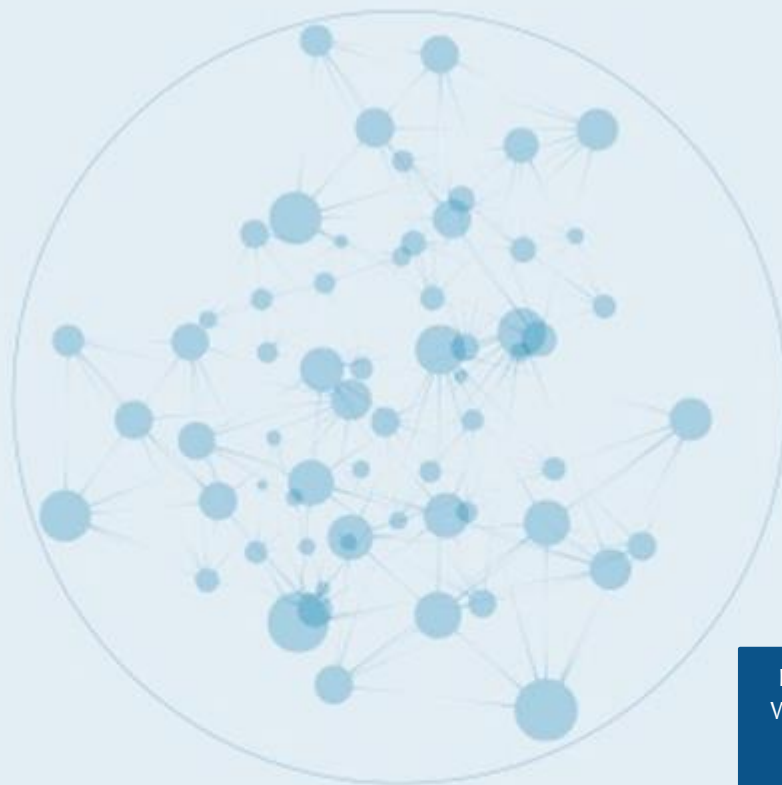




GOVERNMENT SUBSIDIES TO THE GLOBAL FINANCIAL SYSTEM

A Preliminary Exploration



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The UNEP Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it published its final report, *The Financial System We Need*, in October 2015 and is currently focused on actions to take forward its findings.

More information on the Inquiry is at: www.unep.org/inquiry and www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach mahenau.gha@unep.org.

About the project

This report was authored by students of the Johns Hopkins University School of Advanced International Studies (SAIS), working with their faculty advisor, Professor Irving Mintzer, as part of a practicum project in the Energy, Resources and Environment Program. SAIS practicum teams partner with key organizations to address critical international environmental policy challenges. In this case, the practicum team collaborated with the United Nations Environment Programme (UNEP) Inquiry into the Design of a Sustainable Financial System to examine the value of subsidies from governments to the private sector global financial system and to understand how these subsidies affect the effort to achieve the United Nations Sustainable Development Goals (SDGs). UNEP provided financial support to the project team and guidance in furtherance of this practicum project.

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Any remaining errors or gaps in understanding are solely our responsibility.

Comments are welcome and should be sent to nick.robins@unep.org.

This paper builds on an earlier, unpublished draft titled *Government Subsidies to the Global Financial System – A Review of the Literature*.

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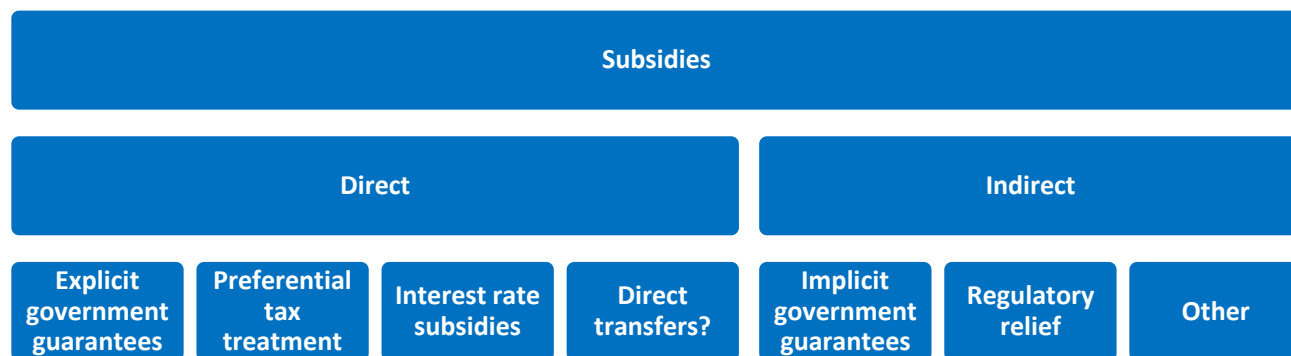
Executive Summary

The primary goal of the present study is to understand the character and to estimate the total value of subsidies, both direct and implicit, from governments to the private sector institutions that make up the global financial system.

A secondary objective of this analysis is to deepen our understanding of the extent to which the existing suite of subsidies to the private financial sector tends to advance or obstruct the global effort to achieve the United Nations Sustainable Development Goals (SDGs).

In carrying out this preliminary exploration of subsidies to private sector financial institutions globally, we conducted an extensive review of the peer-reviewed literature, seeking to identify credible estimates of the most important subsidies to each of the major communities of institutions that comprise the ecosystem of the global financial services sector. Where several such estimates were found, the most comprehensive estimate based on sound data has been selected. In cases where credible estimates were only available for a small number of countries, we have tried to extrapolate those estimates to the remainder of each community in the financial services sector ecosystem, based on a comparison of the relative size of the institutions for which data was available compared to the full community of institutions that receive a similar form of subsidy.

Figure 1: Typology of Subsidies Utilized in this Study



In order to estimate the total value of the annual direct and implicit subsidies that governments provide to these communities within the global financial system, we have relied on estimates that can be found in the peer-reviewed open literature. We have not done any new primary research.

The principal financial entities that we have focused on as potential beneficiaries of government subsidies include:

- systemically important financial institutions (SIFIs),
- the shadow banking system,
- offshore financial centres, and
- large banks and financial institutions benefiting from quantitative easing (QE)

Our initial and preliminary estimates for the value of the annual worldwide support (direct plus implicit subsidies) to private financial sector institutions in these communities within the global financial system is shown in Table 1.

Table 1: Annual Subsidies to the Private Financial Sector

	Billions per year (est.)
Systemically important financial institutions	US\$155-295
Shadow banking system	US\$2
Offshore financial centres	US\$190-255
Beneficial impacts of quantitative easing	US\$41-84
Other subsidies (to public institutions, sovereign wealth funds, pension contribution tax breaks)	US\$133-357
Approximate total	US\$521-993

The full impact of many of the policies that create subsidies to the global private financial sector cannot be estimated today with a high degree of confidence. We believe that the range suggested above is conservative and significantly underestimates the true value of these subsidies. For some of the identified subsidies, the data needed for quantification is either incomplete or inconsistent for many countries. Therefore, in the context of this study, in all cases where the value of a subsidy cannot be quantified with confidence or the data is sparse and incomplete, we have arbitrarily assigned a value of zero to that particular element of subsidy.

How might subsidies to the private financial sector affect sustainable development outcomes?

While the notion of taxpayers footing the bill for reckless investment choices at major banks evokes major distaste in the wake of the financial crisis, implicit government guarantees will probably remain a factor in efforts to maintain financial stability, as environmental factors begin to pose material risks to the financial sector. Ensuring that the provision of direct and indirect subsidies is clearly linked to prudent management of these risks – including through entrenchment in industry-standard risk management practices, such as stress testing – remains as an important policy priority.

Importantly, many countries around the world have already begun to take steps to link the provision of financial sector subsidies with sustainable development, through the use of mechanisms such as interest rate subsidies, tax treatment, and calibration of capital requirements:

- in Bangladesh, banks providing loans for green projects can access the Bangladesh Bank’s refinancing arrangements and pass on preferential interest rates to their clients;¹ and
- in Indonesia, OJK, the financial regulator, is also considering variations in capital provisioning that allow reductions in core capital requirements for institutions that engage in green lending.

In certain countries, monetary authorities are also indirectly subsidizing financial decisions that support sustainability outcomes: the Central Bank of Bangladesh, for example, allows banks that provide loans to key green sectors to treat these as high-quality assets in terms of their assessment of each institution’s Capital adequacy, Asset quality, Management quality, Earnings, Liquidity and Sensitivity to market risk (CAMELS).

Efforts to align existing subsidies with the needs of a low-carbon, climate-resilient economy could allow governments to achieve the aspirations outlined in their Intended Nationally Determined Contributions (INDCs) without any incremental burdens being placed on public treasuries. Furthermore, such a redirection of the existing subsidies could allow governments to achieve these goals without exposing important financial institutions to any significant increase in risk.

Areas for further research

The accounting presented in this study is preliminary and necessarily incomplete. We believe that the range of values presented above for subsidies to the private financial sector is neither exhaustive nor completely accurate. Indeed, the choices we have made in constructing the component elements of these estimated values are conservative and deliberately understate the actual value of the identified subsidies. We offer the current estimate to promote a broader and more detailed discussion of these issues and to stimulate further investigations at the national level by others. Clearly, this is an important but unexplored area of research that may prove to have implications for fiscal, financial and environmental policies.

A preliminary agenda for action in this area could consider the following research priorities:

Expand the scope of analysis: A better understanding of subsidies to the demand-side of finance is needed, including of subsidies to individual households, which could be leveraged to support sustainable development outcomes. In addition, subsidies to corporate enterprises that promote the efforts of companies to raise capital as debt borrowed from financial institutions rather than as equity invested in their core businesses create implicit subsidies to those financial institutions. We also believe that it is important to assess the extent to which preferential tax treatment offered by many governments for individual retirement savings accounts acts as an implicit subsidy to the financial institutions that manage these accounts and sell the financial products held in them by individual consumers.

