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REINFORCING RESILIENCE

**Making the UK a citadel
of long-term finance**

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PREFACE

If we want to make finance more fit for purpose, it needs changing. The way to do that is through regulation, including taxation policy. The business model of banking reflects the regulatory model – sometimes with disastrous consequences. Financial regulation before 2009 was focused on banks having capital – equity and profits – to fund part of their credit risks. But special leniency was given to securitised mortgages and trading and next to no attention given to liquidity. Not surprising then that we had the mother of all liquidity crises centred on the housing market and banks had insufficient capital because of all the exemptions they negotiated for holding assets that lost their liquidity when it mattered most.

The irony is that it was the bankers themselves who pushed the regulators to adopt a regulatory model that brought so many of them down. This was even foretold.¹ Regulators learned a few lessons from the crisis. There is now more capital required, more liquidity, and less exemption. However, many regulators remain captured by the preference of a small but influential part of the industry for the short-term trading of assets at the expense of long-term investing. Marketable assets and those held for trading receive preferential regulatory and accounting treatment. Any obstacles in the way of trading from financial regulation and capital controls to taxes are sacrificed upon the altar of turnover. The more the better we are told.

As a result, short-term trading has become the essence of modern finance and at the heart of the business model of the industry. There was a time that trading on the stock markets was dominated by “real money” like pension funds, insurers, or even retail investors. Today more than half of turnover is from highly leveraged or high-frequency traders, and the rest of the

industry makes its money from offering them services like exchanges, technology, brokering and advice. Fast finance has become finance at the expense of growth boosting investment.

Before changes in the regulatory model began to bite, a bank would accept deposits from one set of customers and loan them out to another. They were in the intermediation of savings and investment business. Today, a collection of firms originate loans, another set of firms pool and package these loans to the rating standards of a further set of firms. There is a group of firms that goes to the capital markets to issue securities to fund the loans. Some firms go into the market to raise funds to buy these same securities. There are different firms that custody these securities, settle and clear the trades, operate exchanges, and manage the funds and assets. The process of deposit to the loan has been reengineered into several different steps with multiple points where the same underlying risk is being broken down and traded in various, numerous ways. Gross transactions have become a huge multiple of the net, increasing systemic risks when uncertainty is high and everyone is rushing for the exit.

There is an intellectual excitement about distilling something to its essence. The protagonists of market finance over bank finance bragged that by disaggregating loans and pulling them into the light of regulated markets, there were less corrupt practices, and costs were driven down to the benefit of consumers. The market zealots claim to be on the side of democracy and transparency. This seemed to make sense but was taken on faith. Then, Thomas Philippon and others did the work to show that in fact the cost of raising a unit of finance – measured in large part by the profit the financial sector makes from intermediating a unit of borrowing by the

¹ ‘Banks put themselves at risk in Basel’, October 2002, Avinash Persaud, *Financial Times*.

non-financial sector – is the same today as it was over a hundred and twenty-five years ago. It is higher than it was in the heyday of old fashioned and highly regulated banking in the 1960s. This is telling because it means all the gains from improvements in technology and scale have been captured by the insiders, not the customers. We have lightning-fast finance, but for consumers of finance, the total all-in cost of raising funds is the same as in the age of steam. If that is shocking, recall that bank branches have been replaced by ATMs that can charge 2-3% to withdraw cash, a service that was once free at the till, and the banks are taking 2-3% from retailers for use of the debit and credit card system, which of course is added back to the cost of what we buy. The cost of finance has been disaggregated into multiple small and mostly hidden transaction fees but when totted up come to more than what we paid before. Fast finance has not been good for consumers. Taxing financial transactions drags this manner of business into the spotlight.

If consumers haven't gained from lower costs, maybe countries have gained in terms of stability? Before the Global Financial Crisis, this seemed to make some sense, but no. I, and others, pointed out before the crash that financial markets are getting bigger and yet thinner and more vulnerable to crash.² Liquidity is not about the size of turnover as some would think, but about the diversity of behaviour. Liquidity requires market participants prepared to buy when others are selling; it involves a variety of views, valuations, trading, and strategies. But if everyone is using the same model of value, because they are trading risks they don't expect to hold for long and so don't know very well, there can be little diversity. The standardisation of valuation, trading, and risk models was seen as a friend, but it is a potential foe of liquidity. And if no one has much capital because they are traders, not investors, then no one can hold on to assets when they are falling in price. Everyone

becomes a seller as prices fall creating what I have called systemic illiquidity. No surprise then that the marketisation of finance has been associated with higher volatility and more significant crashes that require massive government bailout. The new finance has even spawned a new phenomenon that undermines the integrity of markets: the flash crash, where markets can lose 10% or so in a few seconds before climbing back up, sometimes equally fast, sometimes not. These crashes, where the market becomes dislocated and selling doesn't bring out bargain hunters but more sellers, have been witnessed increasingly in recent years in the largest equity, bond and FX markets. This adds to the costs and uncertainty of finance for ordinary consumers.

Fast finance seems attractive but is fundamentally flawed. Real risk management is about understanding the individual risks to such an extent that you would hold an asset that others would not and would not hold something that others would. When the risks are not things you understand but just atomised units of something synthetic, risk management cannot be led by individual and diverse decision-making but has to follow public information and standardised models that everyone else is following. This creates the illusion of liquidity in the good times; but it is liquidity that disappears when you need it. It is fake liquidity. The Crash of 2008 revealed this. The world's largest markets, with the lowest transaction costs and the greatest, apparent liquidity, broke. The Government had to become "buyers of last resort" in the financial markets.

We need greater balance in markets. High-frequency trading can be a part of markets to help in the discovery of valuation, liquidity, and pricing, but they should not become finance. Fast finance crowds out long-term investment. It draws resources away from long-term finance. Brokers, exchanges, and advisors make more money serving

² 'Sending the herd off the cliff edge', Avinash Persaud (2000), Jacque de Larosiere Award in Global Finance, Institute for International Finance.

undercapitalised investors who trade their portfolio many times over than long-term investors, and so they reward these relationships with better access to deals and investments, research and technology. Long-term finance, which creates real investment and growth, is a second-class citizen in the world of fast finance.

It is not a surprise that the expansion of fast finance has coincided with a secular slowdown in growth and wages for the majority. It is costing consumers more and making the financial system more fragile. Fast finance is dependent on Britain's membership of the European Union and the single capital market and banking union that supports the fast movement of capital across borders. If we create a better balance to finance and offset the artificial biases and preferences given to

fast finance, if we build a citadel of stable, long-term finance in the UK, investors and savers from all over the world will come.

What better strategy is there to insulate the financial sector from the uncertainties of Brexit and build sustainable global finance, fit for purpose. Financial transaction taxes can play a catalytic role in this reorientation. My paper of 2017³ set out the benefits of modernising the UK's current stamp duty on shares to improve economic resilience and increase receipt to Treasury. This report builds on those findings.

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3 Intelligence Capital (2017) *Improving resilience, increasing revenue.*

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1. INTRODUCTION

1.1 The UK financial sector

The financial sector is an essential part of any healthy economy, in fulfilling its role of channelling investment capital to productive uses. Like any other part of the economy, it should be subject to fair and progressive taxation, that encourages investment in social goods and reflects and disincentivises any social costs generated by the sector's activity. The financial crisis reminded us of the urgency of examining whether our existing taxation system – among other parts of the financial regulatory environment – delivers on these goals. This report examines the potential for reform of the UK's financial transactions tax, and has at its core a vision for the UK financial sector as a citadel of long-term investment, that is better able to serve UK business, attract international clients and boost the productivity of the UK economy.

