Working Papers No. 162/12

The Seven Mechanisms for Achieving Sovereign Debt Sustainability

Garrick Hileman

© Garrick Hileman

Department of Economic History London School of Economics Houghton Street London, WC2A 2AE

Tel: +44 (0) 20 7955 7860 Fax: +44 (0) 20 7955 7730

The Seven Mechanisms for Achieving Sovereign Debt Sustainability

Garrick Hileman

ABSTRACT

Sovereign debt crises are harmful reoccurring economic phenomena and the subject of how best to achieve sovereign debt sustainability is therefore of paramount importance. For decades economists have struggled to find a robust and consistent means of assessing sovereign debt sustainability. This paper argues that our understanding of sovereign debt sustainability can be enhanced by viewing this subject through the dual lenses of political economy and economic history. These two perspectives help identify seven distinct mechanisms for achieving sovereign debt sustainability. It is important to understand each of these methods as countries can, and often do, pursue multiple strategies in their efforts to achieve debt sustainability. Sovereign debt sustainability is often as much a political as an economic challenge with competing internal and external dimensions.

Introduction and Background

The economic harm inflicted by too much debt has been well documented.1 During the past several decades almost all sovereign debt problems2 occurred in developing countries.3 Prior to the current crisis, the last significant sovereign debt bout occurred around the turn of the 21st century when an all too familiar pattern was repeated: one developing economy after another suffered a financial crisis, leading to several sovereign defaults.4 Since then many developing economies have achieved comparatively low debt-to-income levels (Figure 1) while concurrently stockpiling significant reserves.5 (See Figure 1)

In contrast to the experience of many emerging and developing countries over the last half-century, some claim that the last time an advanced economy defaulted was over six decades ago.6 However, in the past several years many advanced countries have assumed significant debts with today's levels matched only by the periods following the two world wars (Figure 2).7 At present, a number of advanced economies find themselves either unable to obtain financing at sustainable rates of interest or largely shut out of the capital markets.8(See Figure 2).

2

.

¹ (Reinhart and Rogoff 2009, pp. 223-239)

² In this paper 'sovereign debt sustainability' refers to whether a government can service its public debt (pay interest and principal) while also meeting agreed upon terms (e.g., payment deadlines). Sustainability in today's world, where a significant portion of public debt is regularly 'rolled over' in markets, is linked to confidence in the sovereign's *ability* and *commitment* to continue meeting its obligations.

³ Examples of recent emerging market sovereign defaults include Mexico's in August 1982, which was followed shortly thereafter by Argentina, Brazil, Nigeria, the Philippines, Turkey and others. The late-1980s saw several Latin-American countries default again (Reinhart and Rogoff 2009, pp. 18, 96)

⁴ Both Russia (1998) and Argentina (2001) defaulted, with Argentina's roughly 75% 'haircut' on \$100 billion in debt representing the largest sovereign default in history at that time (Porzecanski 2010).

⁵ (Dominguez, Hashimoto, and Ito 2011; Blanchard, Faruqee, and Klyuev 2009) China's approximately \$3 trillion in foreign reserves receive wide publicity. However, less well known is the fact that Russia, Saudi Arabia, Brazil, India, Thailand, Algeria, Mexico, Malaysia and Indonesia also hold reserves comparable to or in excess of many advanced countries (Central Intelligence Agency 2010).

⁶ (Milne 2012)

⁷ A perhaps important distinction between today's debt levels, which are roughly in line with World War I but still below World War II levels, is that they occurred largely in the absence of major global wars. Large government debts have previously been the result of large-scale conflicts and their aftermath (Ritschl and Centre for Economic Policy 1996). This distinction may influence the degree of social commitment to service government debt (James 2011).

⁸ Everthal appendication of the appropriate debt is interest in private debt levels.

⁸ Further complicating the current debt picture is the dramatic increase in private debt levels, particularly those of financial institutions and households. Such private debts can often turn into public debts, as was the case with Ireland's recent bank bailouts (Reinhart and Rogoff 2011).

Literature Overview

A vast literature on sovereign debt sustainability has developed over the last several decades. However, such research has generally examined advanced countries from the creditor rather than debtor perspective due to the aforementioned paucity of debt sustainability problems amongst advanced economies in recent decades. This perhaps poses some limits on the usefulness of previous sovereign debt research to today's challenges given the significant socio-political and institutional differences which exist between developing and advanced economies. A perhaps more fundamental problem is posed by the lack of a generally agreed upon quantitative framework for assessing sovereign debt sustainability.9 This is not to say that there are no quantitative measures available for evaluating the safety of sovereign debt levels; a wide mix of ratios and figures are presently utilized to assess the debt position of nations. 10 However, it is unclear how much importance or weight should be assigned to these measures. Further, attempts to compare some measures across different countries and define consistent rules for debt sustainability have proven problematic.11

The objective of this paper is not to describe the various ways in which a sovereign debt sustainability problem can arise but to instead outline the different mechanisms which exist for addressing an unsustainable level of debt. Some economists identify four or five sovereign debt reduction options, and these frameworks are often presented as collectively exhaustive. ¹² This paper argues that from both a political economy and economic history perspective that seven distinct mechanisms are available to most advanced economies for achieving debt sustainability.

-

⁹ (Neck and Sturm 2008, p. 1) This is due to the difficulty posed by understanding and modeling creditor perceptions, a sovereign's ability and or willingness to repay its debt, and other factors.

