Speech

The UK Current Account Deficit: Risky or Risk-Sharing?

Speech given by

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Historians have described the Suez Crisis of 1956 as a turning point in UK foreign policy – an event which may have "dealt a final blow to Britain's self-image as a world power to be reckoned with".[1] This experience also highlighted the power of foreign investors to deal a "blow" to economies that are reliant on foreign financing. This experience should provide a poignant reminder today. The UK is once again reliant on foreign financing, the counterpart to its large current account deficit. Foreign financing can be fickle during periods of heightened uncertainty and risk aversion. Is the UK vulnerable to another Suez-like crisis today? This question has become more pertinent over the last few months as many measures of uncertainty for the global economy, and especially the UK, increased. Or has greater financial globalization changed how we should evaluate these vulnerabilities? Are large current account deficits and reliance on foreign financing always "risky"? Or can they also provide an important form of international "risk-sharing" against some types of shocks[2]?

Before answering those questions, let me back up to what happened during the Suez crisis.[3] From the beginning of 1956, the UK experienced moderate capital outflows and a steady loss of international reserves. The UK government realized this was not sustainable. In September UK officials began conversations to draw financial assistance from the IMF – a plan which initially received informal support from the US (a key vote as it was the only country with veto power). In October the UK joined a military campaign in Egypt aimed at regaining control of the Suez Canal. Although the campaign met with minimal resistance in Egypt, it generated a strong international backlash – including from the US. The military campaign and international reaction increased the perceived risk of investing in the UK, sharply accelerating UK capital outflows and reserve losses. The UK needed immediate financial assistance to avoid a devaluation – an option viewed as untenable. But now the US blocked any financial assistance from the IMF, unless the UK agreed to a full and immediate military withdrawal from Egypt. President Eisenhower even told his Treasury Secretary to make plans to begin selling US holdings of UK sterling bonds. The UK, constrained by its need to stabilize capital flows from abroad, felt it had no choice and quickly agreed to full withdrawal from Egypt. It immediately received a large financial assistance package that the IMF described as "linked to the financing of the current account"[4] and the situation stabilized.

Fast forward exactly sixty years – and discussion is again focused on potential UK vulnerabilities due to the country's reliance on foreign financing. Over the 1 ½ years that I have been on the MPC, I can count on at least one question on the current account deficit in almost every meeting, briefing, hearing, and speech. These questions have recently become even more frequent given heightened uncertainty in the UK and broader global economy, especially around sharp asset price movements since the start of the year. And there is good reason to raise these questions. The headline statistics are alarming; the UK current account deficit was 5.1% of GDP in 2014. This is the largest annual deficit in the 59 years that the ONS

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[1] http://www.bbc.co.uk/history/british/modern/suez_01.shtml
[2] "Risk sharing" refers to the potential insurance against country-specific shocks afforded by holding a diversified portfolio that includes foreign assets and liabilities, thereby automatically sharing some domestic gains and/or losses internationally.
[3] See Boughton (2001) for more details on this event.
[4] Boughton (2001). The UK had a small current account surplus in 1956, but the IMF described the financing as linked to the leads and lags in payments linked to financing the current account.

reports data. It was also the largest of any of the advanced economies in 2014, a record the UK is expected to hold again in 2015.[5] A current account deficit must be financed by capital flows from abroad (a financial account surplus) – basically through investment and borrowing from foreigners. Governor Carney recently described this situation as the UK relying on "the kindness of strangers".[6] The IMF's annual report on the UK economy was just released this January and featured the current account deficit.[7] Heightened uncertainty – in the global and domestic economy – have all increased concerns about risks to the UK from its current account deficit and reliance on foreign capital inflows.

But there are also compelling reasons why today's current account deficit may not be alarming – and why today's situation is fundamentally different than in 1956. One factor behind today's current account deficit is the relatively stronger growth of the UK relative to its major trading partners, especially the euro zone, which should not persist if the region's recent stabilization continues. Broadbent (2014) highlights that a major reason why foreigners have been willing to invest in the UK is its strong institutions – which should not change. About 81% of net UK capital flows in 2014 were foreign direct investment, a more stable form of financial flows than the "hot money" that is more likely to "suddenly stop" and generate a crisis. The UK net international investment position (NIIP)[8] is moderate by international standards and suggests there is room for continued external borrowing before generating concerns about sustainability. The UK also has a flexible exchange rate, which tends to better adjust to major shifts in capital flows than "fixed" exchange rates that are suddenly abandoned (and that raised such concern in 1956).

All of these arguments why one should – and should not – worry about the UK current account deficit have been made in other contexts and discussed at length, so I will not repeat them today.[9] The Financial Policy Committee at the Bank of England has done a stress test of the risks to the UK financial system related to the UK current account deficit – important issues which I also will not discuss.[10] Instead, my goal today is to reassess the UK's international vulnerabilities linked to its current account deficit during periods when there is a sharp increase in global or domestic risk – the types of events that can trigger sharp adjustments in financial flows and currencies. The Monetary Policy Committee regularly evaluates how these types of risks affect the UK economy, such as in the February minutes which discussed heightened global uncertainty related to China and emerging markets, and in the March minutes which discussed heightened UK uncertainty related to the upcoming EU referendum.[11] My analysis today explores how these types of risks related to heightened uncertainty can affect fast-moving international capital flows and the valuations of

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[5] According to the IMF WEO data as of March 7, 2016.
[6] Evidence given to the Treasury Select Committee on 26 January 2016.
[7] See IMF (2016).
[8] All NIIP estimates in this paper are based on the dataset constructed by Lane and Milesi-Ferretti (2007b) and are updated using the IMF International Financial Statistics database after 2011. This applies consistent market valuation methodologies across countries for all assets except FDI; FDI estimates use a replacement cost methodology. For the UK, these estimates are almost identical to the official ONS data.
[9] See Broadbent (2014), IMF (2016), *Financial Stability Report* (Dec. 2015), and *Inflation Report* (May 2014).
[10] See *Stress Testing the UK Banking System, 2014 Results,* Financial Policy Committee (Dec. 2014).
[11] February's Monetary Policy Summary discussed how recent global market volatility seemed "in part to reflect greater weight being placed on the risks to the global economic outlook stemming from China and other emerging economies." March's Monetary Policy Summary mentioned "increased uncertainty surrounding the forthcoming referendum on UK membership of the European Union" and that it "is likely to have been a significant driver of the decline in sterling."

international investments. It is not intended to analyse the longer-term impact and vulnerabilities that would occur if uncertainty is elevated for an extended period or there are structural changes – as I will not discuss the slower-moving adjustments that would likely occur over these longer periods through channels such as trade, savings, consumption and business investment.

To perform this assessment, it is necessary to delve into the various financial channels that determine international vulnerabilities.[12] In the UK, international investment income has recently been more important than trade in explaining movements in the current account; movements in exchange rates and the returns and capital gains on different international asset and liability positions can be substantial. Heightened risk and uncertainty can not only lead to challenges financing a current account deficit, but also affect the exchange rate, the relative returns that foreign and domestic investors earn, and the valuation of any international borrowing and investments. These financial effects related to the current account deficit are substantially larger today than in past decades due to the higher degree of financial globalization. Depending on why risk and uncertainty increased, and how this interacts with a country's pattern of international borrowing and lending, current account deficits can aggravate — or mitigate — the negative economic impact of increased risk and uncertainty on an economy.

Applying this analysis to the UK suggests that sterling tends to depreciate during periods of heightened UK and global risk, and the interactions of weaker sterling with the UK's international asset and liability positions can generate improvements in the UK's international investment position and current account – even without any adjustment in trade. This automatic risk sharing tends to be larger during periods of heightened UK risk than after periods of heightened global risk, although it is unlikely that this situation could persist for an extended period of heightened UK uncertainty (as investors would require compensation). Moreover, the magnitude of this risk sharing is moderate, so that even though it reduces vulnerabilities related to the current account deficit and international investment position, it is unlikely to fully mitigate the negative impact of heightened risk and uncertainty on the broader UK economy.

The remainder of my comments will be divided into four parts. First, I will discuss reasons to be concerned about current account deficits. Second, I will suggest how we should broaden our analysis of these vulnerabilities by incorporating the effects of cross-border investment income (which directly affects the current account) and cross-border financial exposures. Third, I will use this framework to analyze how increases in global and UK risk could interact with these financial vulnerabilities linked to the current account deficit. Finally, I will summarize what factors are important in determining whether a current account deficit in these scenarios is more likely to be "risky" or "risk-sharing". My comments draw on a longer and much more detailed analysis written with Ida Hjortsoe and Tsveti Nenova – two colleagues at the Bank of England.

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[12] For other influential work discussing financial considerations that should be included in any analysis of vulnerabilities related to current accounts, see Obstfeld (2012) and Borio and Disyatat (2015).

I encourage you to read the full paper if you are interested in the details – with the caveat that it is intended for an academic audience.[13]

I.   **Are Current Account Deficits A Concern?**

Current account deficits (and the corresponding borrowing from abroad) are a healthy outcome in many standard economic models. Even a large current account deficit should not automatically be a cause for concern. For example, in a standard endowment economy model, a country which experiences a negative shock and fall in output (such as from a natural disaster) should borrow from abroad and run a current account deficit in order to smooth consumption. Classical economic models show that an optimal allocation of global capital implies that capital should flow from developed economies with low marginal returns to developing economies with higher marginal returns, thereby generating current account deficits in the latter. Various models incorporating demographic trends also show current account imbalances as an optimal solution, as countries with older populations should save less, drawing down assets and generating a current account deficit (balanced by earlier surpluses). Many sovereign governments have certainly believed that running a current account deficit and borrowing from abroad was an optimal policy to finance warfare – such as in the 14th century when Edward III of England invaded France with the help of loans from Italian bankers. I will refrain from commenting on whether this was an "optimal" policy from the viewpoint of England or the global economy.

The historical experience with current account deficits, however, suggests that they are often not benign. Investors have tended to focus on current account balances as a proxy for a country's reliance on external financing and corresponding vulnerability to any increase in risk aversion or economic uncertainty. This relationship between current account deficits and country vulnerability gained substantial attention during the 1997 Asian crisis. Figure 1 graphs the current account balances of 12 major Asian emerging markets in 1996 (before the crisis began). The 6 countries on the left of the graph (with the largest current account deficits) all experienced a sharp currency depreciation of over 10% in 1997 (in red) and some also received an emergency financial package from the IMF (in light red). None of the six countries on the right (with the smaller current account deficits or surpluses), received an emergency package or experienced such a sharp depreciation. Although this is clearly not a scientific study, it is not surprising that many investors concluded that large current account deficits indicate vulnerability.