1.1.1 AN ANTIDOTE TO THE CONDITION OF TRANSACTIONS-LED FINANCE

The current business model of the UK's financial sector has veered from this central purpose of serving the productive economy. To put it simply, there is now a preponderance of 'shuffling bits of paper around'. A simple loan will now be repackaged and syndicated, generating multiple transactions without increasing productive economic activity. We have seen a rise in 'churn', described in the predecessor report to this one, *Improving Resilience, Increasing Revenue* (Persaud, 2017), as the practice of brokers to conduct excessive trading in a client's account principally to generate profits through commissions. The short-term now dominates the long-term. Transactions by long-term investors such as pension funds and insurance companies once represented more than 70% of turnover on the

London Stock Exchange. Today that has fallen to 40%.⁴

Excessive trading that generates a high volume of transactions is sold as efficiency. This claim would stand up to scrutiny if it resulted in a lower cost of borrowing and increased access to finance – if it served us better – but this is not the case. Instead, the primary beneficiaries of transactions-led finance are those generating profits by engaging in this socially unproductive paper shuffling. This report argues that the condition of excessive transactions needs to be treated by modest, correctly-priced fees, in the form of transaction taxes, to incentivise a change of culture. Those in the financial sector whose activities remain closer to a more traditional financial model – based on patient investment over time – know this is good medicine. For those brokers and banks that currently derive benefits from excessive transactions and churning activities, this prescription may pose a challenge as it goes to the heart of the direction of travel on which their business is now embarked.

There are significant downsides to a transactions-led model of finance – beginning with the threat to economic stability, and illustrated by the 2007-08 Global Financial Crisis. High short-term profits generated through the creation of a complex and opaque global web of derivatives transactions drove UK financial institutions to become dangerously exposed to high-risk subprime US mortgage assets, costing the UK taxpayer billions in bank bail out costs and the UK economy £7tn in lost output.⁵

Outside of global financial crises, we have also seen the rise in 'flash crashes', driven by the vanguards of transactions-led finance, algorithmic and high frequency traders. An increasing proportion of trading being carried

⁴ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁵ BoE (2017).

out by high-frequency traders has coincided with an increase in episodes of short-lived but high market volatility. Some argue that high volumes of transactions automatically produce liquidity, a fundamental part of effective financial markets. However, high frequency trading only adds to liquidity when markets are calm and liquidity is already plentiful, by adopting contrarian strategies during periods of low price volatility. When the market moves sharply, however, such traders attempt instead to run ahead of the trend, reducing liquidity when it is most needed. As such, high turnover does not necessarily lead to a stable and efficient market. Instead, liquidity requires diversity of market participants and trading strategies, rather than simply high turnover.

In short, our current financial system decreases market stability by privileging a short-term and speculative, transactions-led model of finance over trading for the long-term. This leaves the UK financial sector vulnerable to recurrent crises, with the risks of short-term trading under-priced, leading to skewed incentives for traders and discouraging long-term value investing. In contrast, the vision for the UK financial sector in this report, ‘a citadel of long term investment’, aims to create an oasis of stable financial markets. The benefits of such a shift are manifold, attracting large institutional investors from the UK and overseas for the long term. It would generate a focus on research and information, which in contrast to transactions-led finance, is labour intensive and would be job creating. In reorienting finance towards long-term value investing, it would increase access to credit for UK business, including small and medium sized enterprises, with positive consequences for UK economic productivity and further job creation. The beneficial effects of this would be felt across all UK sectors and regions, many of which have arguably been left behind by years of an approach to economic growth that is overly dependent on transactions-led finance concentrated in the City of London.

1.2 Financial transactions taxes

1.2.1 BENEFITS

Our system of taxing financial activity can contribute to creating this shift, specifically through the use of financial transactions taxes (FTTs). As Persaud writes: ‘an important principle of economics is that if we are using a tax to better reflect the wider, systemic, costs of an activity, the tax should be based on the activity that causes the systemic problems and if this activity is short-term trading and large gross transactions... then the most appropriate tax is a transaction tax. (This acts as) a Pigouvian tax... levied on market activity that generates negative externalities which are costs not internalised in the market price.’⁶ FTTs are fees – usually at a fraction of 1% – levied on the transactions of assets, and are a countervailing force against incentives that favour a level of transactions that is good for trading businesses but bad for everybody else.

FTTs raise the relative cost of short-term trading strategies involving a high number of transactions, over those used by long-term traders such as equity and debt investors. They discourage and force transparency onto the practice of excessive churning of investments by asset managers, and onto tax residents with undeclared off-shore assets. They penalise the kind of high-frequency trading behaviour that undermines market liquidity and stability. FTTs place an explicit cost on the build-up of systemic risk through vast, complicated webs of transactions, such as those which contributed to the last financial crisis.

Further, FTTs are amongst the most inexpensive taxes to collect and the hardest to avoid with significant revenue-raising potential, capturing over \$30bn a year in tax globally. This revenue capture also helps to address the mechanism through which outsized gains from short-term speculative trading and churning have driven disproportionate growth in remuneration among certain parts of the

6 Intelligence Capital (2017) *Improving resilience, increasing revenue*.

UK financial sector. Growth in the financial sector ‘wage premium’⁷ has been implicated in contributing to increasing levels of inequality globally, which imposes wider costs across the economy. The starkest example of this comes from the hedge fund industry, where top fund managers can earn in excess of one billion pounds annually.⁸ A majority of UK voters – in fact a majority of voters for every major political party – agree that the financial sector has not sufficiently contributed to the wider economy.⁹ Less than one in six UK voters believe that the financial sector cannot afford to pay more tax.¹⁰

1.2.2 THE UK’S EXISTING FTT

The UK’s existing financial transactions tax (FTT) – the Stamp Duty Reserve Tax (SDRT) – is currently set at 0.5% levied on purchases of UK issued shares, and generated more than £3.5bn in 2017/18. However, it has not been substantially modernised in 30 years, despite the increase in size and complexity of the UK financial sector during this period. SDRT currently applies only to UK issued shares. The vast majority of transactions by UK tax residents in financial markets are untaxed, amounting to favourable tax treatment for those trading in assets other than shares. Further, financial intermediaries are currently exempt from the tax. Many recognise this as a loophole. Intermediaries often take ownership of an asset during a transaction, claiming a slice of the value. This value should be taxed. If this ownership is required in order to execute a more complex transaction, the increased systemic risk inherent to the creation of this transaction chain also warrants taxation.

1.2.3 IMPROVING RESILIENCE, INCREASING REVENUE

Intelligence Capital conservatively estimated in the paper *Improving Resilience, Increasing*

Revenue (2017, henceforth *IRIR*) that modernising the UK’s present FTT, beyond the stability benefits described, would raise £4.7bn annually (based on 2016 data) through eliminating the financial intermediary exemption and extending the tax to other financial assets – equating to £23.5bn in additional revenue over the course of a five year Parliament.

Extending the tax to trades of corporate bonds, as well as equity and credit derivatives by UK firms – made possible by new global tax transparency rules – would generate an extra £3.7bn annually (based on 2016 data). The rationale for extending from taxation of share purchases alone is that equity derivatives are a substitute for already-taxed equities; corporate bonds are similar to equities in that their value is derived from companies (government bonds are however excluded to protect government borrowing costs); and credit derivatives by extension make sense to tax as their value is derived from debts issued by companies and governments.

Additionally, replacing the current intermediary exemption with a lower rate of 0.2% would raise a further £1bn annually (based on 2016 data). A discounted rate was proposed for financial intermediaries because transaction costs for these firms on average are significantly lower – by approximately two thirds – than for non-financial firms, due to the former benefiting from significant scale, trading expertise and market efficiencies. A rate that is discounted by two thirds therefore limits the impact of the tax to the same proportional increase in transaction costs and ensures market-making activity is not over-burdened. Further, a higher price elasticity of demand is assumed for financial firms, due to lower profit margins, when calculating revenues.