¹⁰ Some of the more commonly referenced indicators are: i) the nation's debt-to-income ratio; ii) the government's primary budget balance (whether there is a deficit or surplus before interest expense is accounted for); iii) GDP growth rate compared to the rate of interest paid on government debt; iv) the average time to maturity of the total government debt portfolio (Economist 2010).

¹¹ For example, at present Portugal's debt-to-income ratio is approximately 60%, which is in line or below that of the U.S., Germany, Belgium, and the UK. During the current crisis these latter countries have thus far not encountered any difficulties in the public debt capital markets. However, Portugal cannot find private financing at a sustainable rate of interest. Compare and contrast the case of Portugal with Japan, which has a debt-to-income ratio of approximately 220% yet also enjoys one of the lowest borrowing rates of any sovereign. A commonly cited explanation for the financing difficulties encountered by Portugal's government is the country's relatively low rate of economic growth.

¹² (Buiter 1985, p. 22; Reinhart and Sbrancia 2011, pp. 1-2; Sbrancia 2011, p. 1; Nasar 2011, pp. 220-1; Taylor 2011, p. 49). Buiter lists four methods for reducing sovereign debt; Reinhart et. al. five.

The seven mechanisms

What follows is an overview of the seven distinct mechanisms for achieving sovereign debt sustainability and a discussion of their respective political economy tradeoffs. (This framework has been summarized in Table 1.)

- 1. Economic growth can reduce a nation's public debt to income ratio, perhaps the most closely watched measure of sovereign debt sustainability. An expansion in a nation's products and services typically generates additional tax revenue without necessitating an increase in tax rates. ¹³ This aspect of economic growth makes it particularly desirable for many policymakers. ¹⁴ Some argue that historically economic growth is the only means by which large debt burden relief has been successful. ¹⁵ While economic growth is often a popular solution to a debt problem, there is considerable debate about how best to achieve growth. Further, recent research suggests that countries with high debt-to-income levels may have difficulty achieving robust economic growth. ¹⁶ In addition, considerable debate exists over just how much influence policymakers have on economic growth and the timeframe required to affect meaningful change.
- 2. **Financial aid** to sovereign nations can take many different forms. One common means by which governments attempt to address a sovereign debt problem is by securing additional funding for investment and consumption to stimulate economic growth. Such 'bridge' financing can help countries weather temporary economic downturns.¹⁷ Since World

foreign aid, actually shrank 7%.

_

¹³ For most countries Gross Domestic Product and Gross National Product, which excludes the profits of foreign residents and corporations, are nearly identical. However, present day Ireland, which is home for the regional headquarters and operations of many foreign companies, is a notable exception. An estimated 20% of GDP is generated by 'ghost corporations' and considered un-taxable under present Irish law (Johnson 2010, 2010). In such cases growth in GNP would be a more useful measure than GDP in evaluating debt sustainability.

¹⁴ Economic growth does have its critics. For an overview of alternative perspectives see 'Rethinking the Growth Imperative' (Rogoff 2012)

¹⁵ Indeed, a popular misconception is that countries resolved their large World War II debts through economic growth. This narrative, however, is at best incomplete and in some cases inaccurate. Nobel Laureate Amartya Sen, writing in the UK's *Guardian*, stated "There are lessons from history here, too. The big public debts of many countries when the second world war ended caused huge anxieties, but the burden diminished rapidly thanks to fast economic growth." http://www.guardian.co.uk/commentisfree/2011/jun/22/euro-europes-democracy-rating-agencies. (Sen 2011) However, Buiter (1985) and Reinhart and Sbrancia (2011) have demonstrated that inflation and financial repression, respectively, played a significant role in the reduction in post-World War II sovereign debt burdens for many countries. In the UK, for example, the debt reduction effects of economic growth and fiscal deficits canceled each other out following World War II, leaving the reduction in debt levels explained by inflation. For a decomposition analysis of the decline in the UK's national debt-income ratio from 1948-84 see (Buiter 1985, pp. 18-19).

16 (Cecchetti, Mohanty, and Zampolli 2010; Reinhart and Rogoff 2010; Kumar, Woo, and International Monetary 2010) Greece has recently struggled to grow its economy while battling unsustainable debt levels. In 2011 it is estimated the Greek economy, even with substantial

¹⁷ (Krugman 1988)

War II international lending organizations, such as the International Monetary Fund (IMF), have played a central role in coordinating foreign credit for countries in debt distress. 18 However, the practice of saddling an already highly indebted nation with even more debt is controversial.¹⁹ Both grants and debt forgiveness can immediately aid a country's return to a sustainable debt position and are perhaps a not surprisingly popular form of financial aid with debtor countries.²⁰ An agreement by creditors to lengthen the repayment schedule, referred to sometimes as a 'payment holiday' or 'bisque'21, can also provide a country with additional time to reestablish debt service. All such forms of financial aid, however, are rarely, if ever, provided with only financial strings attached. For example, IMF loans are typically contingent on the recipient implementing economic and political reforms and include regular IMF auditing to ensure compliance. While IMF programs are aimed at improving economic efficiency and competitiveness to help ensure repayment, they often prove unpopular with some political constituencies.²²

- 3. **Fiscal adjustment** can reduce deficits and debt levels by decreasing government expenditure and or increasing tax revenue. Such adjustments, however, can be very unpopular amongst those affected and difficult to implement. Further, sovereign debt crises often strike during periods of economic weakness, or precisely when Keynesian demand management theory argues that government should be stimulating the economy by spending more or reducing taxes.²³ However, such government efforts to stimulate the economy may run up against resistance from creditors who view the sovereign as already overly-indebted. A loss in the confidence of creditors over the sovereign's *commitment* and or *ability* to service its debt can result in a sudden increase in debt expense, which would further exacerbate the debt sustainability challenge.
- 4. **Asset sales** can help balance the government ledger. Many governments own substantial domestic and foreign assets, and throughout history real

¹⁸ Governments also lend to each on other on a bilateral (e.g., 1946 Anglo-American Loan) and regional basis (2010 European Financial Stability Fund). Sovereign funding can also be provided by banks and other private or quasi-private institutions (e.g., pension funds).