Expand the geographic range of coverage: Our analysis has highlighted significant gaps in the geographic coverage of relevant data on subsidies to different asset classes in the global financial system. Some of the most important gaps are found in the information available concerning the financial systems in major developing countries and emerging markets, including Brazil, China, India, Indonesia, Mexico, Nigeria, Saudi Arabia and South Africa. Going forward, more targeted analyses are needed to characterize flows of subsidies in these systems, and to identify potential leverage points for alignment with sustainable development goals in the context of broader green finance initiatives.

1 Introduction

1.1 Context

Financing sustainable development requires a significant reallocation of capital flows towards the critical national priorities that are represented by the UN Sustainable Development Goals to which 195 countries have now agreed. In addition, achieving these goals will require a significant shift of investment flows away from unsustainable and polluting assets and activities. Although sufficient funding is available in the roughly US\$300 trillion in assets that make up the global financial system, current asset allocations and investment patterns are not adequate to meet the investment needs required in the transition to a low-carbon, climate-resilient economy.

Recent estimates of the unmet demand for these investments suggest that substantial amounts of additional capital will be required:

- The United Nations Conference on Trade and Development (UNCTAD) has estimated that US\$5-7 trillion per year will be required to finance the Sustainable Development Goals.²
- Investment in low-carbon solutions (particularly energy efficiency) must be scaled up to the tune of over US\$1 trillion per year.³

Importantly, in addition to driving investment towards the deployment of low-carbon infrastructure and technology, the financial system will have to reallocate capital away from unsustainable investments (including high-carbon assets). Large amounts of investment capital will be required to support developing countries in implementing a clean development strategy that is able to meet the needs of currently underserved populations in those countries, and strengthen the resilience of their economies in the face of impending environmental shocks.

Overcoming these challenges will require a systemic response that combines both market and policy innovations. Many leaders have recognized that mobilizing capital for the transition will require reforms in the real economy (such as efforts to price environmental externalities, including carbon emissions). But it is also becoming clear is that a continuation of traditional regulation and policy strategies within the financial sector may exacerbate existing barriers to that transition within the real economy.⁴

In the wake of the financial crisis, interest and attention to the use of public balance sheets to bolster economic growth increased – as evidenced most clearly by the introduction of successive financial stimulus packages through the process of QE. At the same time, pressing sustainability challenges are reshaping the post-crisis stimulus narrative into one of achieving sustainable economic growth. Many countries are now questioning how best to harness the financial system in order to deliver sustainable development. A broad landscape of innovation is emerging, as described in the UNEP Inquiry's global report, *The Financial System We Need*.⁵ Nonetheless, the very significant public financial support historically provided to the private financial services sector has not been assessed from a sustainable development perspective.

Today, the growth, sustainability and financial stability agendas are increasingly interlinked. In that context, questions of policy coherence and alignment are emerging as central priorities for governments, financial regulators and financial institutions. A key emerging question is how the range of existing channels of public intervention in the financial system – including the use of public balance sheets to subsidize financial institutions – may have implications for sustainable development outcomes, as well as implications for the broader objectives of financial stability and economic growth.

Since the financial crisis, governments have become increasingly intertwined with the private financial and capital markets through a complex network of direct and indirect subsidies. These subsidies take a variety of forms and benefit a range of different actors, including financial intermediaries, along with the owners and managers of capital. This paper examines the structure and distribution of these subsidies in order to present a preliminary estimate of annual flows of such subsidies at a global level. It explores how these flows may impact sustainable development outcomes. In so doing, this paper attempts:

- to understand the character and estimate the total value of the subsidies to a defined group of financial institutions, identifying where key knowledge gaps exist;
- to hypothesize how such subsidies may introduce distortions to financial markets that may affect capital allocation choices, thereby affecting the capacity of the financial system to respond to the needs of a low-carbon, climate-resilient economy; and
- to assess what next steps need to be taken to advance thinking in this critical area, which is likely to increase in relevance as the global economy continues to be faced with continued threats to growth, the increasing implementation of unconventional monetary policies and mounting sustainability challenges.

1.2 Methodology and Scope of Analysis

The analysis in this paper is based upon a thorough exploration of research in institutional and peer-reviewed academic literature and interviews with experts in the field. We have completed a preliminary analysis of the main categories and cumulative annual value of these subsidies.

From a geographic perspective, this initial exploratory study has attempted to be global in scope. We have drawn upon the existing resources in the peer-reviewed economic literature that provide estimates of the total value of subsidies by governments globally to specific types of institutions within the financial services ecosystem. We realize that these published estimates have relied upon data that is most robust for institutions in the subset of industrialized countries that make up the G8. Major gaps exist in the data concerning many of the additional countries that comprise the G20 group of the world's largest economies. We understand the unavoidable inaccuracies resulting from this approach but we believe that the countries for which good data exists provide the majority of subsidies to the private financial services sector globally. Nonetheless, we hope in the future to sharpen this analysis as improved data becomes available with respect to the full suite of G20 countries and for large emerging market economies.

The estimates discussed below in some cases have extrapolated from published analyses to the world as a whole. The sections that follow explain the approach used in each case to extrapolate from existing data to the global level for each type of subsidy. These extrapolations are necessarily inexact and inaccurate as representations of the global situation “on the ground.” However, we believe that they are adequate to provide an initial sense of the scale of subsidies that have been provided by governments. We hope that these estimates will provoke a critical reaction among our readers and help us, as a result, to tease out more extensive data that can only improve the accuracy and resolution of this sketch of the financial support provided by national governments to private sector financial institutions.

Because of limitations of time and resources, we have constrained this preliminary exploration to estimates that are available in the peer-reviewed published literature. We hope that if broader interest in this subject is stimulated by this paper, additional resources will become available to supplement previously published analyses with new and additional primary research on this subject.

For the purposes of this preliminary exploration, we adopt the UNEP Inquiry's definition of the financial sector that includes banks, securities markets, pension and mutual funds, insurers, market infrastructures, central banks, as well as regulatory and supervisory activities.⁶ We exclude state-owned financial sector entities, which we define as those in which the state or a public sector entity holds 50 per cent or more ownership interest. However, we recognize that subsidies to the broader public – including consumers of financial services, and individual savers – also affect the allocation of capital and the business prospects of private sector financial institutions.

We have focused our attention in this preliminary exploration on analysing one particular element of the current financial system – the distribution of subsidies by national governments to the private financial sector – which may lead to suboptimal capital allocation to the real economy. Specifically, we assess:

- **systemically important financial institutions:** commonly characterized as banks deemed too big to fail;
- **the shadow banking system:** Institutions such as private equity funds, hedge funds and other types of asset managers that are outside of the conventional banking regulatory system;
- **offshore financial centres,** which are used to domicile special purpose vehicles (SPVs) in order to shelter the resulting income from conventional taxation; and
- **large banks and other financial institutions** whose operations are facilitated or whose operating costs are lowered as a result of macroeconomic and fiscal policies known as **quantitative easing**, which maintain low interest rates and allow banks to exchange their assets for cash at valuations that are significantly above market prices.

We realize that our estimates are preliminary and that much has been left out. For example, we have not tried to quantify the value of the tax deduction that many businesses receive for interest paid on debt. This special tax treatment tips the scales for companies toward taking on debt (mostly borrowed from banks and private capital markets) in lieu of raising additional equity capital in the firm. Absent information on the value of this effect, we have treated this implicit subsidy as having zero value. However, since the value of the debt subsidy could be significant, a deeper investigation into this area would be prudent.

This analysis has some limitations. We have not explored the extent of subsidies that are provided by governments to major financial institutions that may be characterized by varying degrees of state ownership, including sovereign wealth funds or major public pension funds. This is again an important area for further research.

Box 1: Subsidies to the demand side – individuals and consumers

Mortgage tax relief – one of the largest single sources of subsidy in a number of countries – encourages individual consumers to buy their homes rather than to rent them. Some evidence suggests that one effect of these subsidies is to encourage consumers to take out larger loans in order to buy more expensive and more spacious homes than they would have done in the absence of these subsidies. The net effect of these subsidies to individual home buyers is thus to expand the volume of loans successfully marketed to the public by agencies that offer home mortgages (usually commercial banks and building societies) without requiring any marketing or other expense by the financial institution.

The indirect impact of the (larger) purchases stimulated by this subsidy includes increased greenhouse gas emissions because (1) residential energy demand tends to increase with the size of the home; (2) energy efficiency measures are not usually financed with the home mortgage; and (3) a house tends to consume more energy than would have been used by the same family unit if they occupied an apartment. In part, that increase in demand is due to a psychological effect of the subsidy, pushing individual consumers to buy detached, single-family homes rather than to rent a flat in an apartment block. Partly, this effect is due to the increased physical size of the free-standing homes that can be purchased at any given level of consumer income. And partly, the increase in energy demand is due to the fact that, in many countries, investments in energy efficiency measures have not traditionally been financed as part of the home mortgage, but have required the recipient to finance any investments in energy efficiency measures through secondary financings, usually at a higher interest rate.

The net effect of the mortgage tax deduction is to enlarge the annual turnover of the financial institutions and to increase energy consumption by residential consumers, pushing national economies away from the transition to the low-carbon, climate-resilient development path.

