1913	128.75

Primary sources and data

- Brachelli, H. F. von, *Statistische Skizzen der europäischen und amerikanischen Staaten nebst den auswärtigen Beziehungen der ersteren* (Leipzig: Hinrichs'sche Buchhandlung, 1887)
- Corporation of Foreign Bondholders, *Annual General Report of the Council of the Corporation of Foreign Bondholders* (London: Council of the Corporation, 1880-1914)
- Fenn, C., *Fenn's Compendium* (London: E. Wilson, 1893)
- Fenn, C., Nash, R. L., *Fenn's Compendium* (London: Effingham Wilson, 1883)
- Juraschek, F. von, *Otto Hübner's Geographisch-Statistische Tabellen aller Länder der Erde* (Frankfurt: Heinrich Keller, 1880-1914)
- Nash, R. L., *Fenn's Compendium* (London: Effingham Wilson, 1889)
- Oss, S.F. van, *Fenn on the Funds* (London: Effingham, 1898)
- Royal Statistical Office, *Statistical Abstract for the Several Colonial and Other Possessions of the United Kingdom (Statistical Abstract for the British Empire)* (London: 1880-1914)
- _____, *Statistical Abstracts for the Principal and Other Foreign Countries* (London: 1880-1914)
- The Statesman's Yearbook, *Statistical and Historical Annual of the States of the World* (London: Macmillan, 1880-1916)

Literature

- Avramov, R., *120 Years Bulgarian National Bank (1879-1999)* (Sofia: Bulgarian National Bank, 1999)
- Banks, A., *Cross-National Time Series Database 1815-1973* (Binghamton, N.Y: 1976)
- Beck, N. and Katz, J. N., "Nuisance vs. substance: specifying and estimating time-series cross-section models", *Political Analysis*, 6 (1995a), 1-36
- _____, and _____, "What to do (and not to do) with time-series cross-section data", *American Political Science Review*, 89 (1995b), 634-47
- Bordo, M. and Kydland, F. E., "The gold standard as a commitment mechanism", T. Bayoumi, B. Eichengreen, M. P. Taylor, eds., *Modern perspectives on the gold standard* (Cambridge: Cambridge University Press: 1996)
- Bordo, M. and Rockoff, H., "The gold standard as a 'good housekeeping seal of approval'", *Journal of Economic History*, 56 (1996), 389-428
- Clemens, M. A. and Williamson, J., "Wealth bias in the first global capital market boom", *Economic Journal*, 114 (2004), 304-37
- Denzel, M., „Finanzplätze, Wechselkurse und Währungsverhältnisse in Lateinamerika (1808-1914)“, J. Schneider, ed., *Währungen der Welt VII* (Stuttgart: Steiner, 1997)
- Drazen, A. and Masson, P. R., "Credibility of policies versus credibility of policy makers", *Quarterly Journal of Economics*, 109 (1994), 735-54