This focus on current account deficits as a proxy for country vulnerability during periods of heightened risk has continued since then. During the spring of 2013, concerns increased about China's growth and the US Federal Reserve Board began to discuss "tapering" its asset purchases. Measures of global risk (such as the VIX) increased sharply and investors quickly withdrew capital from emerging markets. The sharpest capital outflows (and corresponding depreciations and increases in borrowing costs) occurred in countries

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[13] See Forbes, Hjortsoe and Nenova (forthcoming).

with the largest current account deficits.[14] Figure 2 shows the relationship between currency depreciations (relative to the dollar) over the window of the greatest volatility from May 1 to June 30, 2013 and countries with current account deficits at the end of 2012. There is an almost 70% correlation – without controlling for any other country characteristics. Highlighting this obsession with current account deficits as a badge of country vulnerability, the group of major emerging markets under the sharpest investor scrutiny during this period earned the moniker "The Fragile Five" – despite sharing little in common other than their large current account deficits and corresponding reliance on external financing.

Figure 1: Current account balances of selected Asian economies in 1996
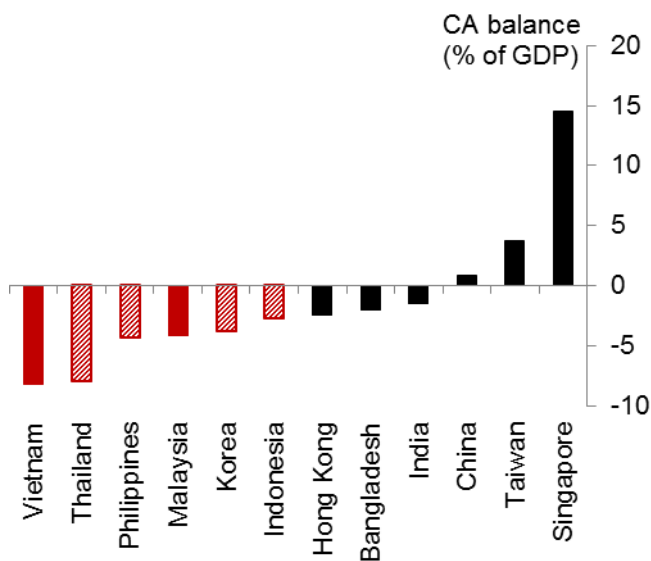
Red (solid and patterned): countries which experienced an average currency depreciation of at least 10% in 1997 and 1998;
Pattern: countries which also received an IMF package.
Source: Datastream, IMF International Financial Statistics and World Economic Outlook, and own calculations.

Figure 2: Change in US dollar exchange rate between 1 May and 30 June 2013
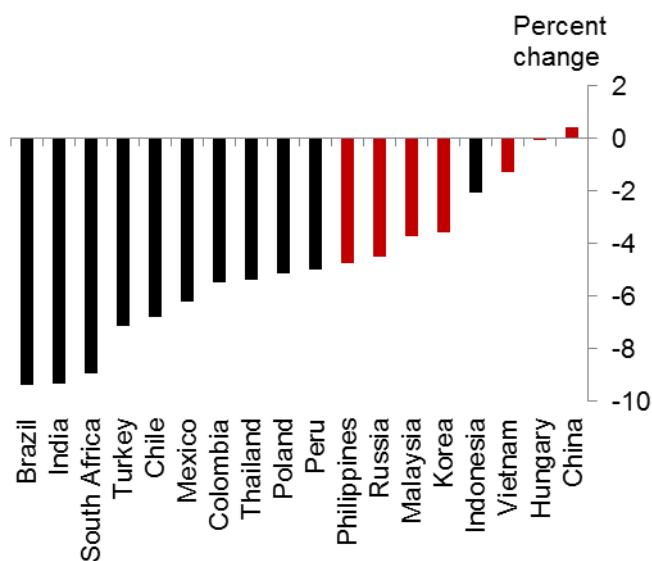
Note: Countries coloured in black ended 2012 with a current account deficit; those in red had a surplus.
Source: WM/Reuters, IMF International Financial Statistics, IMF World Economic Outlook and own calculations.

Formal academic work suggests that large current account deficits and reliance on external financing can present risks – but these risks are more nuanced than a direct link from the size of a current account deficit to a country's vulnerability. Using the framework in Obstfeld (2012), this literature can be broadly divided into three (related) concerns about a current account deficit: (1) increasing a country's vulnerability to the "sudden stops" in capital flows that correspond to crises; (2) leading to a deterioration in a country's net international investment position (or NIIP) which can make investors question the solvency of a country; and (3) reflecting unsustainable macroeconomics that will eventually require a "reversal" and corresponding difficult adjustment.

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[14] For more details on this episode, see Forbes (2014a).

The first strand of literature focuses on the fact that large current account deficits need to be funded through financing from abroad. Intuitively, any country running a current account deficit is sending more money abroad than it is earning – through buying imports, paying returns on past investments, or outflows of other payments such as remittances. The country must finance this shortfall of funding through a financial account surplus – i.e., net financial inflows from foreigners – through means such as selling debt and equities, bank loans, more inward FDI, and/or selling accumulated international reserves. The academic literature shows that domestic or external shocks which cause a "sudden stop" in this external funding correspond to tighter financial conditions, currency depreciations, slower growth, higher interest rates, increased probability of debt crises and systemic banking crises.[15] There is also evidence that there is a lower probability of a sudden stop if the current account is financed by a larger share of capital flows that are more stable (such as FDI), that incorporate automatic risk sharing (such as equity), or that correspond to investors with a longer time horizon.[16] Perhaps most important, this literature has also shifted away from focusing on net financial flows (which net out gross inflows from foreigners less outflows from domestics) and instead focusing on gross capital inflows as a measure of vulnerability.[17]

The second strand of literature on the vulnerabilities related to current account deficits focuses on the external borrowing required to fund current account deficits and corresponding deterioration in the net international investment position (NIIP), which is basically cross-border assets less liabilities. Some academic papers have found a significant link between increased current account deficits, deteriorating NIIP positions, and a country's vulnerability, but a majority of studies finds that these links are not significant or robust.[18] This undoubtedly reflects the challenges in determining a country's solvency, which would require incorporating additional factors such as: expected growth, the composition and liquidity of the international assets and liabilities,[19] the currency denomination of the borrowing, the country's ability to print its own currency, the country's willingness to repay, etc. Although there is general agreement that large external liabilities increase vulnerability and cannot grow infinitely, assessing exactly when net external borrowing becomes a significant vulnerability is a challenge.

The third and final strand of literature focuses on whether current account deficits correspond to underlying macroeconomic imbalances (such as low productivity growth, excessive consumption or investment, inflated asset prices, or an unsustainable fiscal deficit) that will require a "reversal" in the current account. Reversals require a shift in a country's production and consumption profile that generally correspond to reduced domestic demand, currency depreciation, higher inflation (through imported goods), increased foreign-

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[15] In a literature survey, Frankel and Saravelos (2010) find that current account deficits are significant in predicting currency crises and vulnerability – but not as powerful as other variables (such as exchange rate appreciation and reserve accumulation). Other key studies documenting these links are: Edwards (2005), Freund and Warnock (2007), Catão and Milesi-Ferretti (2011), and Gourinchas and Obstfeld (2012).
[16] For evidence, see Forbes (2013) and Forbes and Warnock (2014).
[17] Forbes and Warnock (2012) first develop this approach of focusing on gross capital inflows and outflows by foreigners and domestics, rather than net capital flows, to analyse country vulnerability to sudden stops. Milesi-Ferretti and Tille (2010) also highlight the importance of looking at gross flows during the recent crisis, and Avdjiev, McCauley and Shin (2015) highlight the role of gross flows in banking.
[18] Key references are: Blanchard *et al.* (2010), Catao and Milesi-Ferretti (2014), and Frankel and Saravelos (2010).
[19] See Gourinchas (2011) for the role of liquidity in assessing global vulnerabilities.

currency denominated debt, and other difficult adjustments. The academic evidence on the characteristics of these types of reversals is not uniform, but suggests that they can be costly and usually correspond to "demand compression (i.e., reduced imports and domestic demand) rather than increased exports.[20] An earlier vein of this literature also argued that 5% was a threshold after which a painful current account reversal was significantly more likely, but there is now general agreement there is no "magic number".[21]

Most recently, several papers have highlighted an important link between these three literatures focusing on different vulnerabilities related to current account deficits: rapid domestic credit growth.[22] These papers find that it is the rapid increase in domestic credit (which often corresponds to large current account deficits, capital inflows from abroad, and a deterioration in the NIIP position) that has the greatest explanatory power in predicting crises. It is the end to this unsustainable credit growth and borrowing from abroad that corresponds to the "sudden stop", "reversal", and painful adjustment in consumption, investment, demand, exports, imports, inflation and growth.

This recent focus on credit growth as a key link between current account deficits, capital inflows, external liabilities, and financial crises highlights an important shift in the literature on current account vulnerabilities – away from focusing on trade and instead focusing on the corresponding financial flows. This does not mean that trade is unimportant in the vulnerabilities and adjustments related to large current account deficits. Instead, this shift highlights the growing importance of financial channels due to increased cross-border financial exposures, as well as the much more rapid adjustments that occur through financial channels than through trade. The remainder of my comments will build on this shift – adding additional issues related to these financial flows that should be incorporated in any analysis of vulnerabilities related to current accounts.

II.   Incorporating International Financial Exposures and International Investment Income into Vulnerability Analysis

One reason for paying greater attention to the financial flows and financial positions linked to the current account is the increase in financial globalization since the early 1990s. Figure 3 shows the sharp increase in cross-border financial assets and liabilities that has occurred over this period, broken out by the type of exposure.[23] Cross-border financial exposures increased rapidly from about 1990 through 2007, and have roughly stabilized since. This recent stabilization largely reflects a reduction in cross-border financial flows, primarily in international bank flows.[24]

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[20] See: Freund and Warnock (2007), Lane and Milesi-Ferretti (2012), and Eggertsson, Ferrero, and Raffo, (2014).
[21] For a sample of this earlier debate, see Freund (2005), Summers (2004), and Milesi-Ferretti and Razin (1998).
[22] See Gourinchas and Obstfeld (2012), Schularick and Taylor (2012), and Korinek (2011).
[23] Of course, any use of international investment and capital flow data is subject to the usual caveats on data limitations. See Zucman (2013), Lane (2014) and Curcuru, Dvorak and Warnock (2008) for issues.
[24] For more information on this "deglobalisation" in capital flows, and especially banking, see Cerutti and Claessens (2014), Forbes (2014b), and Forbes, Reinhardt and Wieladek (2016).