2 Understanding Financial Sector Subsidies

2.1 Defining Subsidies

For the purposes of this study, we have sought to define the term “subsidy” in a way that incorporates a recognition of the value of both direct monetary transfers from a government agency to a private firm as well as the value of the indirect effects that a policy or regulation may have in expanding the business opportunities (or reducing the risk of loss) for a private firm. The most comprehensive subsidy definition we have found in this regard, and the one closest to our concept, is that of the World Trade Organization (WTO), which defined it as follows:⁷ “A subsidy shall be deemed to exist if:

(a)(1) There is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as a “government”), i.e., where:

- (i) a government practice involves a direct transfer of funds (e.g., grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g., loan guarantees);
- (ii) government revenue that is otherwise due is foregone or not collected (e.g., fiscal incentives such as tax credits); ... or
- (iii) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments; ...

and

(b) a benefit is thereby conferred.”

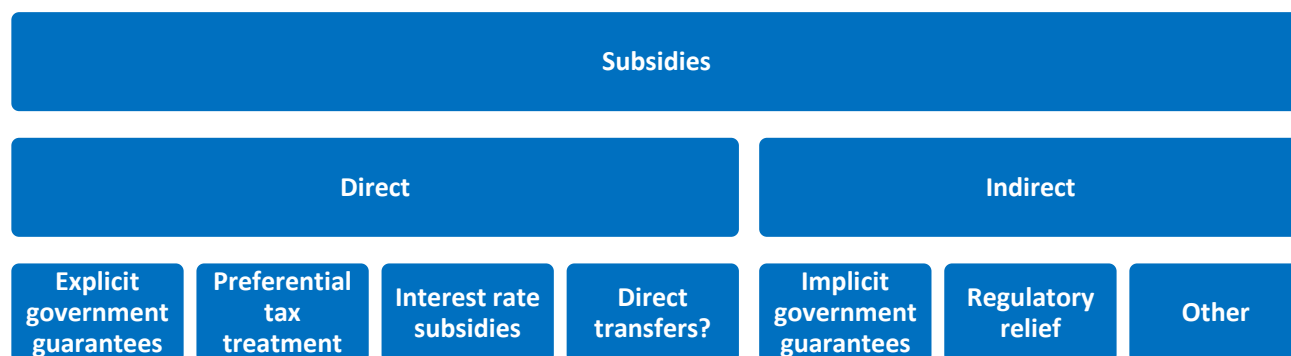
2.2 Subsidy Typology and Analytical Framework

Governments may subsidize financial institutions in different ways. Different types of subsidies can be broadly characterized into two categories:

- **Direct or explicit subsidies**, including financial transfers, exemptions, preferential treatments, and guarantees or other obligations with that have discernible values
- **Indirect or implicit subsidies** that convey a tangible benefit to a business, but do not involve direct transactions.

Figure 2 below illustrates the basic typology of subsidies utilized in this preliminary exploration.

Figure 2: Typology of Subsidies Utilized in this Study



2.2.1 Direct Subsidies

Direct subsidies have a value that is relatively easy to discern, often reflected in identifiable budgetary outlays or explicit financial obligations. Direct subsidies may include a range of measures, such as:

Explicit government guarantees: The government guarantees to pay a private entity's liability if that entity fails to do so, or to ensure the performance of some obligation by the private entity if it faces a specified peril.⁸ With this type of explicit guarantee, the value is easily calculated: the loss incurred by the guaranteed creditors in the event of default is either specifically limited or reduced to zero. The government providing the guarantee often recoups the cost in advance by levying a charge for it. Deposit insurance for which the governments charge retail banking institutions an agreed fee is an example of this type of explicit subsidy.

Preferential tax treatment: The tax code has long been a tool for governments to bestow benefits on chosen sectors or companies. Financial sector firms benefit significantly from specialized tax treatments in many countries. These can include special rules that allow income generated from financial transactions to be recognized for tax purposes as capital gains and taxed at special (lower) rates, rather than at the higher income tax rates applied to ordinary income.

Interest rate subsidies: If interest rates for a given entity are set below the rates at which the entity could raise funds in the open market, they can be considered as a subsidy. In most cases, these are rates that do not reflect the default risk of the borrowing entity. By decreasing these costs for a borrower, the lender (central bank) usually aims to accelerate economic growth. In the case of banks, the desired net effect of a below-market interest rate is to decrease the overall cost of financing for the favoured financial institutions. In turn, this can lead to a decrease in the cost at which they can lend money to other market actors. Examples of an interest rate subsidy to the financial sector include the preferred overnight borrowing rate and the reverse repo rate offered to these institutions by their country's central bank or monetary authority.

2.2.2 Indirect Subsidies

Indirect subsidies are often implicit by nature and, as such, cannot be directly linked to a discernible value. In certain cases these subsidies may arise as second-order effects of direct government intervention (including subsidization) elsewhere in the economy. Indirect subsidies include measures such as:

Implicit government guarantees: In the case of an implicit government guarantee, the government promotes the expectation that the private firm will have financial “backstopping” in the event of a crisis. The widespread recognition of this financial backstopping allows the identified firm to borrow money comparatively cheaply because financial markets assume the protected firm is a better risk than their competitors that do not receive the same guarantee. The size of the resulting funding advantage depends on the scale of the bank and the competitiveness of the sector. Implicit government guarantees have emerged as one of the most widely recognized and contentious forms of subsidy in the wake of the financial crisis, specifically in terms of institutions deemed systemically important.⁹ Such a guarantee may include an assured “bail-out” from the public balance sheet should the firm encounter solvency or liquidity issues that might otherwise force it into bankruptcy, posing systemic risk to the financial system and the economy as a whole.

Regulatory relief: Governments use various regulatory instruments to guide the behaviour of financial markets, many of which may convey implicit benefits to financial firms.¹⁰ For instance, government competition policy may increase industry concentration, limiting the number of firms operating in a particular market segment by creating high barriers to entry for other domestic and foreign entities. Government-subsidized industry concentration can lead to increases in prices charged by financial institutions.

2.3 Overview of Literature and Key Gaps

Few studies have focused on comprehensively estimating the value of government subsidies to the private financial sector. Following the 2007-2008 crisis, the bail-outs of major financial institutions, often described as “emergency relief,” have garnered significant attention in public debate and academic literature. The majority of studies in this area have focused on calculating the support that governments extended to major banks during the crisis in the form of direct, short-term liquidity support; guarantees on liabilities; recapitalization of large banks as well as other financial firms; and asset-relief measures such as the Troubled Asset Relief Program (TARP) in the US. In response to the immediate crisis, approximately US\$600 billion were committed to rescue the private financial sector in the United States alone.¹¹ The EU has compiled and published data on the crisis-related state aid provided to the financial sector since 2008. According to its calculations, the governments extended a total of EUR734.7 billion between 2008-2013 in form of recapitalization, asset relief and other liquidity measures and guarantees to the financial sector.¹²

The volume of literature focused on the reaction to the crisis dwarfs research on other, non-emergency relief measures such as subsidies that governments have extended to banks as part of their routine operations. Studies of non-crisis measures have focused largely on the problem of SIFIs – institutions that have been identified by their governments as “too big to fail” (TBTF). Other types of direct and indirect subsidies – including bank deposit insurance and tax relief for investment in pension plans – have not yet received much analytical attention (see Section 8).

The present study aims to fill a part of that gap by aggregating data on these and other non-crisis forms of subsidies that are routinely provided to the private financial sector in response to normal or ordinary market conditions.

Our review suggests both a lack of full transparency on the range of subsidies governments provide in different jurisdictions to private financial sector institutions, and significant data gaps. While certain international organizations (including the OECD) maintain some data on different aspects of government support to the financial sector, there does not appear to be any globally comprehensive data available on subsidies – especially where chains of financial intermediation span jurisdictional boundaries as in the case of offshore financial centres (see Section 5.1). The ensuing gaps in the data available on flows of subsidies make it difficult, if not impossible, to calculate an accurate total for the value of all government subsidies to the private financial services sector globally.

3 Subsidies to Systemically Important Financial Institutions

3.1 Characterizing SIFIs

In 2011, the Financial Stability Board (FSB) advanced a definition of TBTF institutions that has been widely accepted in the wake of the 2008 financial crisis. It suggests that TBTF status is appropriately applied to systemically important financial institutions, typically those institutions whose size, market significance, and interconnectedness suggest that their exposure during a period of continuing distress or failure would undermine (or substantially damage) the financial system of the host nation. A disorderly unwinding of even one of these institutions could threaten to infect the rest of the general economy of the nation in which that institution primarily operates.¹³ Several international and national bodies have adopted this FSB approach to SIFIs in order to help governments identify members of this class of institutions.

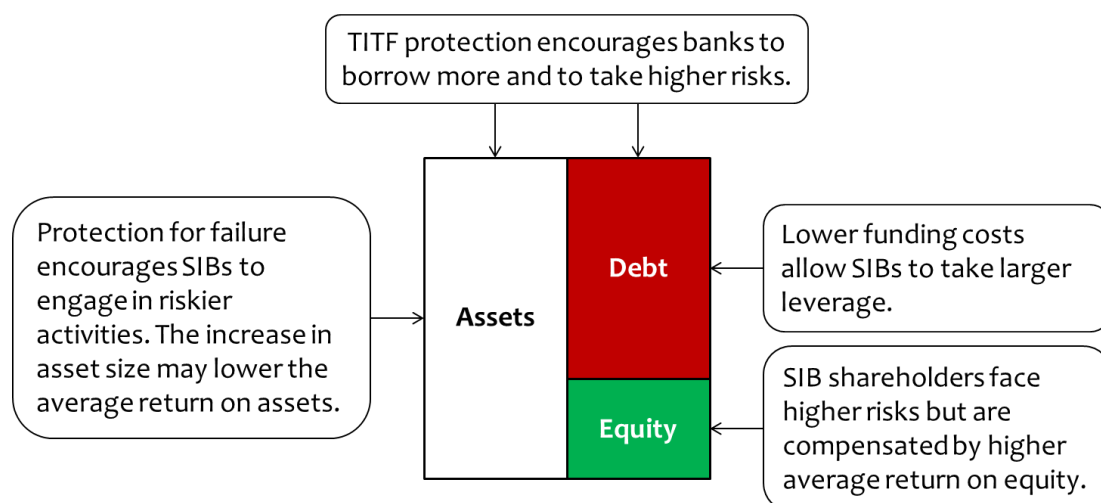
TBTF institutions are believed to have the ability in times of crisis to propagate stress into the broader global financial system. Even during “normal” times, these institutions introduce the following notable distortions into international financial markets:

- The implicit government backing that TBTF status provides to SIFIs gives them a lower cost of funds in the capital markets and, therefore, a competitive advantage.
- Because of their size and importance in their respective domestic economies, TBTF institutions can exert political power and thus be in a position to influence domestic banking regulation in ways that lead to an additional competitive advantage.