- Eichengreen, B. and Flandreau, M., "The geography of the gold standard", J. Braga de Macedo, B. Eichengreen, J. Reis, eds., *Currency convertibility. The gold standard and beyond* (London: Routledge, 1994)
- Eichengreen, B. and Hausmann, R., "Exchange rates and financial fragility", NBER Working Paper, No. 7418 (1999)
- Eichengreen, B. and Mody, A., "What explains changing spreads on emerging market debt: fundamentals or market sentiment?", NBER Working Paper, No. 6408 (1998)
- Fama, E.F. and French, K.R., "The cross-section of expected stock returns", *Journal of Finance*, 47 (1992), 627-54
- Ferguson, N., *The Cash Nexus: Money and Power in the Modern World, 1700–2000* (London: Allen Lane, 2001)
- _____, "The City of London and British imperialism: new light on an old question", Manuscript, Oxford University (2003a)
- _____, "Political Risk and the International Bond Market between the 1848 Revolution and the Outbreak of the First World War", Manuscript, Oxford University (2003b)
- Ferguson, N. and Schularick, M., "The 'Empire Effect. The determinants of country risk in the first age of globalization", *Development Research Institute Working Paper*, Stern School of Business (New York University), No. 7 (2004)
- Fieldhouse, D. K., *The West and the Third World* (Oxford: Blackwell, 1999)
- Flandreau, M., Le Cacheux, J. and Zumer, F., "Stability without a pact? Lessons from the European gold standard, 1880-1914", *Economic Policy*, 26 (1999), 115-62
- Flandreau, M. and Zumer, F., *The Making of Global Finance 1880-1913* (Paris: OECD, 2004)
- Goetzmann, William N. and Andrey Ukhov (2001), „China and World Financial Markets 1870-1930.“ Working Paper, Financial Institutions Center, Wharton Business School, 01-30.
- Gregory, P. R., *Russian National Income, 1885-1913* (Cambridge: Cambridge University Press, 1982)
- Kamin, S. B. and Kleist, K. von, "The Evolution and Determinants of Emerging Market Credit Spreads in the 1990's", *Board of Governors of the Federal Reserve System: International Finance Discussion Papers*, No. 653 (1999)
- Kelly, Trish, "Ability and willingness to pay in the age of the Pax Britannica 1890-1914", *Explorations in Economic History*, 35 (1998), 31-58
- Levy, M. B., "The Brazilian public debt - domestic and foreign, 1824-1913", R. Liehr, ed., *The public debt in Latin America in historical perspective* (Frankfurt: Vervuert, 1995)
- López-Cordóva, J. E. and Meissner, C. M., "Exchange-rate regimes and international trade: evidence from the classical gold standard era", *American Economic Review*, 93 (2003), 344-53
- Maddison, A., *Monitoring the World Economy, 1820-1990* (Paris: OECD, 1995)
- _____, *The World Economy. A Millennial Perspective* (Paris: OECD, 2001)

- Marichal, Carlos (1989), *A Century of Debt Crises in Latin America*. Princeton: Princeton University Press.
- Meissner, C. M., "A new world order: Explaining the emergence of the classical gold standard", *Journal of International Economics* (forthcoming)
- Mitchell, B, *International Historical Statistics: Europe 1750-1988* (New York: Stockton Press, 1992)
- _____, *International Historical Statistics: The Americas 1750-1988* (New York: Stockton Press, 1993)
- _____, *International Historical Statistics: Africa, Asia & Oceania*. New York: Stockton Press, 1995)
- Mitchener, K. J. and Weidenmier, M., "Empire, public goods, and the Roosevelt Corollary", *Journal of Economic History* (forthcoming)
- Mosley, L., "Golden straitjacket or golden opportunity? Sovereign borrowing in the 19th and early 20th centuries", Manuscript, University of Notre Dame (2003)
- Obstfeld, M. and Taylor, A. M., "Globalization and capital markets", M. D. Bordo, A. M. Taylor and J. Williamson, eds., *Globalization in Historical Perspective* (Chicago: National Bureau of Economic Research, 2003a)
- _____, and _____, "Sovereign risk, credibility and the gold standard: 1870-1913 vs. 1925-1931", *Economic Journal*, 113 (2003b), 241-75
- Sarkees, M. R., "The correlates of war data on war: an update to 1995", *Conflict Management and Peace Science*, 18 (2000), 123-44
- Schneider, J. and Denzel, M., *Währungen der Welt* (Stuttgart: Steiner, 1997)
- Schularick, M., "A tale of two globalizations: capital flows from rich to poor in two eras of global finance", *International Journal of Finance and Economics*, forthcoming (2006)
- Sédillot, R., *Toutes les monnaies du monde* (Paris: Sirey, 1955)
- Siller, J., "Deuda y consolidacion del poder en México", 1867-1896, R. Liehr, ed., *The public debt in Latin America in historical perspective* (Frankfurt: Vervuert, 1995)
- Standard & Poor's., *Sovereign credit ratings: a primer* (New York: Standard & Poor's, 1998)
- Sussman, N. and Yafeh, Y., "Institutions, reforms, and country risk. Lessons from Japanese government debt in the Meiji era", *Journal of Economic History*, 60 (2001), 442-67
- Suter, Christian (1990), *Schuldenzyklen in der Dritten Welt*. Frankfurt: Anton Hain.
- Twomey, M. J., *A century of foreign investment in the Third World* (London: Routledge, 2000)