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Competition and prudential regulation

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Abstract

In 2014 the Prudential Regulation Authority, Bank of England, was given a new secondary objective to facilitate effective competition when it advances its primary objectives related to safety and soundness and policyholder protection. Given the concerns around conflict between competition and stability, there has been considerable interest in the new objective. After discussing the precise form of the competition objective and its background, we consider how best it should be interpreted and implemented. Amongst other points we argue that (i) secondary objectives should be seen as mechanisms for forcing, or at least encouraging, co-ordination across agencies and therefore such objectives have a significant role to play in this context, (ii) that time and proportionality are the key dimensions that provide discretion to pursue primary and secondary objectives, (iii) that there is nothing overtly special about competition as a second best tool when it comes to mitigating risk in the absence of good prudential regulation, and (iv) if prudential regulation is set at the same time that the competition objective is 'in play', then the conflict between stability and competition tends to disappear, although some 'tension' remains at the margins.

Key words: Competition, stability, prudential regulation.

JEL classification: G2 financial institutions and services, G28 government policy and regulation.

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1. Introduction

1. Deposit taking and lending institutions, notably banks, and other prudentially regulated institutions such as insurance companies, play a major role at the centre of modern economies. However, this central position, combined with features of their underlying business models, results in a potential fragility at the national and global level, for the economies they serve. This arises from a number of sources. For example, to the extent that a role of banks is to provide the service to depositors of short term access to funds e.g. for payment purposes; while also providing credit to businesses (or house buyers) over a long term horizon more closely matching their investments; then even a good bank can be susceptible to a run and associated liquidity squeeze, if there is a sudden lack of confidence in the bank or the system.[1]

2. In addition, to avoid risk concentration, modern banks routinely buy and sell instruments between themselves to spread and balance risks, and have traditionally played a central role in the payments system, all of which leads to significant interconnection between the institutions. As a result, a shock to one part of the system can produce contagion across the whole of the system, leading to systemic risk for the whole economy. This problem is clearly exacerbated if the institutions are very large, leading to a potential for some firms to be too big to be allowed to fail.

3. It is not surprising, given the various forms of market failure that arise naturally in such an environment, that the role for prudential regulation is crucial. And that the effect of competition, given its association with entry, exit, innovation and heightened focus on risk and reward, is potentially complex relative to other industries. In most economies competition policy across the banking sector and the prudential regulation of banks sit in separate agencies and if not, then in separate subparts of central banks or regulatory agencies. In contrast, the position in the UK, which we believe to be unique, is that the Prudential Regulation Authority (PRA, part of the Bank of England) is charged with facilitating effective competition as one of its three objectives (albeit secondary to primary objectives of achieving an appropriate safety and soundness for its authorised firms and protection of policy holders in insurance markets (see Section 2 for detail). [2]

4. This paper discusses the interaction of prudential regulation, competition and stability of the financial system at a general level, and the specifics of UK law and how it applies to the Bank of England.[3] With regard to the latter, it examines the new competition objective, what it means and

[1] This is sometimes referred to as the Diamond-Dybvig problem (see Diamond-Dybvig (1983).

[2] Note that the Australian Prudential Regulation Authority has an overarching requirement to promote financial stability but subject to that is required to balance financial stability with efficiency, competition, contestability and competitive neutrality. What we believe to be unique is that the PRA's secondary competition objective requires it to facilitate effective competition as opposed to have regard to or balance off. It is also worth emphasising that the competition objectives discussed throughout the paper do not relate to competitiveness, domestically or internationally, which is concerned with the extent to which one group of agents has a competitive edge over another group.

[3] Following the financial crisis beginning in 2007, many economies responded in the short term to the banking crisis by 'relaxing' competition policy (e.g. allowing mergers that in other circumstances may not have been approved) as part of a rescue package. This ex-post response is generally seen as a one-off phenomenon

how it has been implemented. In particular we spell out the detail of the objective, how one might interpret its secondary nature in the context of the Bank's other responsibilities, which include the broader remit of financial stability, and how it fits with the wider competition regulatory landscape. We then set out how to understand the concept of effective competition in this context.