The FSB, the Basel Committee on Banking Supervision (BCBS) and the International Association of Insurance Supervisors (IAIS) have been designated by the G20 to come up with a methodology for identifying SIFIs and address the issue with a set of policies. An entity identified as a SIFI is subject to increased supervision and regulation by home and host-country regulators. Currently, 39 institutions worldwide are classified as globally systemically important financial institutions (G-SIFIs). These include 30 globally systemically important banks (G-SIBs)¹⁴ and nine globally systemically important insurers (G-SIIs).¹⁵ In addition, the FSB is currently undergoing an assessment to include non-bank, non-insurer, global systemically important financial institutions (NBNI G-SIFIs), such as investment funds and market intermediaries, into the framework.

Subsidies to SIFIs generally take the form of implicit guarantees from national governments. These implicit guarantees assure the general public that SIFIs will not be allowed to fail financially. They have the effect of significantly reducing the operating costs of these institutions, primarily by lowering their cost of debt. In addition, the same implicit guarantees can lower the cost of attracting equity to capitalize the selected institutions, creating the perception that the value of their equity will not be allowed to vanish in situations that would lead other institutions to declare bankruptcy. These effects may result in banks seeking to grow faster and larger than may be justified by economies of scale, engaging in riskier activities¹⁶ (see Figure 3).

Figure 3: Effects of implicit guarantees on SIFIs



Note: SIB = systemically important bank; TITF = too important to fail.

Source: IMF, 2014¹⁷

3.2 Subsidy Typology and Quantification

The majority of studies that assess these implicit guarantees to SIFIs employ a quantitative approach to evaluating whether investor’s treatment of financial institutions is altered by the generalized perception that governments would bail out certain banks – the SIFIs – in the event that they confront a crisis of solvency or liquidity, and that others would not be similarly rescued.¹⁸ A substantial volume of analysis attempts to address this issue empirically.

Existing empirical research to identify and quantify the value of this TBTF subsidy in different geographies has applied a range of methods to the analysis. Most of the existing work focuses on OECD member states, as they have the most sophisticated financial systems and often the most highly developed systems of state aid. These studies all analyse funding cost differentials, either on the equity or debt side. They assess the costs of raising capital for large banks (SIFIs) to the costs of capital for small banks (non-SIFIs) and try to assess whether this differential can be attributed to the creditor’s belief that these institutions are likely to be rescued in case of distress.

Most of this research analyses funding costs associated with different **liability types** (such as senior debt, subordinated debt and deposits) in order to gauge whether bigger institutions pay lower risk premiums and if these reduced risk premiums should be attributed to a lower credit risk sensitivity due to TBTF perceptions among creditors. The most insightful analyses include assessments of credit ratings for banks, comparing the ‘stand-alone credit profiles’ and ‘with support ratings’ that major credit ratings agencies (Standard & Poor’s, Moody’s and Fitch) provide. This approach to estimating the funding cost advantage enjoyed by large banks seems compelling, as it is based on a direct, empirically observable link between credit ratings and funding costs. Rime (2005),¹⁹ GFSR (2014),²⁰ Packer and Tarashev (2011),²¹ Estrella and Schich (2011),²² as well as the OECD study by Schich and Lindh (2012),²³ all adopt this approach.

Another way to estimate the funding cost advantage enjoyed by TBTF institutions is to analyse their deposit funding costs. So far, this method has been only applied to assess the value of the subsidy in the US market. Jacewitz and Pogach (2014)²⁴ created the newest variant of this approach to measuring the funding cost advantage. They analysed US branch-level deposit rate data for money market deposit

accounts during the 2006-2008 period, and found that the largest banks pay 39 basis points, or 0.39%, lower risk premiums on their deposit insurance than do smaller banks. Another 2014 study commissioned by the Clearing House, Kumar and Lester (2014) applied the same methodology to the period from 2010-2012 and found that the deposit funding cost advantage be just over four basis points.²⁵

While most of this research is US-centric, studies have attempted to identify and quantify the scale of this subsidy in other OECD markets, especially in the current member states of the EU. Schich and Lindh (2012) use a sample of 17 European countries to show that these implicit guarantees have increased between 2008 and 2011, and Kloeck (2014) aggregates eight academic and institutional studies that separately focused on implicit subsidies to SIFIs in the EU.

Although most analyses focus on banks' cost of debt, some studies have examined differences in the cost of attracting **equity** investments for large and small banks. These studies look at default expectations, as illustrated by market spreads for credit default swaps (CDS), to assess whether these spreads are smaller for SIFIs. Schweikhard and Tsesmelidakis (2012) provided the most thorough assessment of the value of the implicit subsidy by analysing CDS spreads.²⁶ Their study estimates theoretical CDS prices during the global financial crisis and calibrates them against the period in the US prior to 2007. They find that the theoretical premiums in credit spreads were lower during the crisis than actual premiums, which is interpreted as evidence of support of their hypothesis. Most studies find a peak during times of financial crisis in the expectation of financial support for SIFIs by governments and conclude that the extent of this perception decreases with time, as governments take steps to counter this perception.

Estimates of the value of government subsidies to SIFIs show large spreads in results. For instance, studies estimating the subsidy in the UK provide a range between GBP6 billion and GBP100 billion. In a study prepared for the Bank of England, Sowerbutts and Noss (2012)²⁷ provide an explanation of such a range of results, attributing the variance to different modelling assumptions and information content (such as the absence of an observable price). They conclude that, the range of results notwithstanding, all measures point to significant transfers of value from the public sector to financial sector institutions.

The most comprehensive assessment of implicit subsidies in the wake of the global financial crisis has been undertaken by the IMF, which employs both contingent claims analysis and ratings-based approaches to assess implicit guarantees to G-SIBs. Taking these two estimates together, the IMF finds government protection across major financial markets during 2011-2012 to be in the range of **US\$155-295 billion**, with a midpoint value of US\$225 billion.²⁸

4 Subsidies to the Shadow Banking System

4.1 Characterizing the Shadow Banking System

According to the FSB, the shadow banking system (SBS) can be considered as “credit intermediation involving entities and activities that sit outside the conventional banking system”.²⁹ Different definitions of the SBS have been put forward by other institutions, including the NY Fed.³⁰ Under most definitions, the SBS is considered as a system of institutions that conducts similar credit intermediation functions to those provided by traditional banks, but is removed from traditional methods of public sector oversight. Examples include money market mutual funds, SPVs used to house structured investments (much like the ones that started the 2008 financial crisis), asset-backed commercial paper conduits, the “repo market”, private equity funds and hedge funds.

The evolution and dynamics of the SBS has been a primary concern to international financial supervisory institutions in the wake of the global financial crisis. The FSB’s annual Global Shadow Banking Monitoring report contrasts the increasingly stringent regulatory measures imposed on banks with the lack of controls on institutions in the SBS. This report, together with other analytic work by the FSB, remains the foundational source of knowledge concerning the SBS. The third annual Global Shadow Banking Monitoring report explores a variety of activity areas that are now recognized as part of the global SBS, including securities lending and the overnight “repo market”.^{31,32} The 2014 IMF Global Financial Stability report concludes that shadow banking activity was closely linked to bank losses during the global financial crisis of 2007-2008.³³

The FSB estimated the size of the SBS to approximately US\$71.2 trillion globally in 2013.^{34,35} The SBS has grown significantly since the global financial crisis, expanding from an estimated US\$59 trillion in 2008 to an estimated US\$67 trillion at the end of 2011, before increasing another 6% by 2013.³⁶

Box 2: Defining the boundaries of the SBS

The FSB approach to estimating the size of the SBS faces some important limitations: the hedge fund subsector remains significantly underestimated because offshore financial centres, where the vast majority of hedge funds are domiciled, are excluded by definition from the report. The FSB assumes that shadow banking is more prevalent in developed countries, and thus excludes by definition offshore financial centres, particularly those in developing countries. Other analysts have suggested that the SBS may be much larger, perhaps as big as US\$100 trillion in 2012.³⁷ We have chosen to use the FSB estimate for the size of the SBS because it is conservative, yet appears to be the most comprehensive and robust option. Additional future research is needed to improve accuracy in estimates of the size of the SBS.

In terms of distribution, shadow banking is most prominent in the US, but it is also present (and appears to be growing) in other countries as well.³⁸ The 2014 Global Shadow Banking Monitoring report concludes that global non-bank financial intermediation is split almost equally between financial activity in the US (33%), the Euro area (34%) and the rest of the world (33%).³⁹

4.2 Subsidy Typology and Quantification

The principal channel for subsidies to the SBS is through direct preferential tax treatment – specifically, the ability of SBS institutions to provide financial intermediation services, without exposing their clientele to traditional taxation regimes. In addition, SBS institutions operating through SPVs may be able to

benefit from the implicit risk perception subsidy associated with the SPVs used to insulate investors involved in complex ventures (see Section 5 for additional discussion of SPVs).