At the time of the 2017 election, the Labour Party adopted an extension of stamp duty as party policy both to disincentivise short term

7 Denk (2015) *Financial Sector Pay and Labour Inequality: OECD Economics Department Working Papers*.

8 Bloomberg (2018) *The Best-Paid Hedge Fund Managers Made \$7.7 Billion in 2018*.

9 YouGov (2017) *YouGov / Robin Hood Tax media survey results*.

10 Ibid.

financial activity and help pay for the funding commitments in its manifesto.

In this paper, we set out the case for going further, for a more comprehensive approach, encompassing transactions of foreign exchange and commodities alongside their derivatives, as well as interest rates derivatives. In particular, the foreign exchange market is the largest in the world exceeding \$5 trillion daily (by notional value), and – as discussed in Section 2 – is emblematic of transactions-led finance, in which short-term, destabilising and speculative trading dominates. Beyond altering business incentives, taxation of foreign exchange transactions, as well as the trading in other assets described below, would generate modest additional revenue for the Exchequer, which we estimate at £2.13bn annually.

1.3 Structure of paper

Section 1 describes the UK’s financial sector identifying the issue of transactions-led finance, setting out a vision for improvement prescribing the greater use of FTTs to

incentivise longer-term trading and investment behaviour. It then describes the modernisation of the UK’s current FTT on equities as proposed in *IRIR*, making the case for a more comprehensive approach.

Section 2 makes the case for the UK FTT to be extended to cover foreign exchange, interest rate derivatives, and commodities; providing an overview of each market and a discussion of considerations regarding their taxation.

Section 3 details how the tax would operate, covering the tax base and rates.

Section 4 presents the estimated revenues by market, and sets out our recommendations for further extension of the UK’s FTT beyond the assets proposed in *IRIR*.

Section 5 presents responses to potential objections.

Section 6, the appendix, contains a detailed table of calculations for estimating tax revenues, supported by a methodology.

2. EXTENDING TO FURTHER ASSETS

Four major types of asset are traded on financial markets: foreign exchange, fixed income, commodities and equities (see Figure 1, page 8). The potential *global* tax base (by economic value¹¹) is almost \$600 trillion per annum. The largest of these asset classes is foreign exchange, followed by fixed income (including interest rates) then equities and commodities.

The pre-tax annual UK tax base for foreign exchange is £14tn;¹² and for interest rate derivatives is £2.2tn.^{13,14} Along with commodities, these are significant missing segments of the UK’s current FTT. Taxing these markets at conservative rates would generate an additional £2.1bn in revenue for the Exchequer.

¹¹ As opposed to notional value; economic value reflects the cashflows exchanged in order to enter into a contract, in which its price is based on the level of risk that must be taken on.

¹² BIS (2016) *Turnover of OTC foreign exchange instruments*, WFE (2018) *Annual Statistics*. For methodology see appendix.

¹³ BIS (2016) *Turnover for OTC interest rate derivatives*, WFE (2018) *Annual Statistics*. For methodology see appendix.

¹⁴ The pre-tax annual tax base for commodities is significantly smaller, at £0.4tn. BIS (2018) *Global OTC derivatives market for H1 2017*, WFE (2018) *Annual Statistics*, LBMA (2017) *Clearing Statistics*. For methodology see appendix.

Figure 1 shows those markets covered by the current SDRT, those covered under the IRIR proposal, those covered by extending to further assets under this proposal – put into

context alongside an estimation of the global market sizes (by annual economic value, on which governments could levy FTTs) – and those not included under any of the above.

Figure 1: UK FTT coverage by market¹⁵

Key: Existing SDRT IRIR proposal Assets taxed under this proposal

Asset class	Market	OTC		On exchange		Total annual global economic value (\$bn)
		Instruments	Annual global economic value (\$bn)	Instruments	Annual global economic value (\$bn)	
Foreign exchange	Currency pairs	spot	413,000	n/a	-	413,000
		forwards, options, swaps	22,530	futures, options	920	23,450
Fixed income	Interest rates	forwards, options, swaps	17,670	futures, options	52,230	69,900
	Credit derivatives	swaps	300	swaps	-	300
	Corporate debt	bonds	-	bonds	13,840	13,840
	Sovereign debt	repos, bonds	-	bonds	-	-
Commodities	Metals	spot	4,350	-	-	4,350
		forwards, options	160	futures, options	4,730	4,890
	Energy	forwards, options, swaps		futures, options, ETFs		
	Agriculture	forwards, options, swaps		futures, options, ETFs		
Exotics	-	-	-	-	-	
Equities	Shares Depository receipts	shares	-	shares	45,610	45,610
		-	-	ETFs, CFDs		
	Equity indices	forwards, options, swaps	570	futures, options	10,910	11,480

¹⁵ BIS, WFE, LBMA. See footnotes above for full sources for markets taxed under this proposal. Also: BIS (2018) *Equity-linked derivatives*. BIS (2018) *OTC Credit Derivatives*. WFE (2018) *Statistics for ETD Equities and Corporate Bonds*.

2.1 Foreign exchange (FX)

2.1.1 OVERVIEW

The proposed tax would apply to the wholesale foreign exchange market used by the world's largest investment banks and corporations in the business of international trade and investment. It is commonly called the interbank market, where trading occurs bilaterally between institutions over-the-counter (OTC). Note that the tax would not be applied to the retail foreign currency market, and therefore will not affect the purchase of foreign currency by members of the public. The daily notional turnover of global OTC foreign exchange today is extremely large, exceeding \$5tn daily.¹⁶ In 1995, the daily average was half of this, at \$2.6tn.¹⁷ Sterling is the fourth most heavily traded currency (after dollars, euros and yen) at £650bn daily, accounting for 13% of global OTC turnover.¹⁸ Rapid growth in FX trading followed the dismantling of the Gold Standard in 1972 and widespread financial liberalisation during subsequent decades such as the removal of currency controls.

2.1.2 FX SPOT

The spot foreign exchange market is a wholesale market used by the world's largest banks that allows the exchange of currency pairs at an agreed price, usually for delivery within two days. This market was established to enable participants to exchange currency for trade and investment. Most trading is organised through two major competing broking services: the Electronic Broking Services (EBS) and Thomson Reuters Dealing. The FX spot market is decentralised, where trading takes place OTC. More than half the

global foreign exchange spot market is located in the UK and US.¹⁹

2.1.3 FX DERIVATIVES

The derivatives market represents around 70% of global OTC foreign exchange trading, and spot the remaining 30%, by notional turnover.²⁰ FX derivatives include contracts for the exchange of currency pairs at an agreed price in the future, enabling organisations to hedge against currency rate fluctuations. The International Swaps and Derivatives Association (ISDA) has, since 1985, been the world's most important trade association for OTC market participants. It estimates that almost half of daily global OTC derivatives turnover is located in the UK.²¹

Typical OTC traded instruments include foreign exchange swaps and forwards. Swaps dominate this market, which involve currency pairs being exchanged and then re-exchanged later at agreed rates, enabling money held in one currency to be converted to another and then back at a later date, with less risk from currency rate fluctuations. FX derivatives are also traded on exchange, where typical exchange traded instruments include options and futures.

2.1.4 RATIONALE

The FX spot market in theory exists to allow the exchange of currencies at as low transaction cost as possible, to facilitate trade within the real economy. However, this market is also used by speculators, who buy currencies to hold with the aim of profiting from fluctuating exchange rates, at scale and at high frequencies. Exempting the foreign exchange spot market would see a vast area of often unproductive economic activity

¹⁶ BIS. See Section 6: Methodology for full sources.