Even if cross-border financial flows do not return to their pre-crisis levels, the past accumulation of international assets and liabilities implies that international financial exposures are likely to remain substantially elevated relative to past decades. This increase in cross-border financial exposures has two important implications for vulnerabilities related to the current account deficit: for net international investment positions and international investment income. Before showing these relationships – and their importance in assessing vulnerabilities related to current account deficits – it is helpful to begin with some basic terminology.

Figure 3: World* financial assets and liabilities (% of world GDP)
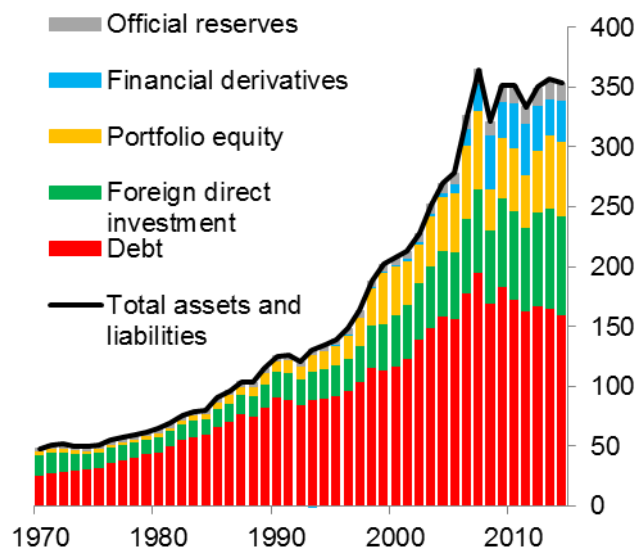
* Sample includes all countries with data on financial assets and liabilities going back to 1970.
Source: Lane and Milesi-Ferretti (2007b), IMF International Financial Statistics and World Economic Outlook, and own calculations.

A. The Basic Framework

The net international investment position (NIIP) of country *i* at time *t* can be defined as its holdings of foreign assets (*A*) net of foreign liabilities (*L*), for all asset/liability categories (c), such as FDI, portfolio equity, portfolio debt, bank lending, and "other", with all variables expressed in domestic currency:[25]

$$NIIP_{i,t} = \sum_c \left(A_{i,t}^c - L_{i,t}^c \right) . \tag{1}$$

Any change in the NIIP can be decomposed into: changes in flows (captured in the current account, *CA*); changes in the valuation of existing investment positions (ΔVAL); and other adjustments to the value of international assets or liabilities that are not otherwise included (*OAdj*), such as data revisions or adjustments related to the relocation of headquarters:[26]

$$\Delta NIIP_{i,t} = CA_{i,t} + \Delta VAL_{i,t} + OAdj_{i,t} . \tag{2}$$

The current account is a function of the trade balance (*TB*), net primary investment income (*INVINC*), and net secondary investment income (*SECINC*) the last of which is small for most countries:[27]

$$CA_{i,t} = TB_{i,t} + INVINC_{i,t} + SECINC_{i,t} . \tag{3}$$

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[25] This decomposition used here is similar to that in Lane and Milesi-Ferretti (2001, 2007a) and Devereux and Sutherland (2010). See Forbes, Hjortsoe and Nenova (forthcoming) for more details on this framework.
[26] Note that other adjustments also include the effect of real GDP growth on the past NIIP (the "denominator effect"). See Lane and Milesi-Ferretti (2005) and Lane (2015) for information on this *OAdj* term.
[27] The trade balance includes trade in goods and services; net primary investment income is the return from past investment in financial assets and production processes (largely dividends and interest); net secondary investment income is basically personal transfers, international assistance, charities and some inter-government payments.

Combining equations (2) and (3) yields:

$$\Delta NIIP_{i,t} = TB_{i,t} + INVINC_{i,t} + \Delta VAL_{i,t} + E_{i,t} , \qquad\qquad (4)$$

where $E_{i,t}$ denotes secondary income and other adjustments to the NIIP. I will focus on the role of investment income and valuation effects. These tend to be large, important, and fast moving – and therefore critical to assessing a country's vulnerability.

In order to assess this vulnerability, it is necessary to further decompose these investment income flows and valuation effects. The equations quickly get complicated – so I have relegated them to the Appendix. The bottom line is that it is fairly straightforward to show (with some algebra) how a country's investment income flows and valuation effects are determined by four sets of variables: the nominal rate of return on last period's stock of foreign assets and liabilities (excluding exchange rate effects), the rate of capital gain on external assets and liabilities (by category), last period's stock of international assets and liabilities, and the exchange rate index reflecting the currency composition of the country's assets and liabilities. All variables are calculated for each asset and liability class (c) – including exchange rate indices for each asset and liability category depending on what currencies in which they are denominated. These details are important to fully capture the dynamics of how different types of shocks will affect the NIIP and current account.

B. Valuation Effects and the NIIP Position

How important are these financial effects (through valuation changes and investment income) relative to trade in explaining changes in the NIIP position?[28] Figure 4a uses the decomposition in Equation 4 and reports the share of the variance in the NIIP position from 1980-2014 that is explained by the trade balance, investment income, and valuation effects for a large sample of around 180 countries and then for the UK.[29] Valuation effects play a significant role –and appear to be even more important than trade. More specifically, valuation effects explained 35% of the share of the variance of changes in the NIIP for the full sample, relative to 25% for trade and 8% for primary investment income. The role of valuation effects is even greater in the UK on an absolute basis and relative to trade – where they explain 45% of the variance compared to only 10% for trade.

Even more striking is how this role of valuation adjustments has increased over time. Figure 4b repeats the same analysis, but only focuses on the "financially-globalized" period from 2004 to 2014.[30] The role of valuation effects in explaining the variance in the NIIP is substantially greater – reaching 61% for the full sample and 144% in the UK. This increased role is not surprising given larger international financial exposures, especially in the UK. Larger international financial exposures mean that a given change in the valuations of (as well as the returns on) these positions could have a larger influence on the NIIP. Concerns

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[28] Key papers highlighting the importance of larger international exposures and valuation changes on NIIP positions are: Gourinchas and Rey (2007), Lane and Milesi-Ferretti (2006), Obstfeld (2012), Gourinchas, Rey and Treumpler (2012), Lane and Milesi-Ferretti (2012), and Benetrix et al. (2015).
[29] The shares do not add to 100% due mainly to covariances between the components, as well as to other smaller components and data issues that are not reported to simplify the comparisons.
[30] The key results reported below are similar if we vary the start and end dates or exclude the recent crisis.

about country vulnerability linked to unsustainable NIIP positions should clearly include analysis of these valuation changes.

Figure 4: Share of NIIP variance explained by selected components
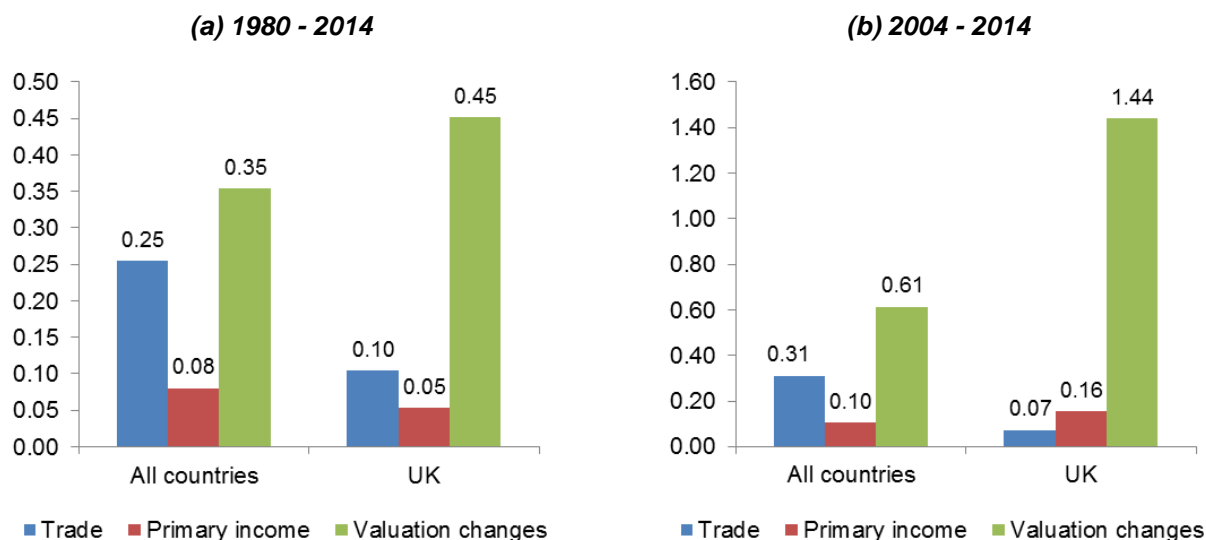
(a) 1980 - 2014   *(b) 2004 - 2014*

Source: Lane and Milesi-Ferretti (2007b), IMF International Financial Statistics and World Economic Outlook, and own calculations.

But what causes these valuation changes? The decomposition in equation (A1) in the appendix suggests that these valuation effects will be determined by four factors: the existing stocks of international assets and liabilities, differences in exchange rates across assets and liabilities, differences in capital gains across assets and liabilities, and differences in the composition of the portfolio (shown by c). The equation shows that these factors (and their relationships) can generate changes in the NIIP even if the initial net financial position is zero.[31] Existing international stocks play an important role because they determine the magnitude of the impact of capital gains and exchange rate movements on the NIIP. Gross positions matter. The exchange rate plays a particularly important role, both through its direct impact on the value of net foreign assets, but also because it can mitigate or emphasize the impact of capital gains on the NIIP. Accurately measuring the different exchange rates for different asset and liability classes (if their currency denomination differs) is critically important to capture the corresponding valuation effects. This is explained in more detail at the end of the appendix.