¹⁹ For example, the providers of foreign aid to Greece have been accused of 'throwing good money after bad' as one version of the IMF-EU-ECB program calls for Greece's debt-to-GDP rise significantly from (at the time of this writing) 130% to 160%.

²⁰ (Bulow and Rogoff 1989; Neumayer 2002) For example, in 1947 both Australia and New Zealand forgave a portion (£38 million) of what Britain owed those countries on debt related to World War II. U.S. Marshall Plan funding for Western Europe in 1948 was a form of grant aid.

²¹ For example, in 1956-57 the UK negotiated an amendment to the American loan which allowed the country to 'take a bisque', meaning it could elect to suspend payments of principal and interest in any year, up to seven times, during the remaining life of the loan. (Cosío-Pascal and Bankruptcy 2006, p. 7).

²² (Blustein 2005; Obstfeld and Taylor 2004, p. 162; Blustein 2003)

²³ (Keynes 1936; Krugman 2009)

estate, bullion, and even warships have been sold to pay off debts.²⁴ In addition to paying down public debt, it has been argued that the sale of state-owned enterprises may also help improve economic efficiency and growth.²⁵ However, liquidating national treasure to pay off creditors can provoke political controversy, particularly when such creditors are foreign. Further, national assets often generate reoccurring revenue which could be lost in the event of a sale, making the challenge of servicing the debt even more difficult. Selling government assets may also prove a relatively slow process, while a rushed 'fire sale' is also unappealing. Even if a state was able to realize the full value of assets available for sale the proceeds may only reduce the state's debts by a small fraction.²⁶ It may also prove difficult to reacquire – either through trade or nationalization – any state assets which have been sold at a future date, particularly ones which reside (or can be moved) outside the country's borders. All of these factors combine to make the sale of state assets perhaps one of the least attractive options for managing sovereign debt sustainability. However, asset sales can often play an important psychological role in signaling to creditors a commitment by the sovereign to continue servicing its debt.

5. **Inflation surprise**, referred to by some as the government's 'trump card'²⁷, can significantly reduce the real burden of sovereign debt in a relatively short timeframe.²⁸ However, if creditors observe (or simply suspect) substantial inflation then large-scale capital flight may commence and thereby negate some of the debt reduction benefits of inflation. Hence the need for surprise. Political instability often accompanies high inflation regardless of whether or not controls which inhibit capital movement are in place.²⁹ Importantly, inflation only reduces the real

_

²⁴ The U.S.'s purchase of the Louisiana territory from Napoleonic France is one of the more famous sovereign asset sales. Less well known was the UK Treasury's sale of British Imperial Tobacco shares in the U.S. in February 1940, which the U.S. insisted as prerequisite for obtaining Lend-Lease support (Skidelsky 2000, pp. 75-76).

²⁵ (MacKenzie 1998; Megginson and Netter 2001)

²⁶ For example, the U.S. Treasury currently lists total federal non-defense related assets at a book value of \$233 billion, a figure which may in fact be significantly understated. However, if this figure was quadrupled and everything sold the proceeds would still only amount to less than 10% of the approximately \$15 trillion in U.S. public debt. (Ferguson 2011) http://www.thedailybeast.com/articles/2011/02/21/america-should-sell-national-assets-to-balance-the-books.html

²⁷ (Stella, International Monetary Fund, and Exchange Affairs 1997, p. 11)

This is accomplished through a process termed 'debt monetization', which is the purchase and retirement of sovereign debt by the central bank (Mishkin 2007). Seigniorage can also generate revenue for the government, which can reduce the real value of debt burdens. However, Buiter (1985) shows that "the maximum possible yield of this tax is also small" (Buiter 1985, p. 26). ²⁹ 1923 Weimar Germany (annual percentage inflation of 2.22E +10), 1989 Argentina (annual percentage inflation of 3,080), and 1946 Hungary (annual percentage inflation of 9.63E + 26, the modern record), are cases where hyperinflation was followed by political instability (Sargent 1982). However, much more modest double-digit inflation has also been attributed as a key reason behind U.S. President Jimmy Carter's defeat to Ronald Reagan in 1980. For a further

burden of non-floating rate (non-indexed) debt which has been issued in the domestic currency controlled by the central bank.

- 6. **Financial repression,** when accompanied by a modest level of inflation, can play a significant role in reducing the government's debt burden.³⁰ Financial repression, which is sometimes referred to as a 'stealth' tax³¹, can encompass a complex and opaque range of policies which are designed to provide the government with funding at preferential rates of interest. The regulations placed on the financial system which accompany financial repression, such as capital controls, are often unpopular. Previous research has also shown financial repression to have a negative impact on economic performance and growth. 32 What constitutes financial repression is a source of ongoing debate.³³ For example, 'prudential' measures aimed at increasing the stability of the financial system, such as Basel III and Solvency II requirements for financial institutions to hold a higher percentage of 'safe' capital (e.g., sovereign instruments), have also been characterized as financial repression as they would force private firms to hold more government debt than they would otherwise.34 Last, like inflation surprise it is important to note that the debt reduction benefits of financial repression only work for debt issued in the domestic-currency.³⁵
- 7. **Repudiation** (also referred to as 'default'³⁶) has historically perhaps been the most common means for reducing unsustainable levels of sovereign debt.³⁷ Default, however, is not without negative consequences for borrowers and lenders alike.³⁸ Countries which have defaulted can suffer

discussion of the history of inflation and hyperinflation see Reinhart and Rogoff (2009) pp. 180-189.