For the purposes of this paper, we set boundaries between the SBS and the community of offshore financial centres and SPVs. As a consequence, this paper leaves the activity of offshore financial centres, SPVs, money market funds (MMFs) and other unregulated (or lightly regulated) lending institutions to a separate chapter, following a practice used by the US Congressional Research Service to estimate the SBS subsidy only in terms of the benefits to private equity funds and hedge funds. Although some analysts consider private equity funds, hedge funds, offshore financial centres, SPVs, money market funds (MMFs) and other unregulated (or lightly regulated) lending institutions to all be parts of the SBS, the present paper draws a distinction based on the ability to measure the level of subsidization between conduits and asset managers. Conduits or channels are flows of funds, while asset managers represent the stock of funds. It is a different challenge methodologically to measure subsidies to asset managers compared to subsidies to flows of funds.

The US Congressional Research Service has calculated the value of the subsidy to private equity funds and hedge funds in the US by estimating the value of the preferential income tax treatment that their highest-earning managers receive through the designation of their income as “carried interest” rather than as ordinary income.⁴⁰ The Joint Committee on Taxation of the US Congress has noted that if this provision had been changed in accordance with the proposal originally contained in the Tax Reform Act of 2014, the adjustment would have raised US\$3.1 billion in revenue in the FY2014-FY2023 budget window. By comparison, had this change been implemented as proposed in President Obama’s FY2014 Budget Proposal, it would have raised US\$17.4 billion in revenue in the FY2014-FY2023 budget window.⁴¹ The presence of this subsidy is significant, as approximately 33% of the global SBS is linked to financial activity within the US. Data gaps on other jurisdictions complicate extrapolation to a global scale.

Based on this, we conclude that the subsidy to the SBS in the US has a value of approximately US\$2 billion per year.

Box 3: Understanding the relationship between the SBS and OFCs/SPVs

Shadow banking can take many forms, from alternative investment managers and interbank lending, to SPVs and MMFs. Recent history provides us with an example of how much the SBS has become embedded into the global financial system. Over the last several decades, the US and European financial systems had come to rely increasingly on repurchase agreements markets and securitization financing, through conduits and structured finance vehicles. Due to this shift in global markets and the ample global liquidity, MMFs and other funds benefited from increased inflows. Until 2007, shadow banking activities in the US and Europe had grown very rapidly, but many of them collapsed during the financial crisis. Eventually, rapidly rising defaults in the US housing market in 2007 led to a liquidity crisis in the markets for securitized assets and asset-backed commercial paper (ABCP), as investors refused to roll over their holdings amidst concerns about the solvency and liquidity of the underlying assets.

On 16 September 2008, the “Reserve Primary Fund”, a MMF, “broke the buck” (meaning that the value of a US\$1 share in the fund had a liquidation value of less than US\$1) after it wrote off the value of its Lehman Brothers holdings in the aftermath of Lehman Brothers’ bankruptcy the previous day. Since MMFs are perceived by investors to be as safe as bank deposits, the possibility of losing one’s principal caused a panic among MMF investors, who started withdrawing their money from MMFs in

droves, creating a situation akin to a “run” on a bank.

That Lehman Brothers’ bankruptcy caused the Reserve Primary Fund to break the buck showcases the significance of a financial failure by one of the MMFs. They are big providers of short-term lending to banks through the purchase of ABCP. The run on MMFs led to a parallel run on banks, especially European banks, propagating the distress throughout the core of the global financial system.

In short, estimating the value of the subsidy to the SBS solely in terms of the income tax revenue foregone by governments through the provision of special and preferential treatment for the income of senior investment managers captures only one element of the subsidies that exist for players actively engaged in the SBS. In many cases, the companies that use SPVs and offshore financial centres are at the heart of the SBS and can earn additional benefits from the tax treatment given to these investment platforms. The benefits accrue to these entities in the form of the lowered cost of their operations that result from removing pivotal (and often risky) activities from the balance sheets of their parent companies. No comprehensive analysis has been found in the peer-reviewed literature that estimates the value of these implicit benefits to large corporations that engage in financial transactions through the vehicles provided by the SBS.

5 Subsidies to Offshore Financial Centres

5.1 Characterizing Offshore Financial Centres

The amount of capital that passes through offshore financial centres (OFCs) has seen unanticipated growth and extraordinary performance in recent years.⁴² The regulatory and analytic communities have not yet converged on a single definition of the limits to what constitutes an offshore financial centre. Some analysts define the OFC geographically, as being a “city, area or country that has made a conscious effort to attract offshore banking business”.⁴³ Others define an OFC functionally, as an entity that hosts financial activities that are “separated from major regulating units by geography and or legislation”.⁴⁴ It is quite difficult to apply these definitions uniformly as the OFC industry is rapidly changing, and since places like Delaware, London, and Miami boast impressive “onshore”, but substantially unregulated, financial services institutions.^{45,46} The situation is further complicated when large hedge funds and private investment funds facilitate the movement of capital to and from these centres, crossing state and national boundaries as a matter of course.⁴⁷

The activities that OFCs participate in vary on a wide spectrum of legality. The mere existence of an OFC does not make it illegal, and OFCs have in fact many legal uses, such as protecting investments from government (mis)appropriation in countries with weak legal rights.⁴⁸ As another example, investors from multiple countries can pool their money in an offshore account and take legal advantage of lower taxation to facilitate capital flows. During the past two decades, OFCs have become a key component facilitating the financial flows of multinational corporations among their operating companies and affiliates.

Although using an OFC may have completely legal and ethical motivations, these institutions have been misused in a number of instances for purposes that are blatantly illegal, including facilitating money laundering,⁴⁹ creating safe haven for the proceeds of institutionalized corruption and committing tax evasion. By taking advantage of the weak regulatory structure of OFCs, companies can park corporate profits and avoid capital gains tax. The use of OFCs by extremely wealthy individuals as vehicles for tax avoidance, including by parking small fortunes in secret accounts and shifting their tax burden from a high- to low-tax jurisdiction, is generally illegal.

The present study seeks to establish a definition of OFCs that exposes their linkages with private investment funds. These linkages are not merely incidental characteristics, but rather are the primary driver behind the expanding use of OFCs: the OFC acts as a platform that allows its clients to escape tax liability from their parent state. By our observation, OFCs share certain common characteristics, including supporting an above-average number of asset-holding vehicles registered in the host area (in order to maximize collection of capital flows); operating primarily in conjunction with non-state clients; and consistently pressing forward the political case for low (or, if possible zero) taxation, as well as minimal regulation and oversight.

Given this context, we choose to follow the approach of the IMF, defining an OFC as:

- “a centre where the bulk of financial sector activity is offshore on both sides of the balance sheet (i.e., the counter-parties of the majority of the financial institutions’ liabilities and assets are domiciled elsewhere);
- where the transactions are initiated elsewhere; and
- where the majority of the institutions involved are controlled by non-residents.”

Thus, OFCs tend to be characterized by:

- Jurisdictions that have relatively large numbers of financial institutions engaged primarily in business with non-residents;
- Financial institutions with external assets and liabilities out of proportion to those in which financial intermediation is intended primarily to finance domestic economic activity; and
- Centres of activity that provide some or all of the following services:
 - low or zero taxation;
 - moderate or light financial regulation;
 - banking secrecy; and
 - anonymity.^{50,51}

5.2 Subsidy Typology and Quantification

The principal subsidy associated with OFCs is preferential tax treatment, whose value can be extrapolated from data assessing how much tax revenue is lost to governments from the use of OFCs. Several reporting methods have been used in the literature to investigate the total value of dollars held in OFCs, including work by the Tax Justice Network (TJN),⁵² the US PIRG Education Fund,⁵³ and UNCTAD.⁵⁴

TJN estimates that US\$190-255 billion is lost per year due to the use of OFCs. They estimate this value by applying a 30% capital gains tax rate on capital gains of 3% raised from assets and transactions by OFCs that represent approximately US\$21-32 trillion.

US PIRG⁵⁵ estimates the total value of tax revenue lost due to OFCs is equivalent to US\$150 billion. Utilizing Government Accountability Office's method, it organized a list of the 50 most widely used tax havens, which were identified, based on three sources. It analysed Fortune 500 companies and examined "Exhibit 21" of each company's 10-K report, which is filed with the Securities and Exchange Commission (SEC). However, the data collected from these reports is incomplete and systematically underestimates the total value as only 50 of the Fortune 500 companies report this exhibit to the SEC. The other 450 companies take advantage of an existing tax loophole to avoid the reporting requirement, characterizing the filing of Exhibit 21 as "not practicable".

SEC Exhibit 21 requires the filing entity to characterize each subsidiary of the reporting company, including where that subsidiary is registered. The value of sales or revenue and net income reported by each subsidiary can normally be found in the footnotes of the 10-K filing, listed under assets "permanently reinvested" or using a similar classification. The tax benefit received by these companies is the tax bill that would have been due if the money had been repatriated to the US. Understanding that companies receive "dollar-for-dollar" credits for taxes paid to foreign governments, the effective rate of tax savings for the reporting company that is achieved through the use of the OFC is the difference between 35% (the US corporate tax rate) and the tax rate paid to the foreign government, which averages 6.7%.

UNCTAD⁵⁶ estimates the lost tax revenue from the use of OFCs to be approximately US\$100 billion. They have devised an "offshore investment matrix," which sets boundaries between special purpose entities (SPEs) and "tax havens" (as defined by the OECD). To measure the total amount of taxes paid by all foreign corporations, UNCTAD looks at government revenue data, then "zooms in" to separate the

domestic and foreign corporate contributions (a portion of which can be assigned to foreign affiliate contributions). UNCTAD notes the inherent uncertainty in this method but claims that it does not significantly affect the resulting estimates. Other analysts disagree with this last conclusion.