¹⁷ BIS (2018) *Turnover of OTC foreign exchange instruments by country*. CPI inflation rate from US Bureau of Labor Statistics.

¹⁸ BIS. See Section 6: Methodology for full sources.

¹⁹ Ibid.

²⁰ Ibid.

²¹ ISDA (2014) *The Value of Derivatives*.

go untaxed, amounting to favourable tax treatment. This amounts to a sizeable annual loss to the Exchequer annually, estimated in this paper at almost £2bn.

Speculative trading strategies rely on trading more frequently under thinner profit margins, in comparison with trades carried out to hedge foreign exchange exposure, or for trade and direct investment. Importantly, trade-related foreign exchange trading represents less than one tenth of total foreign exchange transactions, with trading between financial institutions accounting for the remainder.²² Since a transactions tax applies per trade, the burden falls on those trading most frequently.

For these reasons, this paper proposes to tax the foreign exchange spot market at an entry level tax rate (for rates, see Section 3), low enough to avoid penalising import/export traders in the real economy, whilst producing a higher effective tax rate for those trading most frequently under slim profit margins. This will help lessen the very worst of the churn in wholesale foreign exchange spot markets, excess amounts of which contribute most to boom and bust cycles and price volatility in normal times, and undermine liquidity at times of crisis, whilst contributing little to economic productivity.

If however, we assume that a share of the cost is passed through from the wholesale market to import/export firms, decisions by these businesses would continue to rest on the fundamental profitability of a sale, rather than being influenced by a marginal increase in the cost of foreign exchange. Further, any costs passed through would fall within the normal ranges of annual fluctuation. Previous studies have found that, if the entire cost of the tax was passed on, the impact on UK exporters would be just 0.3% of their annual profits, which fluctuate by as much as 10% each year.²³

Retail markets in foreign exchange – which represent a tiny share (less than 0.1%²⁴) of total foreign exchange transactions – would not be taxed. The systems through which the FTT would be collected serve the wholesale markets, in which only the world's major banking groups can participate. It does not follow that a marginal additional cost in the wholesale market would impact retail markets, such as money transfer or bureau de change services. Retail providers of currency to those traveling overseas are circulating physical foreign exchange in the form of notes – they are not buying these notes *each time* from the wholesale market. Therefore the commissions charged by these providers depend on costs such as rent, secure transport and storage, and staffing, rather than costs in the wholesale market. Under this proposal, the first £1,000 of transactions by a market participant each day are exempted, further ensuring that low-frequency, small amount traders are not unduly impacted by the tax.

This paper proposes to tax both spot and derivatives markets – meaning that the former cannot be substituted for the latter to avoid paying the tax.

2.2 Interest Rate Derivatives

2.2.1 OVERVIEW

Interest rate derivatives fall under the fixed income asset class – where a tradable instrument obliges one party to make payments of a fixed amount on a fixed schedule. The value of the global interest rate derivatives market (measured by its notional turnover) is vast, totalling \$10.5tn daily across OTC and exchange traded markets.²⁵ As with foreign exchange markets, interest rate derivative markets have seen significant growth over recent decades. In 1995, the value of the

²² Stamp Out Poverty (2006) *Taking the Next Step – Implementing a Currency Transaction Development Levy*.

²³ Ibid.

²⁴ Ibid.

²⁵ BIS, WFE. Section 6: Methodology for full sources.

daily global average OTC interest rate market was \$335 billion (by notional turnover in 2017 prices), rising to \$3 trillion by 2017.²⁶

Interest rate derivatives enable organisations to hedge against interest rate fluctuations. They are contracts that agree to exchange the interest payments from underlying assets – such as government bonds or a basket of assets that taken together allow the calculation of an index interest rate – with the maturities of underlying assets ranging from overnight to 30 years. If the interest payments are in differing currencies, they also allow hedging against currency rate fluctuations. A majority of interest rate derivatives by turnover are traded on exchange, and short-term options (of less than 30 days maturity) account for two thirds of this.²⁷ On exchange interest rate derivatives trading takes place globally across 19 exchanges but is heavily concentrated with two thirds located on the Chicago Mercantile Exchange (CME) and almost a quarter on London's Intercontinental Exchange (ICE Europe).²⁸

2.2.2 RATIONALE

As with the foreign exchange market, exempting the interest rate derivatives market would see a significant area of often unproductive economic activity go untaxed, amounting to favourable tax treatment, with a transactions tax also helping eliminate the worst of the churn and destabilising high-frequency trading.

This tax would not have an adverse impact on interest rates themselves. The global wholesale trading of fixed income products such as interest rate derivatives allows the world's largest investment banks and corporations to hedge risk and speculate against rises in interest rates. The cost of these fixed income products is dependent on the interest rates at which investment banks are willing to lend

to each other (inter-bank lending rates) and to corporations. These in turn are influenced by the base rates offered to them by central banks; which are dependent on governments' fiscal targets and macroeconomic conditions. Sovereign base rates and inter-bank lending rates are not affected by marginal costs in the fixed income product markets.

A transactions tax on wholesale trades of interest rate derivatives would also not impact retail markets in products that use interest rates. Mortgages, personal loans and savings accounts – and other retail financial products offered by high street banks that involve interest payments at a particular rate – are not connected to the global wholesale trading of fixed income products such as interest rate derivatives by the world's largest investment banks and corporations. The high street bank will set the interest rate for a retail product based on inter-bank lending rates and sovereign base rates, and the rate offered by competitors, rather than marginal costs of fixed income products in the wholesale market. Therefore a reduction in interest rate derivatives trading volumes will not lead to a rise in interest rates offered for retail products by high street banks.

An exemption is made for interest rate derivatives under three months' maturity. This is so that the tax does not impact cash-like transactions. Importantly, this would not incentivise substitution of longer maturities for shorter maturity products that are then rolled over, as the costs of doing so would far outweigh payment of a tax as low as 1 basis point (0.01%) for financial firms.

2.3 Commodities

The commodities market is perhaps the world's oldest given that it can comprise in theory any physical good. Trading today

²⁶ WFE. Section 6: Methodology for full sources. CPI inflation rate from *US Bureau of Labor Statistics*.

²⁷ BIS, WFE. Section 6: Methodology for full sources.

²⁸ WFE. Section 6: Methodology for full sources.

is mostly in energy (oils and gases), metals (including bullion), minerals and agricultural products. The commodities markets are comparatively smaller than those for foreign exchange and interest rate derivatives, with a global daily notional turnover of \$755 billion.²⁹

The spot markets, which are mainly OTC, allow trading of primary sector products for delivery or their cash equivalent now. Only the London Bullion Market Association (LBMA) OTC commodities market had been included, given its significant size.

The commodities markets are where derivatives first developed, to allow farmers to guarantee a certain price for their products in the future, given that investment decisions had to be made a long time before they were ready to go to market. Today, however, derivatives have widened across all asset markets. Derivatives make up the majority of global notional value in commodities trading. The market occurs mostly on exchange, and is dominated by the Dalian in China, the US' CME and the UK's ICE and London Metals Exchange.³⁰ 21% of all exchange traded derivatives are traded on UK exchanges.³¹

As with foreign exchange, this paper proposes to tax both commodity spot and derivatives markets – meaning that the former cannot be substituted for the latter to avoid paying the tax.

As with the previous two markets, exempting commodities spot and derivatives trading would amount to favourable tax treatment, with a transactions tax also helping eliminate the worst of the churn and destabilising high-frequency trading in these markets.