`

³⁰ (Giovannini and Demelo 1993; Reinhart and Sbrancia 2011; Agénor and Montiel 2008; Beim and Calomiris 2001; Easterly 1989; Easterly and Schmidt-Hebbel 1994)

³¹ (Reinhart and Sbrancia 2011, p. 19)

³² (Shaw 1973; McKinnon 1973; Goldsmith 1969; De la Torre, Gozzi, and Schmukler 2007; Easterly 1993; Lanyi and Saracoglu 1983; Galindo et al. 2002; Roubini and Salaimartin 1992; World Bank 1989; Todaro and Smith 2003)

³³ (Turner 2011)

³⁴ Some have argued that the Federal Reserve's and Bank of England's quantitative easing programs, which have had the effect of keeping interest rates on U.S. and UK government debt securities low, constitute financial repression (Treadway 2012). Efforts aimed at restricting the actions of credit rating agencies have also been described as a novel form of financial repression (Evans-Pritchard 7 July, 2011).

^{35 (}Rogoff and Reinhart 2011)

³⁶ What constitutes a 'default' is a common source of confusion. For economic analysis, Grossman and Vay Huyck conceptually define default as "the failure to meet contractually agreed upon obligations in full", such as the repudiation of debt or the failure to repay the loan on time (Grossman and Van Huyck 1988, p. 1088). They go on to note that "window dressing" is often employed to avoid legally classifying debts as in default for regulatory purposes. Reinhart and Rogoff (2009) also define a certain level of inflation as constituting a default in real terms.

³⁷ (Reinhart and Rogoff 2009)

³⁸ (Reinhart, Rogoff, and Savastano 2003)

from a number of hardships, including reduced access to capital markets, sudden forced fiscal retrenchment, higher interest rates, and political turnover.³⁹ While default often leads to significant losses, lenders often have enough leverage to enforce some level of repayment even if considerable time has passed since the default event.⁴⁰ A common alternative to outright debt repudiation is the amendment of loan terms, earlier described as a form of financial aid. However, such 'restructurings' or 'partial' defaults can still constitute a technical default and will often result in more expensive and or restricted credit for countries in the future.

A nation which finds itself with an unsustainable level of debt will almost always prefer to grow its way out of the problem (option 1). However, nations which are unable to achieve sufficient growth must consider one or more of the above six remaining mechanisms for achieving debt sustainability.

_

³⁹ (Eaton, Gersovitz, and Stiglitz 1986; Bordo and Oosterlinck 2005; Eaton and Gersovitz 1981; Eaton and Gersovitz 1981; Eichengreen 1991, pp. 155-156; Cole, Dow, and English 1995) ⁴⁰ (Reinhart and Rogoff 2009, pp. 61-63) For example, following the Soviet Union's collapse, Russia was only able to return to international capital markets after its Tsarist-era default from eight decades prior was addressed.

Internal and external political dimensions of debt sustainability

Sovereign debt sustainability is as much a political as economic challenge. In particular, tension often develops between foreign and domestic creditors whose interests are frequently pitted against each other. The notion that 'all politics is local' is arguably the driving force behind the perception that foreign creditor interests are often subjugated to domestic ones. However, foreign creditors have not always quietly accepted their fate as losers in the often contentious battles over debt sustainability. For example, during the 19th century a 'protectorate' was established over Egypt by Britain to ensure payment on its credit. For debtors, the plundering of foreigners as a means of shoring up a nation's finances extends back through the Viking raids to at least as early as Roman times.

While the days of both creditors and debtors employing direct military force as a means for achieving financial objectives seem to have passed, the use of geopolitical leverage has continued into more recent times. For example, during the 1956 Suez Crisis the U.S. informed Britain that unless its military forces were withdrawn from engagement with Egypt the U.S. Treasury would sell its vast holdings of British sovereign debt. This was considered a significant enough threat to the financial stability of Her Majesty's Government that British troops quickly departed the Sinai Peninsula. The Suez Crisis is often presented with a favourable view towards the American position and the power of the country's financial leverage over Britain. However, from a debt-sustainability perspective, Britain's military manoeuvres had the effect of increasing the value of holding British gilts in the eyes of the Americans. Such geopolitical deals are typically shrouded in secrecy and confirmable only decade's after-the-fact when official records have been declassified. Nevertheless, such secrecy has not stopped contemporaries from speculating about present day events.

⁴² (Kunz 1991)

⁽Coggan 2011, p. 252) In 1915 the U.S. managed a similar operation in Haiti.

⁴³ For examples, there was recent speculation on a U.S.-European deal banning Iranian oil imports from several European countries facing debt sustainability challenges in exchange for U.S. support for additional IMF funds for those same European governments (Talley 2012). Limited U.S. weapon sales to Taiwan in exchange for China's on-going purchase of U.S. Treasuries are another area of speculation.