Differences in capital gains across specific asset and liability categories, as well as different portfolio compositions across assets and liabilities, are also important. To show these effects in a simple example, assume that there are only two countries – the UK and euro zone – and their only cross-border investment is in equities, of which they both hold the same amount. If UK economic growth is expected to pick up faster than in the euro zone and this is reflected by improvements in UK equities (relative to those for the euro), this

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[31] For example, if capital gains on assets increase faster than capital gains on liabilities, or if the exchange rate associated with assets depreciates more than that associated with liabilities, then the inherited asset position (in domestic currency) increases, even if the net position is zero.

would lead to negative valuation effects on the UK NIIP (as foreigners holding UK equities would experience larger capital gains than UK citizens holding foreign equities). Or – as an example of the effect of portfolio composition – now assume equities yield the same returns in each county, but each country can also invest in some debt (which also yields the same in each country). UK citizens choose to hold more equities than debt, and euro investors hold more debt than equity. If equities yield higher capital gains than debt (as they traditionally do over long periods of time), then this would generate positive valuation effects on the UK NIIP – even with no difference in returns between the countries for each asset category – simply because UK investors hold riskier portfolios.

Which of these channels for valuation effects (international stocks, exchange rates, capital gains or composition effects) has been most important? The answer varies by country, depending on the country's portfolio of international assets and liabilities and changes in exchange rates and capital gains. Figures 5a and 5b provide this breakdown for the UK, using two different decompositions of these channels since 1991.[32] Figure 5a breaks down valuation effects into the impact of: initial stocks, exchange rate movements, and capital gains (including other effects). Exchange rates have been a key driver of valuation effects, contributing around 43% of the average annual valuation change (in absolute value) for the UK. Exchange rate effects generated significant improvements in the UK's NIIP during the crisis (as sterling depreciated), but in 2014 sterling's appreciation generated a significant decline in the NIIP. Capital gains have also played an important role, with the average magnitude of these effects roughly equal to that of overall valuation changes over this period. These price effects were large and negative in 2009 during the crisis.

Figure 5b provides a different decomposition in order to better understand these prices effects. The figure breaks down valuation effects into the impact of: initial stocks, composition effects and return effects. The capital gains in Figure 5a incorporate aspects of both of the latter effects, while the exchange rate effect from above is folded into the composition and return effects. Figure 5b shows that an important factor contributing to the capital losses in 2009 was composition effects. This reflects that the UK had a portfolio with riskier assets (such as equities) and relatively safer liabilities (such as debt), combined with larger capital losses at this time on riskier investments. In most years, different rates of return (which incorporate exchange rate effects) for the same asset/liability classes were even more important determinants of valuation effects. The stock effects from initial international exposures on valuation changes tend to be smaller than the other effects in each of these decompositions.

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[32] We perform these different decompositions due to the challenges in isolating each of these channels, combined with data limitations. For example, the data on capital gains incorporates a mix of different returns for each asset and the composition of the portfolio, while the exchange rate effects incorporate interactions with the exchange rate movement and the returns and composition of the portfolio.

Figure 5: Breakdown of valuation changes in the UK NIIP

(a) into initial stock, exchange rate and capital gain effects

(b) into initial stock, composition and return effects
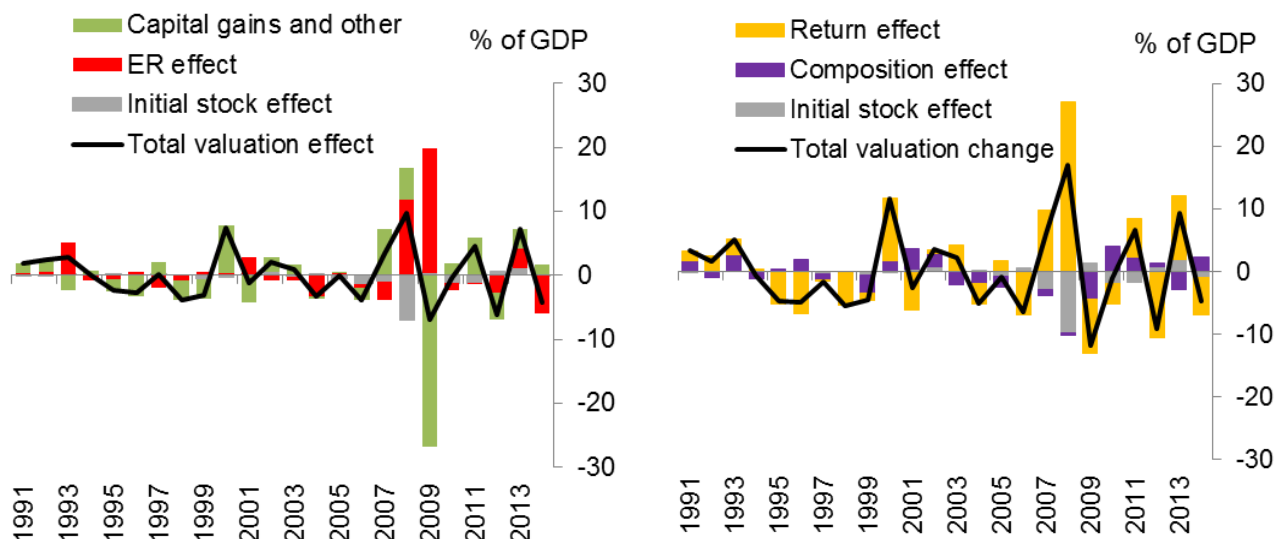
Notes:
(a) The total valuation change is calculated as the change in the NIIP stock adjusted for the net capital flow during each period. The initial stock effect measures the valuation change that would have resulted from the initial NIIP imbalance if both assets and liabilities generated the same capital gain. The exchange rate effect takes into account the different currency composition of foreign assets and liabilities. The 'capital gains and other' bars are the residual which captures capital gains in the currency of denomination of assets and liabilities, but might also reflect revisions to the volume of international portfolios that are not reflected in the capital flows.
(b) Each of the subcomponents in this decomposition includes the effect of exchange rate movements. The composition effect captures the excess valuation change stemming from the different composition of assets and liabilities. The return effect captures any excess return from assets over liabilities within each asset class.
Source: Benetrix et al. (2015), Lane and Milesi-Ferretti (2007b), IMF International Financial Statistics and World Economic Outlook, and own calculations.

C. Investment Income and the Current Account

Just as any assessment of current account vulnerabilities should consider valuation changes on the NIIP. It should also consider financial effects through the investment income component of the current account. This link has been largely ignored in the literature and analysis of current account vulnerabilities (unlike for valuation effects) – possibly due to the common shortcut of treating the current account balance as being equivalent to the trade balance. Figure 6 shows, however, that this shortcut is not valid. It graphs current accounts for the 15 OECD countries with the largest current account deficits over 2013-2014 and breaks the deficit into its three components shown in Equation (3): trade, primary income (the largest component of which is net investment income) and secondary income. Large current account deficits are clearly not synonymous with large trade deficits; investment income balances can also be significant determinants of current account balances. In fact, the primary investment income balance constitutes a larger share of the current account deficit than trade in a number of countries – including South Africa, Colombia, Peru, Brazil, Australia, New Zealand, Indonesia, Chile and Mexico. For just 2014, the UK investment income deficit (at -1.8%) was almost as large as its trade deficit (at -1.9%).

Figure 6: Largest current account imbalances and their composition (2013-14 averages)
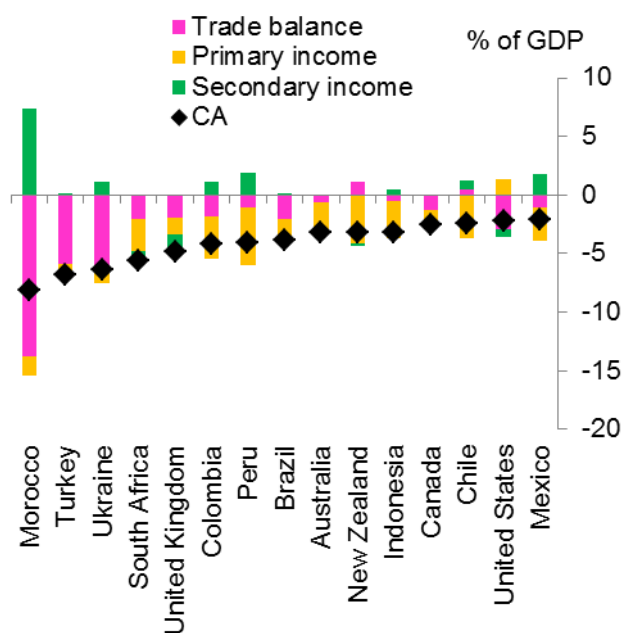
Note: The sample includes all countries with available data and average 2013-14 GDP of at least $100bn.
Source: IMF International Financial Statistics, World Economic Outlook and own calculations.

But, even if investment income is important in explaining the levels of some countries' current account deficits, is it also important in explaining changes in current accounts? This may be even more important for any analysis of vulnerabilities related to sudden stops and reversals in current accounts. Figure 7 performs this analysis by showing the share of the variance in the current account that is explained by the variance of trade, primary investment income and secondary investment income (as specified in Equation 3) for a large sample of countries and the UK. Figure 7a is for the full period from 1980-2014, while Figure 7b just focuses on the last 10 years (from 2004-2014). The figures show that trade accounts for more of the variance in the current account than investment income for the full sample of countries in each of the windows. The estimates f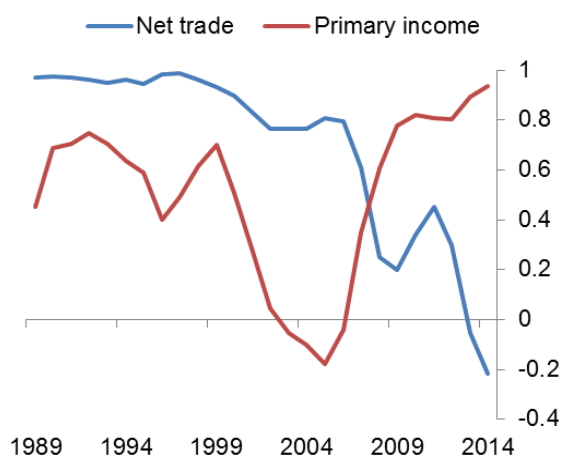or the UK, however, indicate that this can vary substantially over time in individual countries. In the UK, trade explained 87% of the variance in the current account over the full period – about twice as much as explained by investment income. In contrast, over the last ten years the relative importance of these components has basically reversed, with investment income recently explaining twice as much of the variance in the current account as trade.