2.4 Heritage and history

The taxation of foreign exchange in particular has been explored by well-respected economists, from Nobel-prize winner James Tobin in the 1970s to more recently Paul Bernd Spahn,³² Rodney Schmidt³³ and Stephany Griffith-Jones,³⁴ on whose work this paper builds. The idea dates back to Tobin's proposal for a 1% foreign exchange tax – the Currency Transaction Tax (CTT) – to act as 'sand in the wheels' to counter substantial capital flows speculating on changes in currency values.³⁵ This came in response to the dismantling of the Gold Standard system, and subsequent increases of capital movement, currency instability and economic crises. The idea received renewed interest in the 1990s in the wake of the South-East Asian crisis which struck many emerging economies, with the advent of the two-tier CTT (Spahn tax), with a low rate for normal conditions and a higher rate that could rise up to 50% in response to currency volatility, to act as a 'circuit breaker'. The taxation of foreign exchange has previously been introduced in several countries in order to combat currency speculation.

Taxation of foreign exchange was examined by the Leading Group (2010)³⁶ to help bridge the funding gap to meet the Millennium Development Goals, as a way to more appropriately share the dividends of globalisation among its winners and losers. They concluded that a currency transactions tax at the low rate of 0.005% (half a basis point on notional values – equating to approximately 0.2% or 20 basis points on economic values) could generate substantial revenues without a significant market impact.

²⁹ BIS, WFE, LBMA. See Section 6: Methodology for full sources.

³⁰ WFE. See Section 6: Methodology for full sources.

³¹ Ibid.

³² Paul Bernd Spahn (1996) *The Tobin Tax and Exchange Rate Stability*.

³³ Schmidt and Bhushan (2011) *The Currency Transactions Tax: Feasibility, revenue estimates, and potential use of revenues*.

³⁴ Griffith-Jones (1995) *Institutional Arrangements for a Levy on International Currency Transactions*.

³⁵ Tobin's work in the 1970s develops from discussions about the use of FTTs as a tool to discourage excessive speculation as set out by Keynes in his *General Theory* (1936).

³⁶ Leading Group (2010) *Globalizing solidarity; the case for financial levies*.

It is also worth bearing in mind the legislation for a regional FTT currently being negotiated by ten EU Member States including Germany, France, Italy and Spain (as referenced in *IRIR*). The starting point for the legal text was the taxing of all actors, all instruments and all

markets. Although debt issues in countries such as Greece saw the early exclusion of sovereign bonds, interest rate derivatives have featured as a major source of income under this initiative.

3. TAX COLLECTION

3.1 The residence principle

The residence principle was proposed in *IRIR* as the appropriate method for taxation of trades of assets including certain derivatives and corporate bonds. Under this principle, end user purchasers who are UK tax residents are liable to pay tax on trades of these assets.

The residence principle is already used in the taxation of income from dividends and capital gains, received by UK tax residents. Individuals and entities are required to report *income* from the purchase of foreign equities, regardless of where the assets were purchased or issued. Extending this principle to apply a tax to the *purchase* of these assets (ie a transaction tax) was previously difficult, due to the ease of hiding the beneficial ownership of an asset behind a ‘shell’ corporate entity.

However, recent efforts to counter money laundering and the financing of terrorism have meant that, as Persaud wrote in *IRIR*: ‘rules requiring beneficial ownership information, such as Legal Entity Identifiers, that can be made available to international law enforcement agencies and other official agencies, are now effectively *enforced* in some countries... it is not possible to (set up a shell company) in the Bahamas, Barbados, Bermuda, Cayman Islands, Isle of Man, Jersey or Luxembourg.’³⁷ Further, all major financial centres have signed up to the 2010 OECD Convention on Multilateral Assistance in Tax

Matters, allowing for automatic information exchange and close cooperation in collecting foreign tax claims. Compulsory clearing of OTC trades of standardised derivatives, introduced following the financial crisis, has further improved the transparency of these markets regarding beneficial ownership of assets.

3.2 Collection systems

This proposal can be implemented using available information on tax status of organisations, leveraging existing communications technology used by market participants and the UK authorities (and where necessary, existing SDRT collection protocols). They build on the existing messaging, clearing and settlement systems used by participants which are linked to the Bank of England and HMRC. It is also worth noting that the two largest markets considered in this paper – foreign exchange and interest rate derivatives, are considered to be ‘vanilla’ or standardised, which facilitates ease of implementation of an FTT.

For OTC spot foreign exchange across all currencies traded by UK tax residents, trades are settled in large part through the Continuous Linked Settlement (CLS) Bank, with the remainder settled through the domestic settlement systems, which are linked to the CLS. A common messaging

³⁷ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

provider – SWIFT – enables records to be kept of all transactions and allows these records to be inexpensively and efficiently relayed to the UK's tax collecting authorities.³⁸ HMRC could receive CLS/SWIFT instructions of all foreign exchange trades carried out by UK tax residents. One way to collect these revenues automatically would be from CLS participants' settlement accounts held at the Bank of England.

Most OTC interest rate derivatives activity globally is cleared through Swapclear based in London. SwapClear provides the deepest liquidity in the OTC interest rate swap market and access to 95% of the 'vanilla' interest swap market. The UK government could mandate Swapclear to provide it with trading activity for UK tax resident members. This data could be reconciled with individual HMRC returns made by UK tax residents.

For all other derivatives markets, the UK Government could demand trading data is collected from market participants by international exchanges and clearing houses, represented by the World Federation of Exchanges based in London, of all tax liable trading activity (FX, interest rate and commodity derivatives). This data could be reconciled with individual HMRC returns made by UK tax residents disclosing their trading activity on exchanges in these tax liable products.

The UK government could announce these tax measures in a budget and introduce provisions in a Finance Bill requiring the CLS, Swapclear and WFE to collect from market participants and provide tax information on trades by UK tax residents to HMRC.

We see no likelihood of trades moving outside the tax collection systems specified above in

order to avoid the tax. For example, the CLS system provides its members with cost savings that far outweigh the marginal cost of paying FTTs. These include the ability to base daily funding on a multilateral net position rather than requiring gross transaction-by-transaction finance, reducing necessary funding by over 90%.³⁹ Further, establishing new, widely-used systems would be a huge undertaking, requiring a critical mass of migration, following which any new system could be instructed to collect the tax, rendering the exercise pointless.

More fundamentally, the introduction of a requirement for the tax to be paid in order for a trade to be legally enforceable creates an incentive to pay the tax that far outweighs the marginal savings to be made in avoiding it – who would pay for an asset over which they cannot then legally assert ownership?

3.3 Tax base

3.3.1 MARKET VOLUME

The tax base includes trades by UK tax residents in foreign exchange spot and derivatives, interest rate derivatives, and commodities spot and derivatives. Trades would be liable whether they occur OTC and on exchange, allowing no opportunity for substitution.⁴⁰ Exemptions would be granted to interest rate derivatives under three months' maturity, to avoid impacting cash-like transactions; and for the first £1,000 of foreign exchange transactions daily per market participant, to ensure that low-frequency, small amount traders are not unduly impacted by the tax. These exemptions will have very limited impact on revenues.

³⁸ Stamp Out Poverty (2006) *Taking the Next Step – Implementing a Currency Transaction Development Levy*.

³⁹ Ibid.

⁴⁰ Therefore OTC and on exchange data are included for all markets, excluding on exchange foreign exchange spot trading (which does not occur), and OTC commodity spot trading outside of the LBMA, and on exchange commodity spot trading (both of which occur only minimally).