Conclusion

In order to achieve sovereign debt sustainability countries will often utilize more than one of the seven mechanisms described in this paper. While overly indebted countries often have economic similarities, optimal debt sustainability solutions must be tailored to a nation's unique political and economic circumstances. In short, there is no 'one-size-fits-all' solution to the challenge of debt sustainability.

The degree to which any one of the sovereign debt reduction options can be influenced by policy varies, and in some instances market-driven debt dynamics may outpace official action. In considering the different policy alternatives a country must balance what is economically achievable against what is politically viable, while also considering the time available.

References

- Agénor, Pierre-Richard, and Peter Montiel. 2008. *Development macroeconomics*. 3rd ed. Princeton: Princeton University Press.
- Beim, David O., and Charles W. Calomiris. 2001. *Emerging financial markets*, The McGraw-Hill/Irwin series in finance, insurance, and real estate. Boston: McGraw-Hill/Irwin.
- Blanchard, O., H. Faruqee, and V. Klyuev. 2009. Did Foreign Reserves Help Weather the Crisis. *IMF Survey Magazine*.
- Blustein, Paul. 2003. *The chastening : inside the crisis that rocked the global financial system and humbled the IMF*. Rev. and updated ed. New York: Public Affairs.
- Repeated Author. 2005. And the money kept rolling in (and out): Wall Street, the IMF, and the bankrupting of Argentina. New York: PublicAffairs.
- Bordo, M. D., and K. Oosterlinck. 2005. Do political changes trigger debt default? And do defaults lead to political changes? *Unpublished manuscript, Rutgers University*.
- Buiter, W. H. 1985. A guide to public sector debt and deficits. *Economic Policy*:14-79.
- Bulow, J., and K. Rogoff. 1989. Sovereign debt: Is to forgive to forget? *The American Economic Review*:43-50.
- Cecchetti, S., M. Mohanty, and F. Zampolli. 2010. The future of public debt: prospects and implications. *BIS Working Paper No. 300*.
- Central Intelligence Agency. *The World Factbook*. Central Intelligence Agency 2010. Available from http://ZW4GK5CR3L.search.serialssolutions.com/?V=1.0&L=ZW4GK5CR3L8S=JCs&C=WORLFAC&T=marc.
- Coggan, Philip. 2011. *Paper promises : money, debt and the new world order*. London: Allen Lane.
- Cole, H. L., J. Dow, and W. B. English. 1995. Default, Settlement, and Signaling -Lending Resumption in a Reputational Model of Sovereign Debt. International Economic Review 36 (2):365-385.
- Cosío-Pascal, E., and S. Bankruptcy. 2006. Paris Club: Intergovernmental Relations in Debt Restructuring. *Draft paper for Task Force on Sovereign Debt, Initiative for Policy Dialogue, Columbia University*.

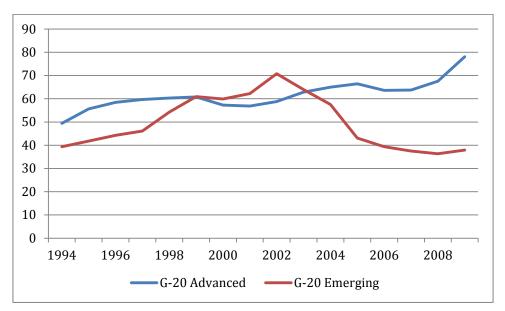
- De la Torre, A., J. C. Gozzi, and S. L. Schmukler. 2007. Innovative experiences in access to finance: market friendly roles for the visible hand? *World*.
- Dominguez, K. M. E., Y. Hashimoto, and T. Ito. 2011. International Reserves and the Global Financial Crisis. National Bureau of Economic Research.
- Easterly, W. 1993. How Much Do Distortions Affect Growth. *Journal of Monetary Economics* 32 (2):187-212.
- Easterly, William R. 1989. Fiscal Adjustment and Deficit Financing During the Debt Crisis. In *Dealing with the debt crisis, A World Bank symposium*, edited by I. Diwan, I. Z. Husain and World Bank. Washington: World Bank.
- Easterly, William Russell, and Klaus Schmidt-Hebbel. 1994. Fiscal Adjustment and Macroeconomic Performance. In *Public sector deficits and macroeconomic performance*, edited by W. R. Easterly, C. A. Rodríguez, K. Schmidt-Hebbel and World Bank. New York, N.Y: Published for the World Bank by Oxford University Press.
- Eaton, J., and M. Gersovitz. 1981. Debt with Potential Repudiation Theoretical and Empirical-Analysis. *Review of Economic Studies* 48 (2):289-309.
- Eaton, J., M. Gersovitz, and J. E. Stiglitz. 1986. The Pure Theory of Country Risk. *European Economic Review* 30 (3):481-513.
- Eaton, Jonathan, and Mark Gersovitz. 1981. *Poor-country borrowing in private financial markets and the repudiation issue, Princeton studies in international finance*. Princeton, N.J.: International Finance Section, Dept. of Economics, Princeton University.
- Economist, The. 2010. Not so risk-free. The Economist, 11 February, 2010
- Eichengreen, B. 1991. Historical Research on International Lending and Debt. Journal of Economic Perspectives 5 (2):149-169.
- Evans-Pritchard, Ambrose. 7 July, 2011. Europe, Free Speech, and the sinister repression of the Rating Agencies. *The Telegraph*.
- Ferguson, Niall. 2011. Sale of the Century to Balance the Books. *Newsweek*, 20 February, 2011.
- Galindo, A., A. Micco, G. Ordoñez, A. Bris, and A. Repetto. 2002. Financial Liberalization: Does It Pay to Join the Party?[with Comments]. *Economia* 3 (1):231-261.
- Giovannini, A., and M. Demelo. 1993. Government Revenue from Financial Repression. *American Economic Review* 83 (4):953-963.