5. The paper has four distinct sections (excluding the introduction and conclusion). In the following section, Section 2, we discuss the structure of prudential regulation in the UK, the precise competition objective, its legal form and the background to its introduction. Section 3 focuses on policy instruments and how these should be allocated between agencies and the most effective interpretation of secondary objectives in this context. Section 4 considers the micro-economics of the interaction of competition, safety and soundness and prudential regulation, in particular the potential conflict between safety and soundness, and hence conflict between the primary and secondary objectives. Section 5 provides a brief discussion of competition in UK banking and Section 6 concludes with a summary of the main findings of the paper.

2. The PRA's Secondary Competition Objective

2.1 Background

6 The Prudential Regulation Authority (PRA) was originally created as a wholly owned subsidiary of the Bank of England and given legal birth on 1 April 2013 as the prudential regulatory successor to the Financial Services Authority (FSA) by the Financial Services Act 2012 (FSA12); a package which also established the Financial Policy Committee (FPC) at the Bank of England on a statutory basis and created the Financial Conduct Authority (FCA) as an independent agency, thus reshaping the UK's financial regulation landscape. This action was part of the UK's response to the financial crisis of 2007-09 which revealed that a 'light touch' to regulation had led to a serious under-capitalisation of the banking sector, which also held too little by way of liquid assets. In addition to these institutional changes, a wider regulatory agenda has been pursued to make the UK economy more resilient to future shocks, preserving financial stability and enabling the financial sector to continue supporting economic activity during such periods[4].

7 The PRA is the United Kingdom's prudential regulator for deposit takers (banks, building societies and credit unions), insurers and major investment firms. In March 2017 the PRA was subsumed into the Bank, requiring the Bank to exercise its functions as the PRA through a new Prudential Regulation Committee (PRC, which replaced the PRA's Board), a statutory committee henceforth on the same footing as the Bank's Monetary Policy Committee (MPC) and FPC. In the paper we will use the terms PRA, PRC and Bank of England somewhat interchangeably (since it is

following on from regulatory failures. A great deal has been written about this short-term response (e.g. Beck, Coyle, Dewatripont, Seabright, and Freixas (2010)) and this aspect of competition policy will not be discussed explicitly in the paper although it is clearly implicit in our discussion of too big to fail and imperfect prudential regulation.

[4] See Fisher (2016) for a brief summary of the regulatory reform agenda,

easier at times to slip between these to avoid undue formal clarifications). The PRA was initially given two objectives: (i) promoting the safety and soundness of its authorised firms and (ii) specifically for insurers, to contribute to the securing of an appropriate degree of protection for those who are or may become policyholders. The Financial Services (Banking Reform) Act 2013 added, from April 2014, an additional Secondary Competitive Objective (SCO). This addition was a consequence of the recommendations of the Parliamentary Commission on Banking Standards (PCBS) 2013 report '*Changing banking for good*'.[5] It displaced a previous requirement inherited from the FSA to 'have regard' to minimising the adverse impacts on competition of the FSA's exercise of its general functions. The PCBS (2013) concluded that "a 'have regard' duty in practice means no regard at all". Interestingly, that previous 'have regard' formulation implicitly assumed that competition and regulation would be in conflict. The new objective, in contrast, was intended to require a more proactive approach without undermining the PRA's primary objectives (HMT 2013).

2.2 The Secondary Competition Objective

2.2.1 What is the Objective?

8 The PRA's objectives are formally set out in the Financial Services and Markets Act (FSMA). This was originally enacted in 2000 but has been amended on a number of occasions, with substantial cross-referencing of clauses.

9. Following the amendments to FSMA in 2014 the PRA's three objectives are (taken from the sections noted):

- *'The PRA's general objective is: promoting the safety and soundness of PRA-authorised persons.*' (Section 2B);

- *'The PRA's insurance objective is: contributing to the securing of an appropriate degree of protection for those who are or may become policyholders.'* (Section 2C); and

- '*When discharging its general functions in a way that advances its objectives (see section 2F), the PRA must, so far as is reasonably possible, act in a way which, as a secondary objective, facilitates effective competition in the markets for services provided by PRA-authorised persons in carrying on regulated activities.'* (Section 2H).

The last is the Secondary Competition Objective. Note that the SCO applies both to banking and insurance services. In the paper, much of the discussion is cast using banking terminology for ease of presentation but frequently the arguments, with minor formalisation and terminology changes, can be interpreted as applying equally to insurance services.