Given the admitted persistent uncertainties in the UNCTAD methodologies, we have chosen to rely on the TJN estimate of US\$190-255 billion of lost tax revenue as a relevant proxy for subsidies associated with OFCs.

6 Subsidies Due to Quantitative Easing

6.1 Characterizing Quantitative Easing Measures

Quantitative Easing is the term used to describe the implementation of a monetary policy by which “central banks create money by buying securities, such as government bonds, from banks... [thereby swelling] the size of bank reserves in the economy by the quantity of assets purchased.”⁵⁷ Purchasing these securities puts more currency into circulation (by increasing bank reserves) and takes less liquid assets off the market. These asset purchases by central banks are intended to lower the cost of borrowing, boost asset prices, and push up inflation in the general economy toward the central bank’s target rate.⁵⁸ Since 2008, the Federal Reserve, the Bank of England, the Central Bank of Japan and the European Central Bank have all implemented QE-type policies as reflationary measures.

6.2 Subsidy Typology and Quantification

QE qualifies as a subsidy for our purposes in this study. First, when a central bank announces a willingness to make large-scale purchases of government bonds and other securities, it is pushing up demand for those securities and thus boosting their value. The value of the identified securities may be further inflated as the central bank negotiates a purchase price that is above the then-current market value of the selected securities. The consequences of this process can create windfall profits for incumbent owners of those assets. Second, certain banks in the US⁵⁹ and the UK⁶⁰ are designated as primary dealers or “market makers.” These entities serve as counter-parties to the central banks in implementation of the QE policy and they benefit directly in the form of higher fee income generated from the increasing volume of QE-driven securities purchases by the central bank.⁶¹

The resulting price increase decreases the yield on the underlying bonds and may “inflate the price of other assets such as equities”.⁶² Altogether, these purchases amount to a significant subsidy: large quantities of central bank funds are used to intervene in the open market, distorting asset prices, and raising bank revenues. These purchases simultaneously increase prices in a range of other classes of assets, benefitting pre-existing owners of those other assets as well. Finally, the spillover effect of QE is to drive up trading volumes at large financial intermediaries, thereby increasing trading fees for other firms in the private financial sector.

The effect of QE on bond yields has not been analysed much. Joyce *et al.* estimate that in 2009, the Bank of England’s QE purchases led to a decrease of approximately 100 basis points in British government bond yields.⁶³ This drop in bond yields is the result of higher bond prices, which benefit pre-existing owners of these assets. Greenham *et al.* attribute most of the change in bond yields to the “portfolio rebalancing channel,” through which higher demand for British government bonds increases their prices, decreases their yields, and drives up the price of other assets as sellers of those UK bonds to the Bank of England pivot and reinvest in other assets.

Gagnon *et al.* estimate the subsidy to the private financial services sector in the US to be in a similar range.⁶⁴ This range is based on a time series analysis of the “historical variation ... in the term premium” of 10-year government bonds as well as an event-study “analysis of Federal Reserve communications” that compares past market reactions to official communications to the then-current market reactions that were observed during periods of QE. Both of these analyses yielded similar results for the impact of QE in the US, suggesting “the US\$1.725 trillion in announced purchases reduced the 10-year premium by between 38 and 82 basis points.”⁶⁵

Applying the method of Gagnon *et al.*, we find that the subsidy provided by quantitative easing can be estimated to be between US\$41-84 billion for those who held US Treasury bonds from December 2008 through March 2010. However, a similar estimate of the value in Pounds Sterling is not possible for the UK due to a lack of data on the value of outstanding government debt of different vintages at the end of the relevant time period. Absent systematic inquiry into the effects of quantitative easing on bond yields in Japan and the eurozone, it is very difficult to quantify the full effects of QE for these markets. Additional analytic work that examines the effect of QE there, along with an analysis of the impact of these policies on the prices of assets other than bonds, would be necessary to estimate with confidence the total value of the QE subsidy. We suspect that a conservative estimate of the total global value of QE subsidies since the global financial crisis could be in the range of US\$60-120 billion, based on the relative sizes of the QE programme in the US, compared to the programmes implemented in other major market zones, including the UK, the EU and Japan. However, given the paucity of the available data, for the purposes of this preliminary exploration, only the estimated value of the subsidy that has been calculated by Gagnon *et al.* for the US alone will be included in our results.

7 Sovereign Wealth Funds

Sovereign wealth funds (SWFs) are important financial actors that have had increasing influence on global financial markets since their inception. The ten largest SWFs reported combined assets under management (AUM) of approximately US\$5.4 trillion, according to recent estimates by the SWF Institute.⁶⁶

7.1 Defining a Sovereign Wealth Fund

Nonetheless, a major challenge in studying SWFs lies in defining the members of this community in a clear, consistent and exhaustive fashion. In a Report to Congress, the US Treasury defined a Sovereign Wealth Fund as “a government investment vehicle which is funded by foreign exchange assets, and which manages those assets separately from official reserves”.⁶⁷ The Santiago Principles⁶⁸ define SWFs “as special purpose investment funds or arrangements, owned by the general government. Created by governments for macroeconomic purposes, SWFs hold, manage, or administer assets in ways designed to achieve national financial objectives, and employ a set of investment strategies which include investing in foreign financial assets.”⁶⁹

Reports by the IMF suggest that the activities of SWFs can have significant macroeconomic effects on the general economy of a country. In some cases, SWF investments are large enough to alter national fiscal policy via funding and withdrawals. Indeed, SWFs can affect the inflation rate in their host economy as a consequence of fluctuations in fiscal revenues. The IMF presents a scenario where an SWF that undertakes riskier investments may cause an increase in real interest rates, coupled with a depreciation of the national currency. In addition, large investments abroad, followed by the repatriation of returns by SWFs can sometimes alter the exchange rate between countries.⁷⁰ These effects can be profound, given the unregulated character of SWF investments. Baily, of the Brookings Institution, argues that SWFs do not necessarily always make investments on the basis of purely economic gain, but rather, on occasion have made large capital investments based on the political imperatives of the national governments whose assets they invest. In some cases, these capital movements can temporarily distort the true market value of a good, a service, or a technology in a particular target country.⁷¹

7.2 Quantifying the Subsidies to Sovereign Wealth Funds

The principal subsidy to SWFs comes as special and preferential tax treatment applied to the gains earned from investment of their core capital and AUM. In many countries, gains made from investments by SWFs are taxed at a lower rate than the ordinary income or capital gains that are earned by other types of firms. Very little analysis has appeared in the peer-reviewed published literature that has estimated the value of the preferential tax treatment afforded to SWFs. In fact, very little literature attempts to define what constitutes a tax exemption as applied to an SWF. Some analysts have suggested recently that the subsidy represented by special and preferential tax treatment for SWFs effectively lowers domestic tax revenue in the countries where these funds invest, while increasing inequalities.⁷²

SWF annual reports can provide primary source data on the location and types of fund investments. These reports break down the respective portfolios of the SWF by asset class. They may indicate the geographic and sectoral distribution of investments by the SWF. Taken together, this information could be very useful in investigating whether or not a particular set of investments is expected to capture a tax exemption.

Unfortunately for our purposes, no binding standards are in place for annual financial reporting by SWFs. As a consequence, the level of detail found in SWF annual reports is inconsistent, with great variability in the degree of transparency that individual funds provide. Only three SWFs describe the geographic distribution of their investments systematically and in detail. Among these three, the boundaries of the geographic regions used to segregate their investment are not consistent. A similar problem of inconsistency arises in the reporting by SWFs of assets by type or sector. Thus, finding comparable data on SWF investments remains very difficult.

In an attempt to quantify the subsidy level that SWFs enjoy internationally, we first collected data from the nine largest SWFs, which comprise 78% of the total wealth held in all such funds, as estimated by the Sovereign Wealth Institute. We aggregated the publically available annual reports for each of these nine SWFs (apart from the Kuwait Investment Authority, which does not release its reports), applied a simple calculation based on;

- an average capital gains rate;
- the percentage of investments in tax-exempt countries;
- the percentage of qualified assets held by the SWF in tax-exempt asset classes; and
- an average tax rate.

These elements were then converged to estimate the total subsidy received by SWFs from tax exemptions (see the appendix for a more detailed extrapolation methodology). By consolidating information from the limited set of available annual reports, we estimate that the specialized and preferential tax treatment received by SWFs has an approximate value in the range of US\$31-80 billion annually.

8 Private Retirement Account Subsidies

8.1 Characterizing Private Retirement Account Tax Breaks and the Role of Pension Funds

In order to rely less on government-sponsored programmes such as Social Security in the US, governments employ a variety of tools to encourage individuals to save for their retirement years.⁷³ To encourage such savings, most OECD governments offer private individuals targeted incentives in the form of tax-preferred savings plans (in the US for example, these plans include “401(k)” plans, “Keogh” plans, traditional individual retirement accounts (IRAs), and “Roth” IRAs).

These retirement savings plans allow employees to make plan contributions with pre-tax dollars. The contributions, and any investment returns that they may earn, are not taxed as income until they are withdrawn from the protected account.⁷⁴ This tax treatment allows “savers,” as a class of consumers of financial products, not only to defer, but also potentially to decrease their tax liability, because most individuals can expect to be in a lower tax bracket after they retire than they were in during their working lives and when they first deposited the funds into the protected account.⁷⁵

Because the tax liability of this class of consumers is lowered through this process, the tax-deferred savings plans should be classified as a subsidy to the qualifying individuals. However, the policy or programme that provides incentives for the individual to save for retirement also acts as a subsidy to the private financial service sector firms offering the accounts that receive special treatment under these plans. Indeed, the institutions that manage the growing pools of money saved by individual consumers for their retirement experience an enlarged business presence without making any special effort to attract new depositors.