- Goldsmith, Raymond William. 1969. *Financial structure and development, Studies in comparative economics*. New Haven, Conn: Yale University Press.
- Grossman, H. I., and J. B. Van Huyck. 1988. Sovereign debt as a contingent claim: Excusable default, repudiation, and reputation. *The American Economic Review* 78 (5):1088-1097.
- James, H. G. 2011. Bleed the Foreigner. In *Project Syndicate*. Princeton.
- Johnson, Simon, Boone, Peter. 2010. Irish Miracle or Mirage? In *Economix*: New York Times.
- Repeated Author. 2010. Will Ireland Default? Ask Belgium. In *Economix*: New York Times.
- Keynes, John Maynard. 1936. *The general theory of employment interest and money*. London: Macmillan and Co.
- Krugman, P. 1988. Financing vs. forgiving a debt overhang. *Journal of Development Economics* 29 (3):253-268.
- Krugman, Paul R. 2009. The return of depression economics and the crisis of 2008. New York: W.W. Norton & Co.
- Kumar, M. S., J. Woo, and Fund International Monetary. 2010. *Public debt and growth*: International Monetary Fund (IMF).
- Kunz, Diane B. 1991. *The economic diplomacy of the Suez Crisis*. Chapel Hill, London: University of North Carolina Press.
- Lanyi, A., and R. Saracoglu. 1983. The importance of interest rates in developing economies. *Finance and Development* 20 (2):20-23.
- MacKenzie, G. A. 1998. The macroeconomic impact of privatization. International Monetary Fund Staff Papers 45 (2):363-373.
- McKinnon, Ronald I. 1973. *Money and capital in economic development*. Washington: Brookings Institution.
- Megginson, W. L., and J. R. Netter. 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature* 39 (2):321-389.
- Milne, Richard and Hope, Kerin. 2012. Athens issues threat to bond holdouts. *The Financial Times*, 6 March, 2012.
- Mishkin, F.S. 2007. *The economics of money, banking, and financial markets*: Pearson education.

- Nasar, S. 2011. *Grand Pursuit: The Story of Economic Genius*: Simon and Schuster.
- Neck, Reinhard, and Jan-Egbert Sturm. 2008. *Sustainability of public debt, CESifo seminar series*. Cambridge, Mass.: MIT Press.
- Neumayer, E. 2002. Is good governance rewarded? A cross-national analysis of debt forgiveness. *World Development* 30 (6):913-930.
- Obstfeld, Maurice, and Alan M. Taylor. 2004. *Global capital markets: integration, crisis, and growth, Japan-U S Center Sanwa monographs on international financial markets*. Cambridge: Cambridge University Press.
- Porzecanski, A. C. 2010. Should Argentina Be Welcomed Back by the Capital Markets? *MPRA Paper*.
- Reinhart, C. M., and K. S. Rogoff. 2010. Growth in a Time of Debt. *American Economic Review* 100 (2):573-578.
- Repeated Author. 2011. A Decade of Debt. National Bureau of Economic Research.
- Reinhart, C. M., K. S. Rogoff, and M. A. Savastano. 2003. Debt intolerance. *Brookings Papers on Economic Activity* (1):1-74.
- Reinhart, C. M., and M. B. Sbrancia. 2011. The Liquidation of Government Debt. National Bureau of Economic Research.
- Reinhart, Carmen M., and Kenneth S. Rogoff. 2009. *This time is different : eight centuries of financial folly*. Princeton: Princeton University Press.
- Ritschl, A., and Research Centre for Economic Policy. 1996. *Sustainability of high public debt: what the historical record shows*: Centre for Economic Policy Research.
- Rogoff, K. 2012. Rethinking the Growth Imperative. In *Project Syndicate*. Cambridge.
- Rogoff, K. S., and C. M. Reinhart. 2011. The Forgotten History of Domestic Debt. *Economic Journal* 121 (552):319-350.
- Roubini, N., and X. Salaimartin. 1992. Financial Repression and Economic-Growth. *Journal of Development Economics* 39 (1):5-30.
- Sargent, T. J. 1982. The ends of four big inflations. University of Chicago Press.
- Sbrancia, M. B. 2011. Debt, Inflation, and the Liquidation Effect. *University of Maryland, College Park. Mimeograph*.

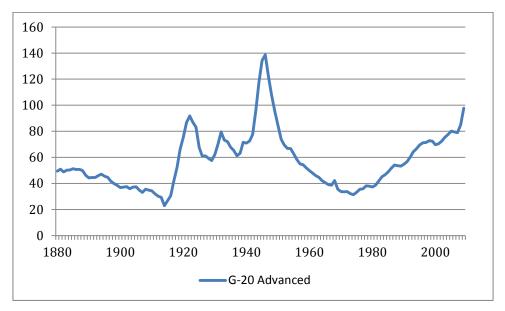
- Sen, Amartya. 2011. It isn't just the euro. Europe's democracy itself is at stake. *The Guardian*, Wednesday 22 June 2011.
- Shaw, Edward Stone. 1973. Financial deepening in economic development, Economic development series. New York: Oxford University Press.
- Skidelsky, Robert Jacob Alexander. 2000. *John Maynard Keynes. Vol. 3, Fighting for Britain : 1937-1946.* London: Macmillan.
- Stella, P., Monetary International Monetary Fund, and Dept Exchange Affairs. 1997. *Do central banks need capital?*: International Monetary Fund.
- Talley, Ian. 2012. Quid Pro Quo: IMF Cash For Europe In Exchange for Iran Oil Ban? In *Real Time Economics*. London: Wall Street Journal.
- Taylor, A. 2011. Comment on 'The Liquidation of Government Debt' by Reinhart and Sbrancia (2011).
- Todaro, Michael P., and Stephen C. Smith. 2003. *Economic development*. 8th ed ed, *The Addison-Wesley series in economics*. Harlow: Pearson Education Limited.
- Treadway, Dr. Peter T. 2012. The Dismal Outlook for 2012. In *The Dismal Optimist*. Hong Kong.
- Turner, P. 2011. BIS Working Papers.
- World Bank. 1989. World Development Report. Washington, DC: World Bank.