[5] The Independent Commission on Banking, (2011), often referred to as the Vicker's Report, had previously emphasised the lack of competition in the UK banking market as potentially problematic.

2.2.2 The background to the 'secondary' terminology

10. Not only is the competition objective itself unique but the explicit use of the terminology 'secondary' is also unique in UK financial services legislation. The allocation of secondary objectives appears to be quite common across Government agencies but the word 'secondary' does not seem to appear in statute, and we are not aware of there being any formal statement or academic analysis of what it means to have a secondary objective. Rather, FSMA quite reasonably relies on the ordinary meaning of the word 'secondary'. But we need a deeper understanding than that to establish what it means in practice.

11. The MPC had an objective which was secondary in nature from its creation in 1997 and it is useful to consider how that came about. The initial letter setting out the intentions for the MPC from Chancellor Gordon Brown to Governor Eddie George in 1997 specified a secondary objective to support economic policy more widely:

'… the monetary policy objective of the Bank of England will be to deliver price stability (as defined by the Government's inflation target) and, without prejudice to this objective, to support the Government's economic policy, including its objectives for growth and employment.'

In Bank of England Act 1998 (BoE98), this became

'(a) to maintain price stability, and

(b) subject to that, to support the economic policy of Her Majesty's Government.'

The language of *'subject to that'* is actually quite common in statute and is used many times in BoE98.

12. We understand that the formulation of a primary objective to target inflation and a secondary objective to support the Government's economic policy was intended as a twin constraint to both limit the power of the Bank to targeting inflation whilst preventing that target from being pursued at all costs, to the detriment of growth.

13. Having been introduced before the decision of the UK not to join the single European currency, the 'without prejudice' language echoed Article 105 of the Maastricht Treaty which, interestingly, also implies that the European Central Bank (ECB) should take competition into account:

" Without prejudice to the objective of price stability, the European System of Central Banks (ESCB) shall support the general economic policies of the Community…….. The ESCB shall act in accordance with the principle of an open market economy with free competition, …"

14. The word 'secondary' does not appear in any published documents or communications between the Chancellor/Her Majesty's Treasury (HMT) and the Governor/ MPC although it is used

elsewhere, informally to describe the 'subject to' part of the objectives. The word 'secondary' seems to appear formally first in a Government consultation paper in 2010 (HMT 2010) which was a precursor to the arrangements introduced by FSA12. That paper posed the question of whether or not the FPC's objectives should be supplemented by 'secondary factors'. In the event the FSA12 legislation gave the FPC a secondary objective to mirror the MPC's:

'(a) contributing to the achievement by the Bank of the Financial Stability Objective; and

(b) subject to that, supporting the economic policy of Her Majesty's Government, including its objectives for growth and employment'.

Unlike the MPC, this is referred to in formal correspondence between the Bank and HMT as being a 'secondary' objective e.g. the first exchange of letters between Governor and Chancellor on the Remit of the FPC (Osborne 2013 and King 2013).

15. The FCA and PRA were meanwhile given secondary objectives by being required to 'have regard to' certain regulatory principles (FSMA Section 3B) which included:

'the desirability of sustainable growth in the economy of the United Kingdom in the medium or long term'.

16. Only the PRA's new competition objective seems to have been given the explicit label in statute as 'secondary' although the form and intent are otherwise broadly similar to other cases.

17. It is worth noting that in Europe the general exhortation to support competition has an exception in that European prudential regulators are legally prohibited from considering competition factors when assessing change or control (M&A) propositions. In neat contrast, we understand that the US Federal Reserve System has no legally required competition remit, except that it must look at competition issues when assessing M&A.[6]

2.2.3 The wording of the objective

18. The precise wording of the PRA's competition objective and its meaning are discussed extensively in Dickinson, Humphry, Siciliani, Straughan and Grout (2015). In summary:

a. The PRA is not to pursue the competition objective unless it is also pursuing its safety and soundness objective and only when exercising its general function to make rules, not in specific firm-by-firm supervision. It is not required make rules that favour competition at the expense of safety and soundness;
b. The PRA must act 'as far as reasonably possible'. This reflects the fact that there may be other legislation which restricts the PRA's ability to facilitate competition;

[6] An executive order dated 15 April 2016 appeared to put pressure on all US agencies to promote competition where they can, but we have seen no evidence of this being responded to by the Federal Reserve Board.

c. The objective has relatively broad application – potentially including overseas markets for example (subject to what is 'reasonably possible'); and
d. The PRA is only required to 'facilitate' competition, not to 'promote' it, which is the objective of the primary regulators. This means that the PRA does not have to be outcome focussed i.e., it has not failed in its objective if competition is not actually improved by its actions.