Figure 7: Share of current account variance explained by its three components
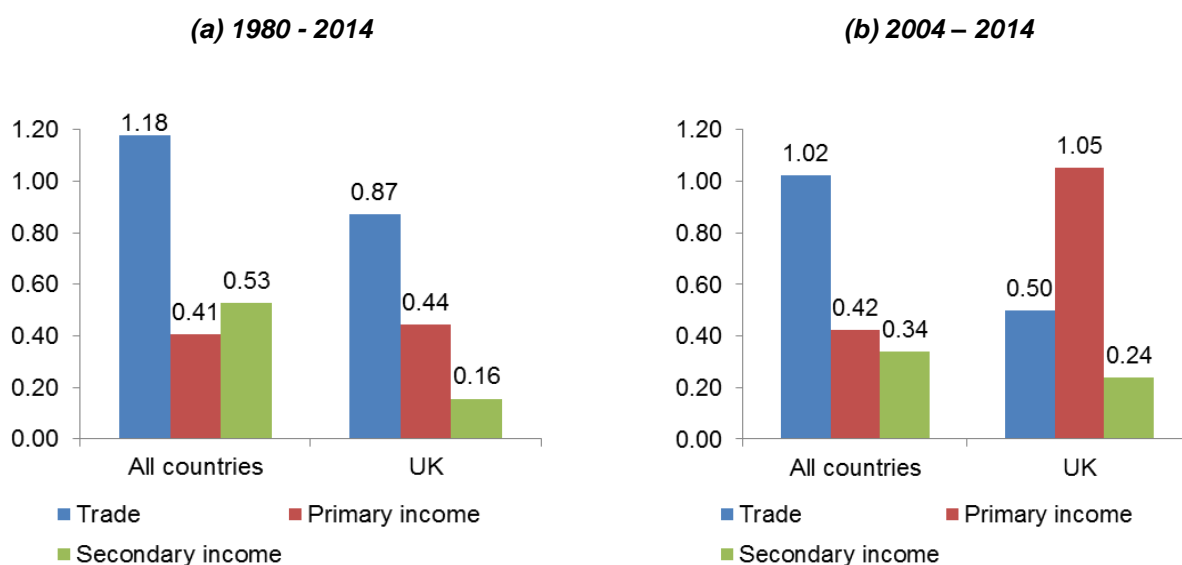
(a) 1980 - 2014   *(b) 2004 – 2014*

Source: IMF International Financial Statistics, World Economic Outlook and own calculations.

This increasingly important role of investment income in explaining movements in the UK current account is even more striking when viewed over time, as shown in Figure 8. This graphs the 10-year rolling correlation of the UK's current account balance with the trade and primary investment income balances since 1989. In the 1980's and 1990's, movements in the UK current account almost perfectly corresponded to movements in the UK trade balance. This correlation fell throughout the 2000's and during the crisis, and is now negative. In contrast, the correlation between the UK's current account deficit and primary income balance has increased sharply since the early 2000's and is now close to one.[33] This transition is striking and suggests that movements in the UK current account balance have recently been driven almost entirely by changes in investment income, with little impact of changes in trade. Treating the current account balance as a trade balance is clearly no longer appropriate.

Figure 8: 10-year rolling correlation between UK current account balance and its net trade and primary income components

Source: IMF International Financial Statistics, World Economic Outlook and own calculations.

But what drives these changes in investment income? The decomposition in equation (A2) in the appendix suggests that investment income will equal the returns received on assets from abroad (the first term) less the returns paid on liabilities held abroad (the second term). Two main sets of variables determine these values: the existing stocks of international assets and liabilities adjusted by the exchange rate, and differences in returns denominated in local currency across assets and liabilities. Differences in returns could result from different returns on the same type of asset or liability, or a different composition of assets and/or liabilities. Investment income will be greater for: (a) a larger stock of foreign assets relative to liabilities (which could also result from a larger depreciation of the exchange rate associated with assets relative to that associated with liabilities); and (b) higher local-currency returns on assets relative to liabilities (which could result from differences in returns within each asset category or different portfolio compositions). These relationships are similar to those discussed above for valuation effects on the NIIP (and in the appendix). For example, gross positions and the different exchange rate movements (on assets and liabilities within asset classes) matter for both. The composition of assets and liabilities is also important in both; even if returns and exchange rates are identical within each asset class, and the overall assets and liabilities net out, a different asset composition across assets and liabilities could affect investment income as well as capital gains.

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[33] The pattern of a lower correlation of the current account with the trade balance and higher correlation with the income balance is unchanged if we use a shorter rolling window of 5 years to exclude the financial crisis from the latest data point.

Which of these potential drivers of investment income has traditionally been most important? The answer varies across country, but Figures 9a and 9b break down UK investment income into the same categories as used in Figures 5a and 5b. Figure 9a shows that exchange rate movements explain a smaller share of investment income than for valuation effects (in Figure 5a). Decomposing the variance in the UK's investment income over the full period using the framework in Figure 9b, 69% of the variance can be explained by return effects, 10% by composition effects and 2% by the initial stocks. Perhaps most interesting, from 2000 to 2008 the UK consistently earned positive net investment income on its international portfolio. Figure 9b shows this was due to its composition of assets and liabilities (with a higher share of foreign assets in riskier investments), as well as higher returns within each asset category. These positive returns, however, reversed briefly during the crisis, then started falling sharply around 2012 and have remained negative ever since. The recent investment income deficit is driven primarily by negative relative returns; within each asset category (such as FDI), UK investors are earning less than foreign investors are earning in the same asset category in the UK. A large share of this reflects the relatively stronger economic performance, exchange rate, and corresponding returns in the UK relative to the euro area.

Figure 9: Breakdown of UK net investment income

(a) into initial stock, exchange rate and excess local currency return effects

(b) into initial stock, composition and return effects
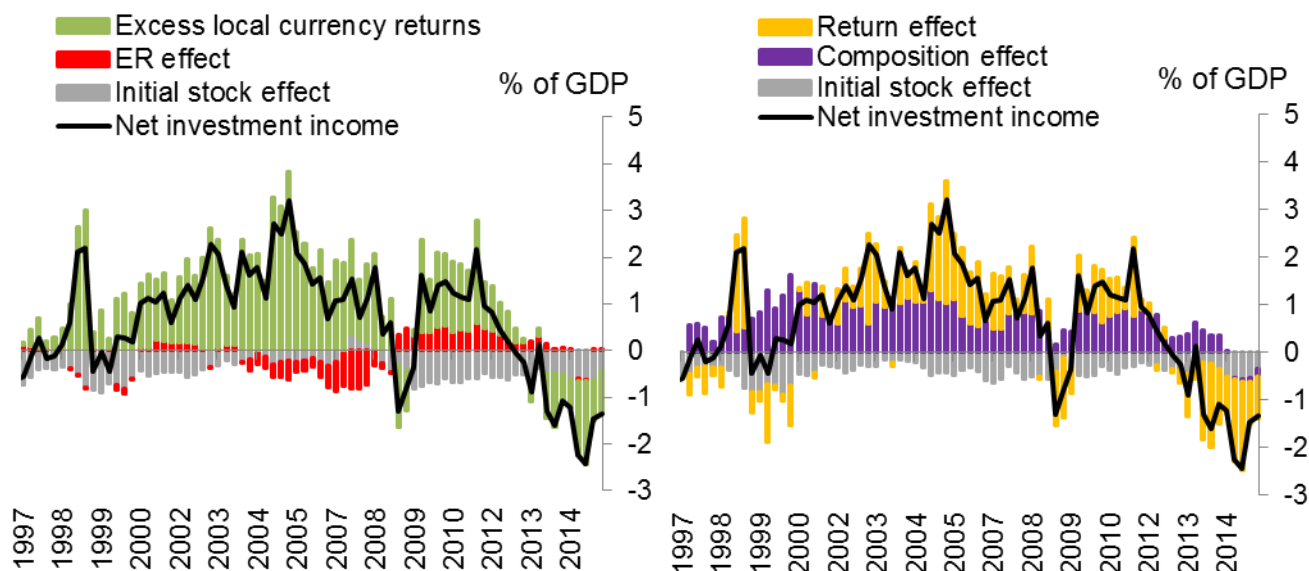
Source: ONS, Benetrix et al. (2015) and own calculations.

D. Tying it All Together: Implications for Country Vulnerability Related to Current Account Deficits

The analysis above suggests that any analysis of vulnerabilities related to current account deficits should no longer just treat the current account deficit as a trade deficit, but also incorporate an analysis of the investment income component of the current account. Similarly, any analysis of vulnerabilities related to the

corresponding NIIP should no longer treat this as an accumulation of current account balances, but also incorporate an analysis of valuation effects on the NIIP. In extreme cases, this type of thinking could even overturn some of our current understanding of the vulnerabilities related to the current account. For example, does the evidence suggesting that larger current account deficits increase the probability of having a "sudden stop" in capital flows still hold if the current account deficit is caused more by a deficit in investment income than trade? Or if a large current account deficit does not reflect any macroeconomic imbalances, but instead changes in investment income due to external shocks, is the current account less likely to "reverse" and cause a difficult economic adjustment? And should we be less concerned about any solvency risks from a large negative NIIP position if it is stabilized due to positive investment income flows?