Figure 1: Public Debt-to-GDP (%) for G-20 Advanced and Emerging Countries



Source: International Monetary Fund. *G-20 Advanced*: Australia, Canada, Italy, Japan, Republic of Korea, United States, Germany, France, United Kingdom; *G-20 Emerging*: Argentina, Brazil, People's Republic of China, Indonesia, India, Mexico, Russian Federation, Saudi Arabia, Turkey, South Africa

Figure 2: Public Debt-to-GDP (%) for G-20 Advanced Countries, 1880 - 2010



Source: International Monetary Fund. *G-20 Advanced*: Australia, Canada, Italy, Japan, Republic of Korea, United States, Germany, France, and United Kingdom.

Table 1: Mechanisms for Sovereign Debt Sustainability and their Political Economy Tradeoffs⁴⁴

Mechanism	Description	Advantages	Disadvantages
1. Economic Growth	Growth of a nation's taxable GDP of sufficient size to service debt.	+ Automatically generates increased tax revenue without higher tax rates+ High political support	Potentially difficult to achieve, particularly for highly-indebted economiesOpposition to growth
2. Financial Aid	Bridge financing to enable economic growth. Debt forgiveness and or restructuring can also constitute aid.	 + Large source of funds available internationally + Can engender improved economic efficiency + Expand foreign trade + Rescheduling debt can be mutually beneficial 	 Rarely provided with nostrings attached Unpopular, difficult to implement debtor concessions Aid arrives too late ('throw good money after bad')
3. Fiscal Adjustment	Reducing government expenditure and or increasing tax revenue.	+ Fiscal adjustments are within domestic control+ Avoidance of foreign commitments+ High transparency	 Counter-growth and may lead to an ill-timed economic contraction Politically unpopular Implementation challenges
4. Asset Sales	The sale of government assets, such as state-owned enterprises, bullion, geopolitical influence, etc.	 + Source of hard currency + Liberalization may help boost economic growth + May be reversible through later repurchase and or nationalization 	 May only reduce debts by small fraction Reduce government revenue generating assets, exacerbating problem Slow; 'fire-sale' prices
5. Inflation Surprise	Unexpected spike in inflation, triggered by the government, which reduces the real debt burden.	+ Quickly reduces the real value of debt+ Can be implemented at government's discretion	 May trigger capital flight, a currency crisis and hyperinflation Severe political instability Only reduces debt issued in domestic currency
6. Financial Repression	A system of controls and interest rate caps, accompanied by modest inflation, which reduces the real value of sovereign debt.	 + Can deliver a steady reduction in the real value of the debt over time + Historically compatible with economic growth + Low transparency 	 Reduced economic efficiency Complex implementation and enforcement (e.g., black markets) Slower than alternatives Low transparency Only reduces debt issued in domestic currency
7. Repudiation	Suspension and/or cancelation of principal and or interest owed to creditors. Restructuring of certain loan terms, such as the repayment schedule, may also constitute default.	 + Quickly reduces debt + Debtor can target repudiation of certain creditors (e.g., foreigners) + Debate over the degree of negative consequences for debtor (e.g., capital markets access) + A common approach 	 Reduced access to capital markets Higher interest expense going forward Only partial repudiation is typically possible Restructuring still constitutes a default and has negative consequences

⁴⁴ Except economic growth the seven mechanisms are not ranked in any particular order of attractiveness.

LONDON SCHOOL OF ECONOMICS

ECONOMIC HISTORY DEPARTMENT WORKING PAPERS

(from 2009 onwards)

For a full list of titles visit our webpage at http://www.lse.ac.uk/2009

WP114	War and Wealth: Economic Opportunity Before and After the Civil War, 1850-1870 Taylor Jaworski
WP115	Business Cycles and Economic Policy, 1914-1945: A Survey Albrecht Ritschl and Tobias Straumann
WP116	The Impact of School Provision on Pupil Attendance: Evidence From the Early 20 th Century Mary MacKinnon and Chris Minns
WP117	Why Easter Island Collapsed: An Answer for an Enduring Question Barzin Pakandam
WP118	Rules and Reality: Quantifying the Practice of Apprenticeship in Early Modern Europe Chris Minns and Patrick Wallis
WP119	Time and Productivity Growth in Services: How Motion Pictures Industrialized Entertainment <i>Gerben Bakker</i>
WP120	The Pattern of Trade in Seventeenth-Century Mughal India: Towards An Economic Explanation
WP121	Jagjeet Lally Bairoch Revisited. Tariff Structure and Growth in the Late 19 th Century Antonio Tena-Junguito
WP122	Evolution of Living Standards and Human Capital in China in 18-20 th Centuries: Evidences from Real Wage and Anthropometrics Joerg Baten, Debin Ma, Stephen Morgan and Qing Wang
WP123	Wages, Prices, and Living Standards in China, 1738-1925: in Comparison with Europe, Japan, and India