3.3.2 FINANCIAL FIRMS

With regard to the tax base, it is relevant to note that trading in financial markets is dominated by financial firms, which undertake 90% of trades by turnover,⁴¹ and more than this in the case of foreign exchange.⁴² As noted earlier, it is important to differentiate between financial firms and non-financial firms when setting tax rates, given that the former operate with substantially lower transaction costs and profit margins. Differentiated tax rates, as a response to lower transaction costs in order to not inappropriately affect market volumes, are addressed below. To ensure our revenue estimates are conservative in response to lower profit margins, we follow the approach taken in *IRIR* in applying a higher price elasticity of demand figure to financial firms⁴³ – ie we assume that financial firms' trading will be impacted to a greater extent by each basis point of the tax rate.

The share of trades carried out by UK tax residents, wherever the trades are located, also differs between financial and non-financial firms. Trades by UK tax resident non-financial firms as a share of total non-financial firm trading by turnover can be estimated as equivalent to the UK's share of global market GDP (3.3%⁴⁴). However, given the UK's more financialised economy in comparison with other developed countries, trades by UK tax resident financial firms as a share of total financial firm trading by turnover is higher (increasing by 25% to 4.1%).

Further, for sterling foreign exchange spot and derivatives, trades by UK tax resident non-financial firms as a share of total non-financial firm trading by turnover will be higher still (increasing to 33%), whilst their share of

non-sterling foreign exchange trades will be far lower (falling to 1.6%, or half of the UK's share of global market GDP).

3.3.3 ECONOMIC VALUE

A final note on the tax base relates to the difference between the notional and economic value of trades. As in *IRIR*, the tax would be applied to the latter, rather than the former. The economic value of a trade is quantified by the cashflows exchanged between traders to enter into positions. These cashflows are determined by the likelihood and size of the potential profit/loss due from holding the position, involving the level of risk. At present, the risk inherent in these markets is under-priced, and borne partly by the taxpayer, and therefore it is risk that should be taxed. In contrast, derivatives trades also feature a notional value – the size of the underlying asset from which the derivative position derives its value. The notional value associated with entering into a derivative position can be low – the contract can be based on an underlying asset of a relatively small size – whilst also featuring a high level of economic risk to the holder of that position. It would therefore be inappropriate to tax notional values, as this would fail to address the mis-pricing of risk.

The pre-tax annual tax base for the assets considered in this report (ie UK tax resident trades by economic value) comprises:

- foreign exchange spot and derivatives – £14tn⁴⁵
- interest rate derivatives – £2.2tn⁴⁶
- commodity derivatives – £0.4tn⁴⁷

⁴¹ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁴² 92% and 93% for foreign exchange derivatives and spot trades respectively. For full sources see Section 6: Methodology.

⁴³ Elasticities for financial firms and non-financial firms are the same as in *IRIR*, and 1.67 and 0.75 respectively.

⁴⁴ World Bank (2018) *2017 World GDP, 2017 UK GDP*.

⁴⁵ BIS, WFE. See Section 6: Methodology for full sources.

⁴⁶ *Ibid*.

⁴⁷ BIS, WFE, LBMA. See Section 6: Methodology for full sources.

3.4 Tax rates

3.4.1 TRANSACTION COSTS

With regard to tax rates, it is important to ensure they are not disproportionate to the cost of undertaking the transaction. An argument can therefore be made for anchoring tax rates to the current transaction costs for each type of trade. This follows on from the approach used in *IRIR*.

The transaction cost of a trade includes brokerage costs (estimated as equivalent to approximately 50% total transaction costs), market impact costs (approximately another 50% total transaction costs) and infrastructure and other costs (minimal).⁴⁸ This report takes the average bid-ask spread for each market as representing the majority of brokerage costs. Total transaction costs are therefore estimated by doubling the spread, to account for market impact costs and infrastructure and other costs.

Transaction costs are lower for financial firms than for non-financial firms, due to financial firms' access to significant economies of scale, trading expertise and market efficiencies. As markets are dominated by financial firms, average bid-ask spreads are taken in this report to be representative for these firms, with transaction costs for non-financial firms adjusted accordingly. *IRIR* found an average increase of 210% in transactions costs between financial and non-financial firms across equity, corporate bond and certain derivatives. The markets addressed in this report – particularly foreign exchange and interest rate derivatives

– are highly liquid in comparison with the markets addressed in *IRIR*, with financial firms able to access increased economies of scale. Transactions costs for non-financial firms in this report are therefore adjusted with an increased ratio (300%).

For the markets in this report, total transaction costs for financial and non-financial firms are as follows:

- foreign exchange spot and derivatives – 4 basis points, 12 basis points⁴⁹
- interest rate derivatives – 2 basis points, 6 basis points⁵⁰
- commodity spot and derivatives – 8 basis points, 24 basis points⁵¹

3.4.2 SHARE OF TRANSACTION COSTS

Transactions costs for non-financial intermediaries trading equities average 49 basis points.⁵² The current UK SDRT rate is 0.5%. The tax rate of the UK's existing FTT (SDRT on equities traded by non-financial firms) therefore represents approximately 100% of these firms' transaction costs.

Transaction costs for trades by non-financial firms, in corporate bonds and in derivatives of equities and certain fixed income assets, average 46 basis points and 57 basis points respectively (or 0.46% and 0.57% of the economic value of a trade).⁵³ The tax rate for these markets as proposed in *IRIR* is 50 basis points (or 0.5%). As for equities markets, this represents approximately 100% of current transaction costs, and was selected given the similarities between these markets and

⁴⁸ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁴⁹ Ramadorai (2008) *What determines transactions costs in foreign exchange markets?*; GFMA (2013) *The Proposed EU FTT – Impact on the Foreign Exchange Markets*; BIS (2018) *Monitoring of fast-paced electronic markets. Report submitted by a Study Group established by the Markets Committee*; Schmidt and Bhushan (2011) *The Currency Transactions Tax: Feasibility, revenue estimates, and potential use of revenues*.

⁵⁰ ISDA (2011) *Costs and Benefits of Mandatory Electronic Execution Requirements for Interest Rate Products*. Note: transaction costs for interest rate derivatives are an under-researched area. Trade bodies such as ISDA have been known to underestimate transaction costs by upwards of 50% – compare GFMA reports with those of Ramadorai, BIS and Schmidt for foreign exchange – which has been taken into account.

⁵¹ Marshall et al (2011) *Commodity Liquidity Measurement and Transaction Costs*.

⁵² Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁵³ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

equity markets in terms of size and nature. In both cases, a tax rate representing 100% of transaction costs is not disproportionate, given that these markets currently function under very similar transaction costs.

However, the markets being considered in this paper, differ in their size and nature – they are much larger and highly liquid, and therefore a tax rate that represents a more conservative share of transaction costs – 50% – is proposed.

3.4.3 FINANCIAL FIRMS

As mentioned above, it is important to consider the lower transaction costs experienced by financial firms when setting tax rates. For trades in equities, corporate bonds and certain derivatives, transaction costs for financial firms were found to be on average approximately 45% of those of non-financial firms, using the highest estimates of costs for both types of firms to ensure conservative post-tax turnover estimates. Again being conservative, tax rates were proposed at 40% of standard rates for

financial firms, to ensure the increase in transaction costs did not disproportionately impact them.

Transaction costs for trades in foreign exchange, interest rate derivatives and commodities are on average approximately one third of those for non-financial firms⁵⁴ (this is already a conservative estimate, so average transaction costs are used). To limit the impact of the tax to the same proportional increase in transaction costs (ie 50%) and ensure market-making activity is not over-burdened, the tax rates proposed for financial firms in this paper are one third of the standard rates (ie 33%).