To make this point, Figures 10a and 10b show the evolution of the NIIP in the United Kingdom and United States. The dotted blue lines graph cumulated trade deficits (relative to GDP) since 1980 – and show the sharp deterioration in the NIIP position that would have occurred if trade balances (instead of current account balances) corresponded to the financial account and there had been no valuation changes on the NIIP. The green lines show the cumulated investment income balance and the red lines the cumulated valuation changes on the NIIP. Both are positive and have substantially improved the actual NIIP positions (the black lines) relative to the cumulated trade deficits. These financial effects through international investment income and valuation effects have improved the UK and US NIIP positions by about 10% and 20% of GDP, respectively. These are meaningful improvements and show how these financial affects have the potential to influence assessments of country solvency.
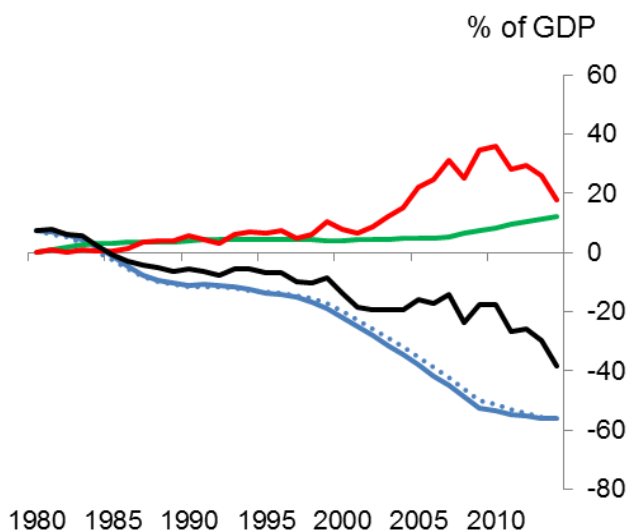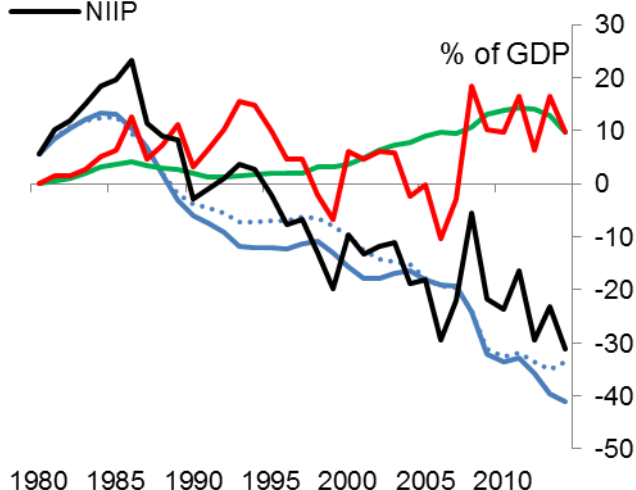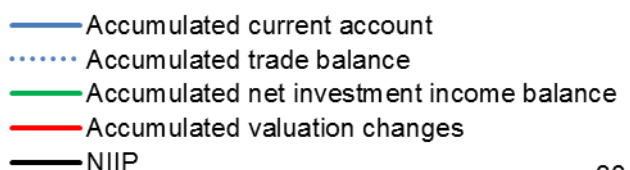
But it is also important to note that these effects could work in the opposite direction and weaken a country's NIIP position relative to what it would have been without these financial effects. For example, Figures 10c and 10d show the same analysis for Sweden and Spain. Sweden would have a positive NIIP position if this only captured cumulated trade surpluses. Instead, large negative valuation adjustments and primary income deficits over much of this period have generated a small negative NIIP over this window. The large negative NIIP position in Spain, which has generated substantial concern about the country's solvency, is due as much to deficits on investment income and negative valuation effects as to a trade deficit.

To summarize, when assessing country vulnerabilities related to current account deficits, it is no longer sufficient to simply assume that the deficits are mainly driven by changes in the trade balance and will translate directly into changes in the NIIP. Instead, it is necessary to take a closer look at the financial component of the current account balance (the investment income balance) and the role of valuation changes on international assets and liabilities in affecting the NIIP. These financial components may generate a meaningful deterioration – or improvement – in current account balances and NIIPs. Therefore, understanding how these financial components respond to various shocks – and especially the types of shocks that correspond to increased concerns about current account deficits – is critically important to understanding these vulnerabilities.

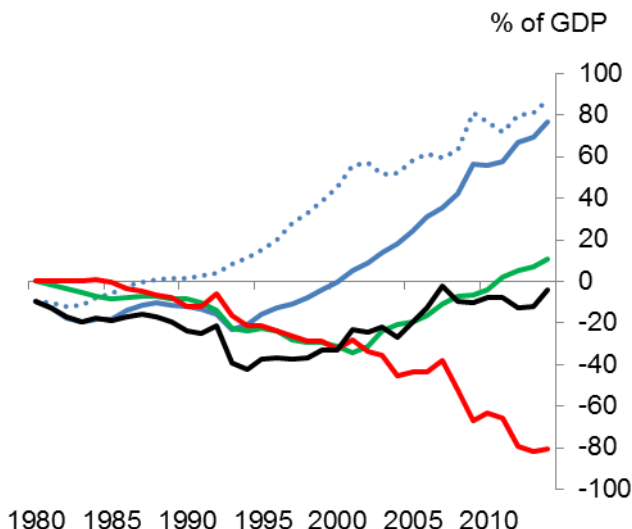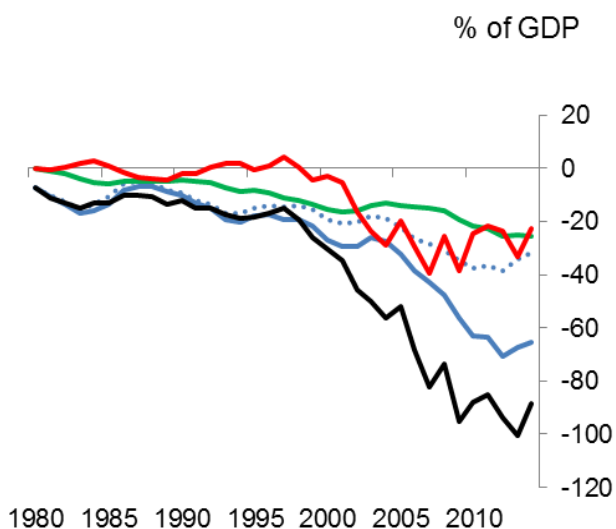**Figure 10: NIIP decomposition for selected countries**

(a) UK   *(b) US*

Legend:
- Accumulated current account
- Accumulated trade balance
- Accumulated net investment income balance
- Accumulated valuation changes
- NIIP

(c) Spain   *(d) Sweden*

Source: IMF International Financial Statistics, World Economic Outlook, Lane and Milesi-Ferretti (2007b) and own calculations.

III.   An Application: UK International Vulnerabilities during Heightened Domestic and Global Risk

To see how this broader framework of thinking about vulnerabilities related to the current account works in practice, it is useful to consider what it implies during a period of heightened risk and uncertainty.[34] Research

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[34] I will use the words risk and uncertainty interchangeably in the following discussion, although in many frameworks they capture two distinct concepts – changes in risk aversion and economic uncertainty.

over the last few years has highlighted the strong relationship between changes in risk (as usually measured by the VIX) and sudden shifts in capital flows and the broader global financial cycle in credit growth and leverage.[35] I will consider increases in two types of risk: domestic and global. Heightened domestic risk could reflect any increased uncertainty about the evolution of the UK economy or anything that makes UK consumers, businesses and investors in the UK more "risk averse", including uncertainty in the run-up to any election or referendum. Heightened global risk could reflect any increased uncertainty about the evolution of the global economy or anything that makes global investors, consumers and businesses more risk averse – including concerns about China and other emerging markets.

My main focus will be to assess how heightened risk, when interacted with the composition of the UK's international investment position and current account, could aggravate UK vulnerabilities – or partially mitigate them through international risk sharing.[36] To simplify the analysis and focus on these financial effects, I will make three simplifications. First, I will ignore any effects through the trade balance. Not only have these relationships been well studied elsewhere, but trade can take a number of months to adjust, while the financial channels on which my comments are focused adjust more rapidly. Second, I will assume that global risk has no differential effect on the local-currency returns for a specific asset category across countries. For example, I will assume heightened global risk has the same effect on equity prices in the UK and US (ignoring any exchange rate effect) – and thereby not attempt to assess how changes in risk might have differential effects on the real economy and outlook for production, dividends, etc. in different countries. I will, however, allow changes in risk to affect the return differentials between different asset categories (such as between equities and debt).

Finally, I will assume that increases in both types of risk cause sterling to depreciate. This is a non-controversial effect of increased domestic risk. Whether sterling depreciates after increased global risk, however, depends on whether sterling is considered a "safe-haven" currency. The correlation between the VIX and sterling (which would be positive if sterling behaved as a safe haven) fluctuates over time, and there are some windows when sterling has behaved like a safe-haven currency.[37] Figure 11 reports the 60-day rolling correlations between the VIX and sterling, the euro, and the three main safe haven currencies (the US dollar, Swiss franc, and Japanese yen) over different time periods. This graph indicates, however, that sterling has not behaved like a safe haven currency recently or over longer periods of time. The correlations with the VIX are negative for sterling over the last 60 days, 3 years, and 10 years – and provide a sharp contrast to the positive correlations over each window for the traditional safe haven currencies (with mixed results for the euro). Moreover, the negative correlation between sterling and the VIX is even stronger during larger increases in the VIX. This suggests sterling is even less likely to be treated as a safe-haven currency during the periods of sharply higher global risk, which generate the greatest concerns about the stability of

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[35] For evidence on the relationship of risk: with capital flow movements, see Forbes and Warnock (2012, 2014), with bank lending, see Bruno and Shin (2015), and on the global financial cycle, see Rey (2013) and Miranda-Agrippino and Rey (2015).
[36] See Gourinchas, Rey and Truempler (2012) for calculations of the amount of risk sharing through net international investment positions during the crisis. They estimate large effects. For example, they calculate that the US transferred $2,200 billion in wealth transfers abroad from 2007q4 to 2009q1, while the UK had a net gain of $542 billion between 2007q4 and 2008q4.
[37] For example, during the euro crisis in 2011-2012, the VIX and sterling-euro exchange rate were positively correlated.

capital flows to finance current account deficits. Therefore, based on historic relationships, it seems safe to assume (yes – pun intended) that sterling would be likely to depreciate during a period of sharply higher global risk and uncertainty.

Figure 11: 60-day rolling correlation between changes in selected exchange rate indices and the VIX
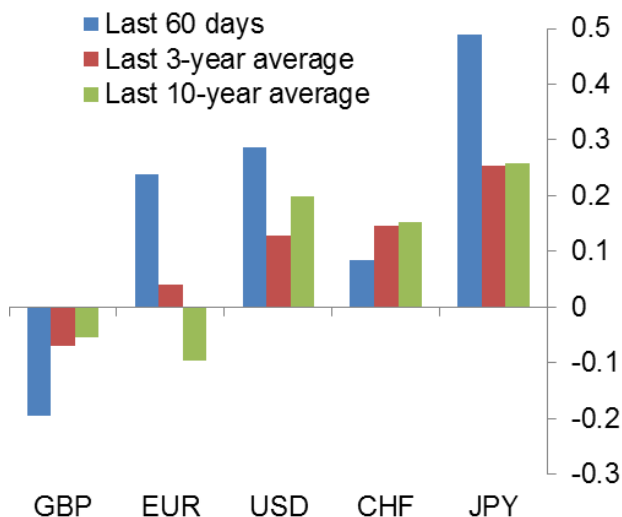
Source: Bloomberg and own calculations.