	Robert C. Allen, Jean-Pascal Bassino, Debin Ma, Christine Moll- Murata, Jan Luiten van Zanden
WP124	Law and Economic Change in Traditional China: A Comparative Perspective Debin Ma
WP125	Leaving Home and Entering Service: The Age of Apprenticeship in Early Modern London Patrick Wallis, Cliff Webb and Chris Minns
WP126	After the Great Debasement, 1544-51: Did Gresham's Law Apply? Ling-Fan Li
WP127	Did Globalization Aid Industrial Development in Colonial India? A Study of Knowledge Transfer in the Iron Industry Tirthankar Roy
WP128	The Education and Training of Gentry Sons in Early-Modern England Patrick Wallis and Cliff Webb
WP129	Does Trade Explain Europe's Rise? Geography, Market Size and Economic Development Roman Studer
WP130	Depression Econometrics: A FAVAR Model of Monetary Policy During the Great Depression Pooyan Amir Ahmadi and Albrecht Ritschl
WP131	The Economic Legacies of the 'Thin White Line': Indirect Rule and the Comparative Development of Sub-Saharan Africa Peter Richens
WP132	Money, States and Empire: Financial Integration Cycles and Institutional Change in Central Europe, 1400-1520 David Chilosi and Oliver Volckart
WP133	Regional Market Integration in Italy During the Unification (1832-1882) Anna Missiaia

WP134	Total Factor Productivity for the Royal Navy from Victory at Texal (1653) to Triumph at Trafalgar (1805) Patrick Karl O'Brien FBA and Xavier Duran
WP135	From Sickness to Death: The Financial Viability of the English Friendly Societies and Coming of the Old Age Pensions Act, 1875-1908 Nicholas Broten
WP136	Pirates, Polities and Companies: Global Politics on the Konkan Littoral, c. 1690-1756 Derek L. Elliott
WP137	Were British Railway Companies Well-Managed in the Early Twentieth Century? Nicholas Crafts, Timothy Leunig and Abay Mulatu
WP138	Merchant Networks, the Baltic and the Expansion of European Long-Distance Trade: Re-evaluating the Role of Voluntary Organisations Esther Sahle
WP139	The Amazing Synchronicity of the Global Development (the 1300s-1450s). An Institutional Approach to the Globalization of the Late Middle Ages Lucy Badalian and Victor Krivorotov
WP140	Good or Bad Money? Debasement, Society and the State in the Late Middle Ages David Chilosi and Oliver Volckart
WP141	Becoming a London Goldsmith in the Seventeenth Century: Social Capital and Mobility of Apprentices and Masters of the Guild Raphaelle Schwarzberg
WP142	Rethinking the Origins of British India: State Formation and Military-Fiscal Undertakings in an Eighteenth Century World Region Tirthankar Roy
WP143	Exotic Drugs and English Medicine: England's Drug Trade, c.1550-c.1800

WP144 Books or Bullion? Printing, Mining and Financial Integration in Central Europe from the 1460s David Chilosi and Oliver Volckart 'Deep' Integration of 19th Century Grain Markets: Coordination WP145 and Standardisation in a Global Value Chain Aashish Velkar WP146 The Utility of a Common Coinage: Currency Unions and the Integration of Money Markets in Late Medieval Central Europe Lars Boerner and Oliver Volckart WP147 The Cost of Living in London, 1740-1837 Ralph Turvey Labour Market Dynamics in Canada, 1891-1911: A First Look WP148 From New Census Samples Kris Inwood, Mary MacKinnon and Chris Minns WP149 Economic Effects of Vertical Disintegration: The American Motion Picture Industry, 1945 to 1955 Gregory Mead Silver 2011 WP150 The Contributions of Warfare with Revolutionary and Napoleonic France to the Consolidation and Progress of the **British Industrial Revolution** Patrick Karl O'Brien WP151 From a "Normal Recession" to the "Great Depression": Finding the Turning Point in Chicago Bank Portfolios, 1923-1933 Natacha Postel-Vinay WP152 Rock, Scissors, Paper: the Problem of Incentives and Information in Traditional Chinese State and the Origin of Great Divergence Debin Ma WP153 The Finances of the East India Company in India, c.1766-1859 John F. Richards WP154 Labour, law and training in early modern London: apprenticeship and the city's institutions Patrick Wallis

- WP155 Why did (pre-industrial) firms train? Premiums and apprenticeship contracts in 18th century England *Chris Minns, Patrick Wallis*
- WP156 Merchantilist institutions for a first but precocious industrial revolution; The Bank of England, the Treasury and the money supply, 1694-1797

 Patrick O'Brien

- WP157 Hand Looms, Power Looms, and Changing Production Organizations: The Case of the Kiryu Weaving District in the Early 20th Century Japan Tomoko Hashino, Keijuro Otsuka
- WP158 From Divergence to Convergence: Re-evaluating the History Behind China's Economic Boom

 Loren Brandt, Debin Ma, Thomas G. Rawski
- WP159 Money and Monetary System in China in the 19th-20th Century: An Overview Debin Ma
- WP160 Contesting the Indigenous Development of "Chinese Double-entry Bookkeeping" and its Significance in China's Economic Institutions and Business Organization before c.1850

 Keith Hoskin and Richard Macve