In OECD countries, the total value of pension funds’ assets topped US\$25 trillion in 2014. The US, the UK, Australia, Canada and the Netherlands have the largest assets and together account for US\$21.7 trillion, or 85% of OECD pension funds’ assets.⁷⁶ Each of these countries offers some form of policy-based incentives to encourage retirement savings by individual consumers.

8.2 Quantifying the Subsidy: Account Holders

The most common way of estimating the value of subsidy associated with retirement saving is by determining the value of revenue forgone by the government due to the tax deferrals offered to individual consumers. The calculation of the value of the revenue forgone depends on the structure of the taxation regime in each individual country and is monitored by governments. The basic concept is that the value of the subsidy is equivalent to the amount of revenue forgone by the government or the amount that the government would have to expend as a direct expenditure to motivate the same level of savings.⁷⁷ Indeed, some countries such as Australia include an estimate of the revenue forgone as part of their national accounting statements.

The OECD regularly collects data on tax expenditures for retirement savings. According to the latest data available, from 2009, countries that spend more than 0.8 per cent of GDP on tax breaks for private pensions include, in descending order: Australia (2%), the United Kingdom (1.4%), Canada (1.3%), Ireland (1.2%), Iceland (1.1%), Norway (0.9%), Germany (0.9%) and the United States 0.8%.⁷⁸

We have collected latest data on cost of government concessions related to pension contributions from official national statistics and national treasuries for the United Kingdom, the United States, and Australia. For countries where this data was not readily available we have used the 2009 OECD data to estimate the value of the tax break.

United Kingdom

In the UK, the largest subsidy comes in the form of pension tax relief. In this scheme, a contributor to the savings account can deduct the amount saved from income in the same year. According to the latest figures published by the UK Statistics Authority, the amount forgone in 2014 by the government was approximately GBP34.3 billion, or US\$54.27 billion.^{79,80}

Australia

Australia's Treasury publishes its tax expenditures statement every January. This statement provides a line item for the cost of government tax concessions. According to the latest figures, the amount of revenue forgone in 2014 was AUD29.7 billion per year, or US\$25.74 billion per year.⁸¹ The two major components of this cost are the revenue forgone on private pension fund investment earnings and revenue forgone on employer contributions.

United States

In 2013, the Joint Committee on Taxation⁸² estimated that the US government forgoes US\$100 billion in income taxes annually.⁸³

The existing 401(k) policy also subsidizes financial intermediaries. As they are administered by individual investors, 401(k) plans are more likely to be invested in actively managed funds that “on average... perform no better or worse than the market as a whole,” but charge higher fees, thereby imposing a higher burden on savers in terms of fees to fund managers.⁸⁴ However, the percentage of fees diverted to active fund managers directly as a result of individual control over 401(k) plans is difficult to estimate, and the total cost of fees to active managers (estimated at US\$13 billion in 2006) is small enough to be less numerically significant than other subsidies.⁸⁵

8.3 Quantifying the Subsidy: Fund Managers

Existing retirement concessions also subsidize financial intermediaries and pension fund managers, imposing a burden on savers. Pension fund managers in OECD countries charge each participating member a fee to cover all their costs. Different pension systems charge fees in different ways. The volume of fees varies by countries and depends on the level of competition in the market as well as by the investment strategy of the pension fund. A majority of OECD countries report the operating costs of the pension fund industry on an annual basis. Some pension funds publish these data on a regular basis. For instance, the Dutch Pensioenfond: Zorg & Welzijn (PF ZW), the second largest Dutch pension fund, calculated that management fees accounted for EUR811 million, or US\$1.034 billion only in 2014, 0.54 per cent of AUM.^{86,87}

While the US does not report this data to the OECD, estimates of the management fees retained by pension funds can be extrapolated from various resources. Some governmental bodies have carried out an investigation to estimate the dollar value of the management fees charged by private sector fund managers on government-sponsored pension funds. For instance, the Office of the Comptroller in New York State has calculated that these management fees accounted to US\$2.023 billion between 2004 and 2014, which represents 0.2 per cent annually.⁸⁸

According to the Center for Retirement Research at Boston College, the national average for management fees on state-sponsored retirement plans is 0.42 per cent of the total value of assets in the fund. With a total of US\$3.8 trillion of assets in 2013, this translates to nearly US\$16 billion in management fees.⁸⁹ State-sponsored retirement plans represent approximately 20 per cent of the total of US\$18.9

trillion of pension assets in the US.⁹⁰ Assuming the same average management fee is applied, this implies approximately US\$79 billion dollars in management fees would have been collected by US pension fund managers.

Table 2: Estimated Subsidies to Individuals and Institutions from Retirement Savings Accounts

Country	Subsidy to Account Holders (Revenue Forgone Method)	Subsidy to Managers
Australia	US\$26 billion/year (2014) ⁹¹	US\$11 billion/year (2013)
Canada	US\$17 billion/year	US\$5 billion/year
Germany	US\$27 billion/year	US\$0.49 billion/year (2013)
United Kingdom	US\$54 billion/year	US\$6 billion/year (2013)
United States	US\$100 billion/year (2014) ⁹²	US\$79 billion/year (2013)
Total	US\$224 billion/year	US\$102 billion/year

9 Conclusions and Next Steps for Research

9.1 Conclusions

This paper has identified some of the principal ways in which governments subsidize the private financial sector. Based on an extensive review of the peer-reviewed literature, our preliminary estimate of the value of these subsidies by governments to the private financial sector is on the order of US\$521-993 billion per year.

Table 3: Annual Subsidies to the Private Financial Sector

	Billions per year (est.)
Systemically important financial institutions	US\$155-295 billion
Shadow banking system	US\$2 billion
Offshore financial centres	US\$190-255 billion
Beneficial impacts of quantitative easing	US\$41-84 billion
Other Subsidies (to public institutions, SWFs, pension contribution tax breaks)	US\$ 133-357 billion
Approximate total	US\$521-993 billion

We believe that the range suggested above is conservative and significantly underestimates the true value of these subsidies. The full impact of many of the policies that create subsidies to the global private financial sector cannot be estimated today with a high degree of confidence. For some of the identified subsidies, the data needed for quantification is either incomplete or inconsistent for many countries. Therefore, in the context of this study, in all cases where the value of a subsidy cannot be quantified with confidence or the data is sparse and incomplete, we have arbitrarily assigned a value of zero to that particular element of subsidy.

9.2 How Might Subsidies Affect Sustainable Development Outcomes?

Considering the diverse range of support mechanisms at play within the global financial system, it is understandable that a given type of financial sector subsidy might be considered inherently positive or negative for sustainable development outcomes. In general, targeted efforts linked to priority green investment areas – such as fiscal incentives for green lending – are likely to be beneficial to the achievement of the UN’s Sustainable Development Goals.

While the notion of taxpayers footing the bill for reckless investment choices at major banks evokes major distaste in the wake of the financial crisis, implicit government guarantees will probably remain a factor in efforts to maintain financial stability, as environmental factors begin to pose material risks to the financial sector. Ensuring that the provision of direct and indirect subsidies is clearly linked to prudent management of these risks – including through entrenchment in industry-standard risk management practices, such as stress testing – remains as an important policy priority.

Importantly, many countries around the world have already begun to take steps to link the provision of financial sector subsidies with sustainable development, through the use of mechanisms such as interest rate subsidies, tax treatment, and calibration of capital requirements:

- in Bangladesh, banks providing loans for green projects can access the Bangladesh Bank’s refinancing arrangements and pass on preferential interest rates to their clients;⁹³ and

- in Indonesia, OJK, the financial regulator, is also considering variations in capital provisioning that allow reductions in core capital requirements for institutions that engage in green lending.

In certain countries, monetary authorities are also indirectly subsidizing financial decisions that support sustainability outcomes: the Central Bank of Bangladesh, for example, allows banks that provide loans to key green sectors to treat these as high-quality assets in terms of their assessment of each institution's Capital adequacy, Asset quality, Management quality, Earnings, Liquidity and Sensitivity to market risk (CAMELS).

Efforts to align existing subsidies with the needs of a low-carbon, climate-resilient economy could allow governments to achieve the aspirations outlined in their INDCs without any incremental burdens being placed on public treasuries. Furthermore, such a redirection of the existing subsidies could allow governments to achieve these goals without exposing important financial institutions to any significant increase in risk.

9.3 Areas for Further Research

The accounting presented in this study is preliminary and necessarily incomplete. We believe that the range of values presented above for subsidies to the private financial sector is neither exhaustive nor completely accurate. The choices we have made in constructing the component elements of these estimated values are conservative and deliberately understate the actual value of the identified subsidies. We offer the current estimate to promote a broader and more detailed discussion of these issues and to stimulate further investigations at the national level by others. Clearly, this is an important but unexplored area of research that may prove to have implications for fiscal, financial and environmental policies.

A preliminary agenda for action in this area could consider the following research priorities:

Expand the scope of analysis: A better understanding of subsidies to the demand-side of finance is needed, including of subsidies to individual households, which could be leveraged to support sustainable development outcomes. In addition, subsidies to corporate enterprises that promote the efforts of companies to raise capital as debt borrowed from financial institutions rather than as equity invested in their core businesses create implicit subsidies to those financial institutions. We also believe that it is necessary to assess the extent to which preferential tax treatment offered by many governments for individual retirement savings accounts acts as an implicit subsidy to the financial institutions that manage these accounts and sell the financial products held in them by individual consumers.

Expand the geographic range of coverage: Our analysis has highlighted significant gaps in the geographic coverage of relevant data on subsidies to different asset classes in the global financial system. Some of the most important gaps are found in the information available concerning the financial systems in major developing countries and emerging markets, including Brazil, China, India, Indonesia, Mexico, Nigeria, Saudi Arabia, and South Africa. Going forward, more targeted analyses are needed to characterize flows of subsidies in these systems, and to identify potential leverage points for alignment with sustainable development goals in the context of broader green finance initiatives.