Let's start with a negative domestic shock which increases UK risk and uncertainty. The financial impact on the NIIP will depend on how this increase in risk works through the various channels affecting international valuations and investment income discussed earlier. Forbes, Hjortsoe and Nenova (forthcoming) work through these calculations, and Figure 12 summarizes some of the key channels – focusing on those that are more intuitive, larger in magnitude, and correspond more closely to the analysis in Section II. The left-hand column lists the main variables that will determine how heightened domestic risk influences both valuation effects and the broader NIIP (which also includes investment income).[38] In other words, it lists some of the key country characteristics that mitigate the negative effects of this shock by transmitting wealth to the domestic economy.[39] The second column describes what country characteristics ensure that this type of international risk sharing occurs through changes in the NIIP.[40] The third column then assesses whether the UK has these characteristics that can mitigate the negative effects from heightened domestic risk, with a ✓ indicating risk sharing and an X indicating no risk sharing. The final column on the right includes comparable statistics for other OECD economies.

This figure suggests that the UK's international portfolio has a number of characteristics that would be expected to generate some risk-sharing in the face of a negative domestic risk shock. In particular, the 31% share of UK borrowing in the form of equities suggests that when heightened domestic risk has the usual impact of causing a decline in domestic equity prices, some of these losses are shared with foreign investors. This share of borrowing in equities has increased notably from its average of 26% from 1990 to 2015, thereby increasing international risk sharing through this channel, although it is still lower than the average for 9 other OECD economies with floating exchange rates. Even more important, however, has

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[38] Since the impact on valuations is qualitatively similar to that as on the full NIIP, I will focus on the key characteristics that would lead to an improvement in the NIIP after an increase in domestic risk.
[39] To simplify, I do not include additional channels that are harder to quantify, such as the hedging ability of the exchange rate relative to capital gains and returns.
[40] We focus on the main determinants of interest, but not their interactions. For more details and the full derivation of the points made in the table, see Forbes, Hjortsoe and Nenova (forthcoming).

been risk sharing through the currency denomination of UK assets and liabilities. With 90% of assets denominated in foreign currency and only 60% of liabilities, any heightened UK risk that causes sterling to depreciate will – all else equal – generate an improvement in the NIIP simply because it increases the value of the assets held by the UK relative to the value of what it owes to foreigners.[41]

Figure 12. How increased domestic risk affects the NIIP

Variables Determining the NIIP Impact	Risk sharing is higher…	Does this apply to the United Kingdom?	Average of 9 other OECD countries with floating ERs
Composition of liabilities	…. the riskier are liabilities i.e. the higher is the *proportion of equity liabilities relative to debt liabilities*	✓ Share of equity in liabilities: 31% [42]	Share of equity in liabilities: 46%
Currency denomination of assets	… the higher the *proportion of assets denominated in foreign currency*	✓ >90% of assets denominated in foreign currency	Around 90% of assets denominated in foreign currency
Currency denomination of liabilities	… the lower the *proportion of liabilities denominated in foreign currency*	✓ 60% of liabilities denominated in foreign currency	41% of liabilities denominated in foreign currency

Note: The 9 other OECD countries in the last column include Australia, Canada, Korea, Japan, New Zealand, Norway, Sweden, Switzerland and the USA.

Next, Figure 13 repeats the same analysis for the impact of heightened global risk. This is more complicated than for domestic risk because it requires taking into account that some currencies are "safe-havens" and appreciate in response to increased global risk, while others tend to depreciate. It also requires incorporating changes in capital gains (excluding currency movements) not only on liabilities, but also on foreign assets. Finally, the rush to safe assets globally after increased global risk would cause the return on debt liabilities relative to the return on equity liabilities to fall less than when just domestic risk increases. Incorporating these considerations with the UK international position, yields the key variables listed in the left column of the figure as most important to assess the impact of increased global risk on the UK NIIP.

This table suggests that in the presence of heightened global risk, the characteristics of the UK external position could partially mitigate the impact on the NIIP – although the case is less clear-cut than after heightened domestic risk. The UK's relative composition of assets and liabilities (in the first row) is basically balanced and therefore indicates little risk sharing through this channel; this is an improvement relative to the last 25 years (during which the composition of UK assets was, on average, riskier than for liabilities and

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[41] The estimated currency denominations are based on Benetrix et al. (2015).
[42] The equity share of liabilities has recently increased from its average of 26% from 1990 – 2015, thereby providing more risk sharing today.

implied an amplification of negative global risk shocks). Risk sharing does occur, however, through
exchange rate effects interacted with the different exposure to safe haven currencies in assets and liabilities.
With 43% of assets in safe haven currencies, and 26% of liabilities, this implies that when global risk
increases and safe-haven currencies appreciate, UK international assets would increase relative to liabilities
and boost the NIIP. This channel will provide some risk sharing to the UK in the presence of heightened
global risk, but no more than the average for the other 9 OECD countries in the comparison in the right
column.

Figure 13. How increased global risk affects the NIIP

Variables Determining the NIIP Impact	Deterioration of financial position less pronounced…	Does this apply to the United Kingdom?	Average of 9 other OECD countries with floating ERs
Composition of liabilities relative to assets	…. the riskier are liabilities relative to assets i.e. the higher is the *proportion of equity liabilities relative to debt liabilities compared to equity assets relative to debt assets*	X (Equity Assets/Debt Assets) (0.44) ≈ (Equity Liabilities / Debt Liabilities) (0.45)[43]	(Equity Assets/Debt Assets) (1.53) > (Equity Liabilities/Debt Liabilities) (0.89)
Currency denomination of assets	… the higher the *proportion of assets denominated in safe haven foreign currency*	✓ 43% of Assets denominated in USD, CHF and JPY	47% of Assets denominated in USD, CHF and JPY [44]
Currency denomination of liabilities	… the lower the *proportion of liabilities denominated in safe haven foreign currency*	✓ 26% of Liabilities denominated in USD, CHF and JPY	27% of Liabilities denominated in USD, CHF and JPY [45]

Although Figures 12 and 13 show that most characteristics of the UK external position should help mitigate
the negative impact of heightened domestic and global risk on UK international exposures, it does not
provide any information on the magnitude of any such risk-sharing through these channels. Therefore – as a
final step – I estimate an SVAR model that can be used to calculate how UK and global risk shocks have
affected the relative returns on UK foreign assets and liabilities over time.[46] Figure 14 shows the resulting

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[43] The ratio of UK equity assets to debt assets has been relatively stable over the last decade. But the ratio of equity liabilities to debt liabilities (averaging 35% over 1990-2015) has increased recently (to 45%) because of higher inward direct investment flows.
[44] The average excludes assets held by the US, Switzerland and Japan that are denominated in their own currencies, because those will not be affected by any exchange rate movements.
[45] The average excludes US, Swiss and Japanese liabilities denominated in their own currencies, because those will not be affected by any exchange rate movements.
[46] The shocks are extracted by estimating a Bayesian SVAR with sign and zero restrictions on quarterly UK data on yields and capital gains on foreign assets and liabilities, UK and US interest rates, UK and US uncertainty measures, growth in the UK relative to the rest of the world and the sterling trade-weighted exchange rate. The identification scheme assumes that a global risk shock is associated with a rise in the VIX index, a fall in US one-year forward interest rates, and no change in UK risk relative to US risk. A UK-specific risk

historical contributions of these UK and global risk shocks to the total relative returns on the UK NIIP. These two shocks only explain a moderate portion of these relative returns – which would be expected as they only include the impact of two types of shocks; the model does not attempt to capture the wide array of other influences that would affect relative returns (such as monetary and fiscal policy or anything that affects relative growth rates). The estimated effects of increased global and domestic risk do, however, show several noteworthy patterns and trends.

Figure 14: Contributions of global risk and domestic risk shocks to excess total returns on UK NIIP
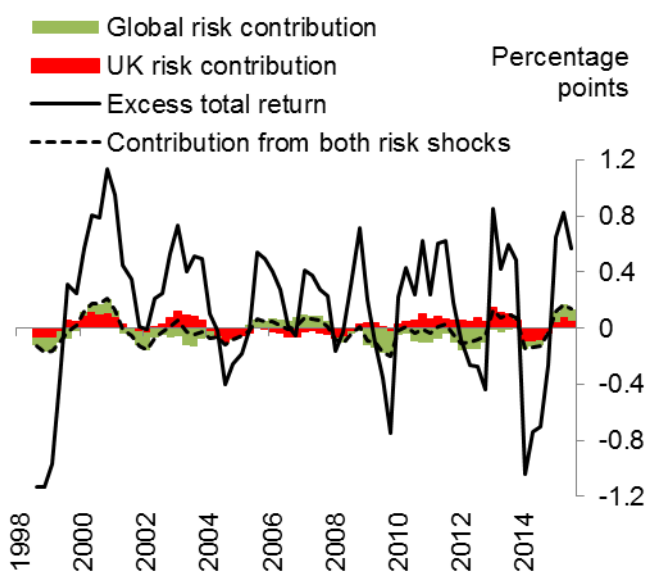
Source: Lane and Milesi-Ferretti (2007b), IMF International Financial Statistics, Baker, Bloom and Davis (2015), Datastream, Bloomberg and own calculations.

Starting with the domestic risk shock (in red), an increase in UK risk is associated with an improvement in relative UK returns – as expected. As discussed above, this is because the yield and capital gains on UK liabilities (i.e., what the UK pays foreigners) decreases as risk in the UK increases, while the yield and capital gains on UK assets (i.e., what the UK earns on foreign investments) is unaffected. This effect is magnified by sterling's corresponding depreciation. A depreciation increases the value of UK foreign assets (which are worth more when converted from foreign currency into the weaker domestic currency), but has less effect on UK liabilities (a relatively greater share of which are denominated in domestic currency). These effects work in the opposite direction during periods of reduced UK risk, however, such as in 2013-2014. During this

period, UK domestic risk fell and sterling appreciated, reducing UK net foreign returns in 2013 and shifting wealth abroad. There is not yet enough data to estimate the effects of the most recent period of heightened UK risk and corresponding sterling deprecation, at least some of which is likely related to the EU referendum.[47] Our results suggest, however, that any such increase in domestic risk and associated sterling depreciation would likely be to improve the net total returns on the UK's NIIP. (Of course, this simple analysis does not consider the separate impact of any capital outflows or other longer-term economic effects, which could easily offset these positive valuation effects.)