3.4.4 TAX RATES

This produces the following tax rates for each market, for financial and non-financial firms, respectively:

- foreign exchange spot and derivatives – 0.02%, 0.06%
- interest rate derivatives – 0.01%, 0.03%
- commodity spot and derivatives – 0.04%, 0.12%⁵⁵

4. REVENUES AND RECOMMENDATIONS

4.1 Revenues

Extending the tax to the further assets set out in section 2 under the residence principle would raise £2.13bn a year (see Figure 2, page 19).

4.2 Recommendations

The potential exists to further tax the UK's financial markets beyond the £4.7bn per annum proposed in *IRIR*.

⁵⁴ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁵⁵ Marshall et al (2011) *Commodity Liquidity Measurement and Transaction Costs*.

We recommend extending the UK's FTT to tax trades of foreign exchange spot, foreign exchange derivatives, interest rate derivatives, commodity spot and commodity derivatives under the residence principle.

We calculate that extending the tax to cover foreign exchange spot markets would generate an additional £1.79bn per annum alone. Extending the tax to cover the other above-stated markets would generate the remaining additional £340m pa, in total £2.13bn per annum.

Figure 2: Revenues under the residence principle

Market	Annual tax revenues (£bn)
Foreign exchange spot	1.79
Foreign exchange derivatives	0.10
Foreign exchange total	1.89
Interest rate derivatives	0.14
Interest rates total	0.14
Commodities spot	0.03
Commodities derivatives	0.07
Commodities total	0.10
Total	2.13

For full table of calculations, see Section 6: Methodology.

5. ADDRESSING OBJECTIONS

5.1 International competitiveness

5.1.1 TAX RESIDENCE

Under the residence principle, tax liability depends on the beneficial owner of an asset following purchase being a UK tax resident. Therefore moving the location of trading activity out of the UK would not allow such individuals and entities to avoid the tax.

The tax rates proposed in this paper, representing 50% of current transaction costs, are too low to incentivise UK tax resident individuals and entities to relocate their tax residence from the UK, in order to avoid the tax. In comparison, the UK's existing stamp

duty on equities almost doubles transaction costs – an increase of 100%⁵⁶ – and we have seen no exodus of tax residents.

This is because fundamental decisions around tax residency are not dictated by a single, marginal transaction cost, but depend on a broad range of other business costs and benefits that are gained through residence in the UK. These include access to clients, strong market infrastructure and regulation, access to and time zone overlap with other markets, the availability of skilled employees and the ability to offer them a high quality of life. Costs vary between financial centres – for example the costs of an initial public offering (IPO) are higher in New York than elsewhere, but this has not led to the flight of business to jurisdictions with lower costs.⁵⁷

⁵⁶ Intelligence Capital (2017) *Improving resilience, increasing revenue*. Estimated transactions costs for non-financial intermediaries trading equities is 49 basis points. Current UK SDRT rate is 0.5%.

⁵⁷ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

Previous tax reforms have also been met by threats of relocation from financial sector firms that have not come to pass – notably preceding the introduction of the 50% income tax rate in 2008.⁵⁸ Similarly, the corporate tax rate in Ireland is significantly lower than that in the UK, but again no mass migration of business has occurred.

5.1.2 BREXIT

It is a favourite – but spurious – argument of the financial lobby to play on legitimate uncertainty around Brexit to object to modernisation of the UK's financial transactions tax. By complaining that FTT reform would increase uncertainty further, these interests are seeking to delay the implementation of a modest and prudent measure. Financial sector actors are well placed to adapt to a modernised FTT, given their long history of operating under the existing UK FTT, the small scale of the tax increase in question, and the relative importance of considerations other than transaction costs, as described above.

Following Brexit, firms may well have to weigh considerations, such as the degree of EU market access, against the importance of access to UK markets, infrastructure and human capital, and the UK's highly competitive corporation tax rates. For those firms who judge that remaining in the UK will be better for profits, the balance will not be tipped by a very small increase in transaction costs via introduction of a tax at a fraction of one percent.

5.1.3 STABILITY

An extended financial transactions tax would help to encourage long-term and socially useful financial activity to the UK through improving market stability in contrast to claims by some UK financial actors.

As detailed in Section 1, FTTs improve liquidity and market stability, by disincentivising the sort of algorithm-based, high-frequency trading (HFT) that, in times of market stress, attempts to run ahead of the market. In these cases, such trading acts to drain liquidity and can drive 'flash crashes', which cause disruptive fluctuations in important economic indicators and prices. Criticisms of this sort, confuse liquidity with high turnover, which does not necessarily lead to a stable and efficient market. Beyond HFT, FTTs increase the relative cost of short-term speculative trading and help to internalise the cost of building complex, opaque webs of transactions that build systemic risk into the economy. In doing so, they help to stabilise markets – a prime objective of all financial market regulators – and encourage long-term investments that help to limit cycles of boom and bust.

5.2 Pension funds

An extended UK FTT would not penalise pensions funds, which regularly trade using long-term buy and hold strategies. This leads to far less portfolio turnover compared to other classes of market participants, such as hedge funds. The average pension fund holds assets for two years, and as an FTT is applied per transaction, this leads to a much lower average annual tax rate – effectively halving it.⁵⁹ Extending the UK's FTT to the specific markets considered in this paper would have a smaller still impact on pension funds, given that over 80% of their portfolios consist of equities and bonds, rather than derivatives or foreign exchange.⁶⁰

Further, a modernised FTT would also bring significant benefits to pension funds, such as incentivising their withdrawal from hedge funds, who operate using much higher frequency trading strategies. The use

⁵⁸ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁵⁹ *Ibid.*

⁶⁰ Wills et al (2018) *Global pension assets study 2018*.

of such alternative investment strategies has increased in recent years due to low interest rates. However, hedge funds do not offer an acceptable return or increased risk management – they consume three quarters of pension funds’ underlying returns through charges, at a cost to UK pensioners of £3bn annually.^{61,62} Many of the largest public pension funds have liquidated their hedge fund investments in recent years, including New York City, CALPERS in California, and PFZW in the Netherlands.⁶³

Pension funds would also benefit from increased stability under a modernised FTT. In reducing the likelihood of financial crisis and market crashes, losses to capital would be reduced – these approached 30% for UK pension funds after the last crisis.⁶⁴ By avoiding long periods of redundancies and unemployment following a crisis, a higher level of contributions to pension funds would be maintained. And by avoiding the need for long periods of low interest rates and quantitative easing, pension funds would be less likely to adopt high-turnover strategies, avoiding an increase in costs.

5.3 Higher costs through the transaction chain

It has been claimed that FTT rates would in effect be much higher due to each step in a transaction chain being taxed. However transaction chains are not necessary for financial intermediation. Many financial transactions do not create chains, such as asset purchases arranged through traditional brokering, where financial intermediaries link buyers with sellers and are compensated via charging a fee. There has been a significant shift away from this traditional model in

recent decades, with financial intermediaries purchasing from the market and re-selling assets to clients, claiming a slice of the value, and creating a chain in the process. There is little need for financial intermediaries to create these chains when acting on behalf of their clients, and an FTT would incentivise them to return to the traditional model of brokering.

Complex derivatives trades may require chains involving financial intermediaries. However, there are negative externalities imposed on the wider economy by the creation of these transaction chains, as their complex and inter-linked nature poses a ‘high risk of systemic contagion’,⁶⁵ increasing the likelihood and potential severity of a financial crisis. An FTT would help to internalise the cost of this systemic risk, allowing participants to better measure risk and disincentivising the creation of such chains.

5.4 Sterling

A tax on foreign exchange transactions by UK tax residents will not impact market participants’ willingness to hold sterling relative to other currencies. UK tax residents will not be incentivised to move from sterling to alternative currencies, given that the tax applies to all currencies equally.