Appendix: Analysing the Subsidies to Sovereign Wealth Funds

A number of factors affect the value that a SWF receives due to preferential tax treatment on its investments. These factors include the total AUM, capital gains, percentage invested in tax-exempt countries, asset allocation, growth rate, and tax rate. To calculate the value of this preferential tax treatment, the present study applied the equation below to estimate the tax burden faced by the SWF:

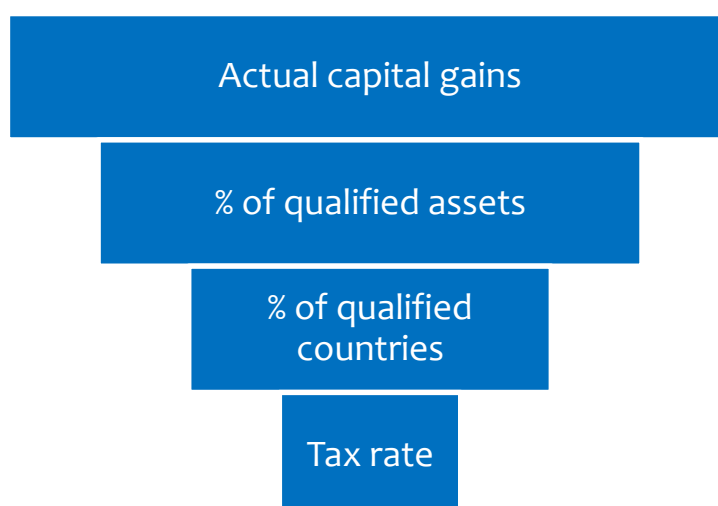
Tax savings = AUM x Average capital gains x % invested in qualified assets x % invested in qualified countries x Tax rate

Definitions:

AUM	These are the total assets under management for a SWF. When available, capital gains are used. When capital gains are not available, we multiply AUM by average % capital gains to estimate what gain a SWF earned.
Capital gains	The total value of capital gains earned by a SWF. When not available, an average of the available data is assumed.
Average capital gains	This figure is used as an estimate for capital gains for SWFs without data. It is calculated by averaging capital gains/AUM for SWFs with data, and 10-year rate of return for countries without.
Qualified assets	Assets that have only been invested in securities and bonds.
Qualified countries	Assets that have been invested in the US and UK only.
% invested in qualified assets	This is the fraction of total dollars invested in tax-exempt investments, such as securities and bonds, excluding commercial activity. Flaws are mentioned below.
% invested in qualified countries	This is the fraction of total dollars invested in countries that provide the tax exemption. We use the US and UK as the two primary countries, since the data here is more uniform and readily available.
Tax rate	The tax rate we assume to be 30% across the board.

Due to limitations in data for SWFs, we must follow a simplified approach based on the available data. This is essentially a filtering out process that goes from total AUM to the SWF subsidy. The rationale is that total AUM needs to go through several “filters” so that we can arrive at the correct number. We must differentiate between countries that do offer a tax benefit to SWFs and those that do not. In our analysis, we make the assumption that only the US and UK offer this tax benefit, because the financial reporting of the SWFs considered does not distinguish among geographies other than the US, the UK and emerging markets. Second, we filter out those classes of investments that do not provide tax exemptions. Here, we assume that only capital gains from stocks and bonds offer an exemption and exclude commercial activities, which is commensurate with the actual tax laws in the US and UK. Lastly we apply a tax rate, which we hold constant at 30%, which is the US withholding tax rate on dividends, interest, royalties, and certain other income for foreign corporations.⁹⁴

Figure 6: Quantification Approach



Summary of Data

Government Pension Fund of Norway – AUM US\$848 billion

The 2014 Annual Report for the Government Pension Fund (GPF) of Norway⁹⁵ provides detailed data on the allocated mix of investments, split by asset class and country of investment. This allows us to separate exactly the US and UK investments, focusing on equities and fixed income assets. The US and UK together make up the lion's share of investments by GPF, which we use as a proxy for tax-exempt investments.⁹⁶ According to the GPF's investment management strategy report for 2014-2016, for funds invested only in stocks, bonds and real estate, the GPF earned 15.9 per cent on its investments in 2013.⁹⁷ To create an estimate of annual return, we multiply total assets under management by the rate of return to arrive at actual capital gains, US\$135 billion. Since all of this capital was not invested in only bonds and securities, we must then multiply this by the percentage of assets in equities and fixed income. And since not all of this income was invested in the US or the UK, we must multiply this by the amount that GPF invested in the US and the UK. If this number is not given, then we use an average based on the numbers available. A simple multiplication by the tax rate of 30% gives us the amount of the subsidy GPF receives due to these tax laws: $US\$135 \text{ billion} \times 0.98 \times 0.53 \times 0.3 = US\21 billion

Abu Dhabi Investment Authority – AUM US\$792 billion

The second largest SWF, the Abu Dhabi Investment Authority does not share any data pertinent to total assets or the mixture of investments, and therefore a proxy cannot be determined. All necessary data is therefore extrapolated.⁹⁸

China Investment Corporation – AUM US\$653 billion

The third largest SWF is the China Investment Corporation (CIC), whose AUM is approximately equivalent to US\$652.7 billion. Page 51 of the 2012 annual report⁹⁹ specifically lays out the net realized gains on investments by the CIC as being approximately US\$14.1 billion (summation of realized and unrealized gains). Because no data describes the asset class or location invested in, we will average the two values that are available, 98% by the GPF and 64% by the GIC Private Ltd, 81%. Of these, 42% of investments were in qualified tax-exempt countries. Using the same approach, we apply the equation: $US\$14.1 \text{ billion} \times 0.81 \times 0.42 \times 0.3 = US\1.44 billion .

Kuwait Investment Authority – AUM US\$548 billion

The fourth largest SWF, the Kuwait Investment Authority does not provide financial data for public domain use, and therefore a proxy cannot be determined. All necessary data is therefore extrapolated.¹⁰⁰

State Admin of Forex – AUM US\$456 billion

The fifth largest SWF, the State Admin of Forex (China) does not share any data pertinent to total assets or the mixture of investments, and therefore a proxy cannot be determined. All necessary data is therefore extrapolated.¹⁰¹

GIC Private Ltd – AUM US\$315 billion

The next largest SWF, GIC Private Ltd of Singapore provides very detailed data on the asset allocation as well as the countries invested in. Based on the 2014 annual report, on page 14,¹⁰² GIC invested a total of 9% to private equity, 7% to real estate (not included), 5% to inflation-linked bonds, 31% to nominal bonds and cash, 29% to developed market equities and 19% to emerging market equities. Here, we do not include real estate investments as well as emerging market equities as the tax laws are generally unknown. As a result, 64% of the GIC portfolio was linked to qualified tax-exempt investments. Of this, 34% was invested in the US and 8% in the UK. Similar to our earlier approach, by multiplying the total AUM by the qualified tax exempt investments multiplied by the geographical distribution, we can determine a proxy for the tax revenue lost on capital gains, in this case: $US\$315 \text{ billion} \times 0.05 \times 0.42 \times 0.64 \times 0.3 = US\1.3 billion .

Qatar Investment Authority – AUM US\$230 billion

The Qatar Investment Authority provides detailed data in their most recent 2013 annual report. Although investments are not detailed by country, they are organized into industry allocation.¹⁰³ The banking sector, which included financial services, is the most invested in sector, comprising 50.3% of total asset allocation. We use an average for qualified tax-exempt countries, and apply the tax rate to that.

Saudi Arabian Monetary Agency Investment Portfolio – AUM US\$230 billion

The Saudi Arabian Monetary Agency Investment Portfolio holds US\$230 billion of AUM. This SWF does not share any data pertinent to total assets or the mixture of investments, and therefore a proxy cannot be determined. All necessary data is therefore extrapolated.

Temasek Holdings – AUM US\$177.2 billion

The Singaporean SWF Temasek Holdings holds US\$177.2 billion in AUM. Based on page 8 of their 2014 Annual Report¹⁰⁴, we see that 24% of investments are held in North America, Europe, Australia and New Zealand, but European countries are not individually identified. From here, page 9 shows that 30% of investments are held in tax-exempt financial services. The 10-year return on shareholders' equity is mentioned to be 9% which we use to average capital gains. From here, we apply the standard approach and estimate the total subsidy level to be: $US\$177 \text{ billion} \times 0.05 \times 0.24 \times 0.3 \times 0.3 = US\208.2 million

Upon summation of the given and extrapolated values, we see that the total subsidy received by the top 9 SWFs due to forgone tax revenue is US\$41.6 billion. Assuming that these SWFs comprise 78% of the total global wealth of SWFs, we can extrapolate from there. But to develop a stronger range of values to this subsidy, we ran a sensitivity analysis that varies the most difficult figure to estimate, the average capital gains. If average capital gains, which we assume to be 0.05%, has an error of 100%, we can look at

the total subsidy when average capital gains is 0 and 0.1%, thus making our subsidy range between US\$32-51 billion.

Flaws

The primary weakness in this approach is the paucity of reliable data. It is difficult to extrapolate, with even minimal confidence, when credible data is available for only 3 of the 9 SWFs considered. Assumptions made in this model also suggest extreme caution. The average capital gains normally are composed of all investments, including equities, bonds and real estate. This is a more comprehensive basis than has been used here. Also, capital gains can only be realized when the asset is sold, and just because an equity price went up, it does not necessarily mean that it will be taxed on the basis of the new (and higher) value. In order for the tax rate to apply, one must first “realize” the gain by selling the asset. Admittedly, the rough estimate presented above can only provide the most preliminary first look into how tax exemptions for SWFs represent a subsidy to the private financial services sector.

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