Moving to the global risk shock, an increase in global risk has historically been associated with a fall in the total returns on UK assets relative to the returns on its liabilities. This corresponds to the above discussion that UK foreign assets have been riskier than its liabilities over most of the period in the analysis. For

shock is assumed to increase relative UK uncertainty and lead to a sterling depreciation, but has no effect on US risk or interest rates. See Forbes, Hjortsoe and Nenova (forthcoming) for more detail.
[47] See discussion in March minutes of the Monetary Policy Committee.

instance, in the years just before the crisis from 2005 to 2007, low global risk was associated with higher returns on UK assets (which tended to be riskier) relative to on UK liabilities, contributing to positive gains in the NIIP position and current account. In contrast, the sharp increase in risk aversion in 2008/9 had a negative impact on the net returns of the UK NIIP – as the returns on its riskier assets plummeted (relative to the returns on its safer liabilities). Unfortunately, data is only available through Q3 2015, so it is impossible to estimate the impact of recent global market volatility and uncertainty on the net total returns on the UK's external asset position. Given the recent shift in the composition of UK assets and liabilities (towards higher equity liabilities relative to debt liabilities), however, the negative impact of a rise in global risk on UK net foreign wealth is likely to be lower today than estimated for previous episodes.

IV.   Conclusions

The UK current account deficit has been on the radar screen of policy makers and investors over the last few years as it deteriorated from -3.3% of GDP in 2012 to -5.1% in 2014. Current account deficits of this magnitude can increase a country's vulnerability to a sudden stop in capital flows and correspond to a difficult economic adjustment as the deficit "reverses." However, characteristics of the UK economy and the factors behind the deterioration in its current account deficit could indicate less vulnerability than suggested by the headline statistics. My goal today has been to reassess these vulnerabilities in the face of any sharp increase in global risk and uncertainty (such as occurred earlier this year linked largely to China and other emerging markets) as well as in the face of any increase in UK risk and uncertainty (such as can occur in the run-up to an important vote). Do vulnerabilities related to the UK current account deficit increase in the face of increased global or domestic risk? Or could financial channels linked to the current account provide a type of risk-sharing that mitigates any negative impact on the UK?

To answer these questions, it was necessary to extend the standard analysis of vulnerabilities related to current account deficits to incorporate a series of financial channels. Most analysis tends to treat current accounts as being synonymous with trade balances, and thereby not incorporating how financial flows and financial adjustments can mitigate – or aggravate – the risks related to large current account deficits. For example, most analysis ignores the fact that income on past international investments can now be even more important in determining changes in the current account than trade flows – as has recently been the case for the UK. Movements in exchange rates and the relative returns on international assets and liabilities can also generate substantive shifts in current account balances and international investment positions – shifts which are critically important in assessing vulnerabilities. These forces have become much more important today, especially in the UK, due to greater financial globalization. The dynamics of international financial adjustment have fundamentally changed relative to the days of the Suez crisis.

The analysis shows that these international financial channels (and especially the currency composition of its international positions) play an important role in how UK international financial vulnerabilities are affected by heightened global and domestic risk. The UK has historically experienced net capital losses and lower returns during periods of heightened global risk – although this effect may change due to recent shifts in UK

cross-border portfolios (with a greater share of liabilities in the form of risk-sharing FDI and equities). On the other hand, the UK has historically experienced net improvements on its international exposures during periods of heightened UK risk; the current composition of UK cross-border portfolios suggests that this risk sharing should continue and help mitigate any negative impact of increased domestic risk on UK international exposures.

Of course, this should not be taken to suggest that heightened domestic risk does not present any concerns for the broader UK economy. This risk sharing primarily occurs through changes in the valuations of international exposures, which would have minimal impact on domestic incomes and growth.[48] Much of the adjustment occurs through sterling depreciation – which would in itself incur other adjustments – and its impact on inflation would need to be evaluated based on the factors behind the depreciation.[49] For example, if a depreciation resulted from heightened uncertainty corresponding to a short-term increase on risk aversion, there would be less impact on UK inflation than if the uncertainty corresponded to weaker UK or global supply (such as through reduced investment). Perhaps most important, the estimated magnitude of this potential risk sharing through international exposures is moderate and would be unlikely to fully counteract the many negative effects from increased uncertainty on the broader UK economy. This is especially true over longer periods of time. This analysis only focused on adjustments through fast-moving financial channels and does not make any attempt to model the longer-term, real adjustments that would occur through slower-moving channels, such as trade. Similarly, by focusing on these shorter-term adjustments, it does not encompass the effects of a prolonged period of heightened uncertainty on the cost for the UK to borrow in sterling; investors would likely also adjust and this could lead to changes to the current structure of the UK's international investment portfolio.

What are the implications of all of this for monetary policy? Not much in terms of my vote this month. Instead, the point of this analysis was to better understand UK vulnerabilities related to its current account deficit in different scenarios of heightened UK or global uncertainty. There is no shortage of events – both today and in the future – that could prompt this type of increase in risk and uncertainty. Better understanding how this vulnerability could evolve in the UK, and especially how these dynamics have changed over time, is an important part of sound policymaking.

And finally, the answer to the other question you have all been waiting for – the question with which I began my comments. Is the UK current account deficit "risky" or "risk-sharing"? It is both.

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[48] See, for example, Carroll et al. (2011) and Case et al. (2013) for some recent estimates.
[49] See Forbes, Hjortsoe and Nenova (2015), which shows that the shock behind an exchange rate movement will determine the impact on import prices and inflation.

Appendix: Additional Decomposition of Valuation Effects and International Investment Income

Forbes, Hjortsoe and Nenova (forthcoming) use the same terminology and framework developed in Section II.B, to show that the valuation effects (ΔVAL) and primary international investment income ($INVINC$) can be further decomposed into:

$$\Delta VAL_{i,t} = \sum_c \left[\frac{A_{i,t-1}^c}{\Delta ER_{i,t}^{A,c}} \left(kg_{i,t}^{A,c} - \left(\Delta ER_{i,t}^{A,c} - 1 \right) \right) \right] - \sum_c \left[\frac{L_{i,t-1}^c}{\Delta ER_{i,t}^{L,c}} \left(kg_{i,t}^{L,c} - \left(\Delta ER_{i,t}^{L,c} - 1 \right) \right) \right] \qquad \text{(A1)}$$

$$INVINC_{i,t} = \sum_c \left[\frac{A_{i,t-1}^c}{\Delta ER_{i,t}^{A,c}} r_{i,t}^{A,c} \right] - \sum_c \left[\frac{L_{i,t-1}^c}{\Delta ER_{i,t}^{L,c}} r_{i,t}^{L,c} \right] . \qquad \text{(A2)}$$

The $r_{i,t}^{A,c}$ ($r_{i,t}^{L,c}$) is country i's nominal rate of return on last period's stock of foreign assets, $A_{i,t-1}^c$ (liabilities, $L_{i,t-1}^c$) – excluding exchange rate effects. The $kg_{i,t}^{A,c}$ ($kg_{i,t}^{L,c}$) is the rate of capital gain on external assets (liabilities). The $ER_{i,t}^{A,c}$ ($ER_{i,t}^{L,c}$) is the exchange rate index reflecting the currency composition of country i's asset holdings (liabilities) of class c, and $\Delta ER_{i,t}^{A,c} \equiv \frac{ER_{i,t}^{A,c}}{ER_{i,t-1}^{A,c}}$ and $\Delta ER_{i,t}^{L,c} \equiv \frac{ER_{i,t}^{L,c}}{ER_{i,t-1}^{L,c}}$. The exchange rate is defined as the cost of one unit of domestic currency in units of foreign currencies so that the exchange rate falls (increases) when the domestic currency depreciates (appreciates).

The exchange rate plays a particularly important role in assessing the role of valuation effects and investment income, both through its direct impact on the value of net foreign assets (which affects valuation gains and investment income), but also because any movements in the exchange rate might mitigate or emphasize the impact of capital gains on the NIIP. Accurately measuring the various exchange rates for different asset and liability classes if the currency denomination differs is critically important to capture the corresponding valuation effects.

Consider the broad-based depreciation of sterling following the financial crisis between 2007 and 2009. Had the UK's proportion of assets and liabilities denominated in foreign currency been identical, the exchange rate indices on assets and liabilities would have moved symmetrically. Because more assets than liabilities were denominated in foreign currency, however, the exchange rate on assets depreciated more than the exchange rate on liabilities – increasing the value of those assets and reducing the negative impact of the fall in capital gains. That is, through its impact on the valuation on assets, the depreciation increased the NIIP. The depreciation, however, had the opposite impact on the liabilities side; it increased the value of liabilities denominated in foreign currencies, and mitigated the fall in capital gains on liabilities. But given that more of the UK's foreign assets than liabilities are denominated in foreign currencies, the exchange rate on assets depreciated more than the exchange rate on liabilities. Therefore – given similar capital gains and initial positions across assets and liabilities – the broad-based exchange rate depreciation had the effect of

increasing the return on assets more than the return on liabilities. Overall, the depreciation contributed positively to the NIIP through the valuation channel.[50]

Figure A1 shows that although these different measures of the exchange rate on assets and liabilities generally move together, they can diverge at times. It shows the standard exchange rate index for the UK calculated using the standard formulation of trade weights, as well as the financial-weighted exchange rate index for UK assets and liabilities. From 2007q1 to 2009q1, the exchange rate on foreign assets depreciated by 7% more than that on liabilities. Conversely, from 2013 to 2015, the exchange rate on foreign assets appreciated by more than that on foreign liabilities, contributing to the deterioration in the NIIP position, investment income (and therefore current account) over this period.

Figure A1: Sterling exchange rate indices - trade-weighted vs financial (based on assets and liabilities currency composition)
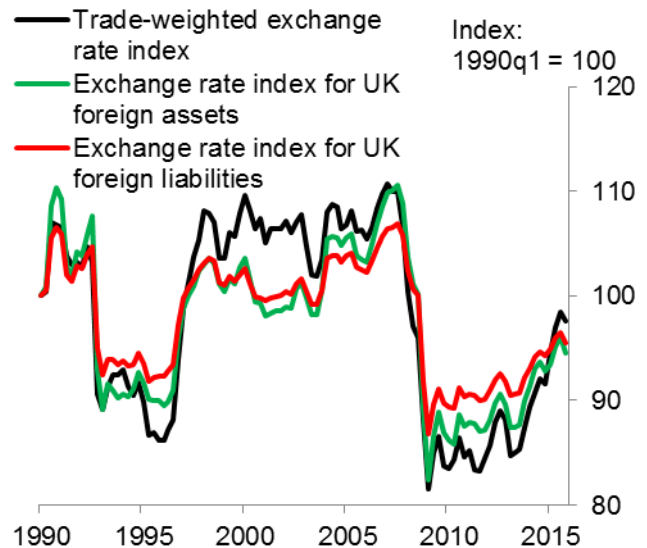
Source: Benetrix et al. (2015), IMF International Financial Statistics, Datastream and own calculations.

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[50] This has also been shown in Gourinchas, Rey and Treumpler (2012).

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