We estimate that a higher proportion of sterling trades are by UK tax residents than for other currencies, so there will be a higher post-tax decrease in turnover in sterling markets as opposed to non-sterling markets. However this represents a decrease in *turnover*, not a decrease in the price of sterling, which may in fact then become more *stable*.

⁶¹ SCM Direct (2016) Hedge fund managers UK pension funds investing in hedge funds saw underlying returns of under 5% but paid annual charges of 3.6%. In comparison, charges from using index funds can be as low as 0.1%.

⁶² RSA (2012) *Seeing through British pensions*.

⁶³ Ibid.

⁶⁴ Griffiths-Jones and Persaud (2012) *No exemption*.

⁶⁵ Turner Review, cited in UK Parliament (2010) *The future regulation of derivatives markets*.

Further, significant changes in the price of currencies are driven by perceptions of future price changes, which are in turn driven by political and macroeconomic events, rather than marginal changes to the cost of trading currencies.

5.5 Examples of FTTs

The UK's own Stamp Duty dates back to the 1690s, predating income tax. FTTs figure in the work of John Maynard Keynes, and high-profile supporters include world-renowned entrepreneurs and investors such as Bill Gates and Warren Buffet, Nobel-prize winning economist Joseph Stiglitz and former FSA Chair Adair Turner.

Almost 40 countries besides the UK have implemented a unilateral financial transactions tax now or previously,⁶⁶ raising over \$30bn a year.⁶⁷ Those with an FTT currently in force include: European economies, including

France, Italy, Switzerland, Belgium and Ireland; financial centres and emerging economies including Hong Kong, Singapore, Taiwan and South Korea; and emerging economies including China and India. The US has collected a small FTT for many decades, the Section 31 fee, with revenue ring-fenced to pay for the US regulator, the SEC. Major economies with FTTs previously include Japan and Germany. Germany is currently one of ten EU countries working to introduce a regional European FTT alongside France, Italy, Spain, Austria and Belgium. As explained in IRIR, what is proposed here is significantly different from the 1984 tax levied on Sweden's brokers due to the design of tax capture to prevent avoidance.

Countries with an explicit FTT on corporate bonds include Switzerland, Belgium, India, Brazil, Poland and previously Japan. Countries with an explicit FTT on derivatives, such as futures and options, include the US, Italy, Ireland, Taiwan, India and Poland.

⁶⁶ Pollin (2003) *Securities transactions taxes for US financial markets*, updated by Stamp Out Poverty.

⁶⁷ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

6. METHODOLOGY

6.1 Assumptions

Both OTC and on exchange data are included for all markets, excluding:

- on exchange FX spot trading (which does not occur)
- OTC commodity spot trading outside of the LBMA (which occurs only minimally)
- on exchange commodity spot trading (which occurs only minimally)

OTC foreign exchange, interest rate derivatives, and commodities data sourced from BIS (2016) *Turnover of OTC foreign exchange instruments*; BIS (2016) *Turnover for OTC interest rate derivatives*; BIS (2018) *Global OTC derivatives market for H1 2017*.

On exchange foreign exchange, interest rate derivatives, and commodities data sourced from WFE (2018) *Annual Statistics* and LBMA (2017) *Clearing Statistics*.

Average daily turnover values converted to annual turnover values by multiplying by 250 trading days.

Trades are taxed according to their economic value (ie by cashflows) to enter into positions, as in *IRIR*.

Economic value turnover, where not available, is estimated from notional turnover as in *IRIR* (2.64%).⁶⁸

Notional turnover, where not available, is estimated from ratio of notional annual turnover to open interest⁶⁹ for ETD commodity products⁷⁰ applied to notional amount outstanding in H1 2017⁷¹ to give notional annual turnover.

Financial firm share of turnover, where not available, is estimated as the same as in *IRIR* (90%).⁷²

UK tax resident share of trading by *non-financial firms* (whether markets located in the UK or non-UK located) is taken as 33% for sterling foreign exchange and as 1.6% for non-sterling foreign exchange.

UK tax resident share of trading across all other markets (whether markets located in the UK or non-UK located) is taken as 3.3% for non-financial firms and as 4.1% for financial firms.

Transaction costs are estimated by doubling the average bid-ask spread.⁷³

Transaction costs for financial and non-financial firms are as follows:

- foreign exchange spot and derivatives – 4 basis points, 12 basis points⁷⁴

⁶⁸ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁶⁹ Open interest in on exchange markets is comparable to notional amount outstanding in OTC markets – both represent the amount of open, unsettled contracts.

⁷⁰ WFE (2018) *World Federation of Exchange Monthly Report Commodities 3.1*.

⁷¹ BIS (2018) *Global OTC derivatives markets*.

⁷² Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁷³ *Ibid*.

⁷⁴ Ramadorai (2008) *What determines transactions costs in foreign exchange markets?*; GFMA (2013) *The Proposed EU FTT – Impact on the Foreign Exchange Markets*; BIS (2018) *Monitoring of fast-paced electronic markets. Report submitted by a Study Group established by the Markets Committee*; Schmidt and Bhushan (2011) *The Currency Transactions Tax: Feasibility, revenue estimates, and potential use of revenues*.

- interest rate derivatives – 2 basis points, 6 basis points⁷⁵
- commodity spot and derivatives – 8 basis points, 24 basis points⁷⁶

Tax rates are set at 50% of transaction costs for each market, and are as follows for financial and non-financial firms:

- foreign exchange spot and derivatives – 0.02%, 0.06%
- interest rate derivatives – 0.01%, 0.03%

- commodity spot and derivatives – 0.04%, 0.12%⁷⁷

Elasticities for financial firms and non-financial firms are the same as in *IRIR* (1.67 and 0.75).⁷⁸

The midpoint method for elasticity is used to calculate the impact of the tax on taxable turnover volumes.

The USD to GBP exchange rate is the 2017 average, 0.7796.⁷⁹

6.2 Table of calculations

Figure 3: Estimated Revenues Calculations

Market		Untaxed annual turnover (£bn)	Tax rate (%)	Direct transactions costs (%)	Elasticity	Taxed annual turnover (£bn)	Annual revenues (£bn)
Foreign exchange spot	Non-financial firms	1,279	0.06	0.12	0.75	946	0.57
	Financial firms	12,266	0.02	0.04	1.67	6,124	1.22
Foreign exchange derivatives	Non-financial firms	79	0.06	0.12	0.75	58	0.03
	Financial firms	691	0.02	0.04	1.67	345	0.07
Interest rate derivatives	Non-financial firms	170	0.03	0.06	0.75	126	0.04
	Financial firms	2,023	0.01	0.02	1.67	1,010	0.10
Commodity spot	Non-financial firms	11	0.12	0.24	0.75	8	0.01
	Financial firms	125	0.04	0.08	1.67	62	0.02
Commodity derivatives	Non-financial firms	20	0.12	0.24	0.75	15	0.02
	Financial firms	229	0.04	0.08	1.67	114	0.05
Total		16,894⁸⁰	-	-	-	8,808	2.13

⁷⁵ ISDA (2011) *Costs and Benefits of Mandatory Electronic Execution Requirements for Interest Rate Products*. Note: transaction costs for interest rate derivatives are an under-researched area. Trade bodies such as ISDA have been known to underestimate transaction costs by upwards of 50% – compare GFMA reports with those of Ramadorai, BIS and Schmidt for foreign exchange – which has been taken into account.

⁷⁶ Marshall et al (2011) *Commodity Liquidity Measurement and Transaction Costs*.

⁷⁷ Ibid.

⁷⁸ Intelligence Capital (2017) *Improving resilience, increasing revenue*.

⁷⁹ UK Government HMRC GBP/USD 2017 average.

⁸⁰ Total does not sum due to rounding.