19. To fully understand the nature of the objectives also requires reference to the text around the general objective in Section 2B of the Act. This requires the PRA to operate in a way which avoids financial instability, especially through firm failure (whilst not seeking a zero-failure regime!).

20. The combination of clauses in FSMA puts the PRA firmly under a general duty to preserve systemic financial stability and in particular to focus on allowing firms to fail in an orderly fashion. That the PRA should allow firms to fail is incorporated in its published strategy[7] and is an important part of the context for the competition objective as it should permit exit from the industry.

21. For financial services, the primary competition regulators are the Competition and Markets Authority (CMA) and the FCA which are known as 'concurrent regulators' – in that they have overlapping objectives and must work together. The CMA has objectives to promote competition, not restricted to financial services. The FCA has a strategic objective to ensure that the relevant markets for financial services function well. Its formal operational objectives include: "*to promote effective competition in the interests of consumers in relevant markets*". The FCA also has within it a sub-entity which is the Payment Systems Regulator (PSR). The PSR also has a competition objective: *"To promote effective competition in the markets for payment systems and services - between operators, Payment Systems Providers and infrastructure providers."*

22. The CMA, FCA and PSR all have a range of powers that enable them to enforce competition law, conduct market studies or make (relevant) market investigation references. Both the FCA and PSR can take action in relation to firms regulated by the PRA or payment systems overseen by the Bank of England; although the legislation includes a power under which the Bank and PRA may exercise a veto in certain circumstances.

23. In contrast, the PRA does not have any powers specifically in relation to competition. Its legal powers are solely those needed to advance its primary objectives. We will return to this important observation in Section 3.

[7] Prudential Regulation Authority Annual Report 2016 p21.

3. Operating with Multiple Objectives in Prudential Regulation

3.1 The macroeconomic problem of multiple objectives

24. There is an extensive and long-established economics literature on policy control problems, including when there are multiple objectives. It covers both policy coordination between different authorities and trade-offs between competing objectives. The classic examples include the potential for a short-term trade-off between unemployment and inflation and the resultant need for coordination between fiscal and monetary authorities. Another notable example is the potential for international macroeconomic policy coordination.[8]

25. A general approach would be to set up a utility maximisation problem subject to a set of constraints such as a macroeconomic model and/or a budget constraint. Often this is done in a Linear-Quadratic-Gaussian[9] framework because that is amenable to analytical solution. One can explore the benefits from policy coordination by comparing the results from (a) a problem in which different policy makers optimise independent utility functions with (b) results from optimising a single combined utility function. One can also model various degrees of collaboration between the agents – who will usually be governments or other strategic bodies like central banks. The dynamics and solutions are often determined in a game theoretic framework.

26. The simplest approach starts with the Tinbergen counting rule, which is generally a necessary and sufficient condition for *Static Controllability*.[10] This states that, to hit multiple objectives simultaneously (in expectation) one needs as many effective and independent policy instruments as there are different objectives. If the targets are not mutually inconsistent, and achievable (for example zero unemployment would be an unachievable target) then it will generally be possible to design a set of rules to hit them all at once (absent shocks)[11] – hence the economy will be *Stabilizable*[12]. Additional analysis, of whether a set of policy arrangements can actually deliver that stability, generally suggests that, where there are multiple authorities involved, there needs to be effective assignment of the powers so that the instrument most relevant to a particular target is appropriately allocated, to avoid dynamically unstable outcomes. And most importantly, even when there is a unique stable equilibrium, there may need to be co-ordination between policy makers to avoid specific game scenarios in which the outcome is de-stabilising. This in part reflects the timing

[8] See for example Bryant (1995) or Acocella et al (2013) and the references therein.
[9] LQG approach = linear model, quadratic utility function, normally distributed, independent, random shocks.
[10] The term is defined in Hughes Hallett and Acocella (2016) which also finds that the Tinbergen condition for static controllability also holds for models with forward looking expectations.
[11] For completeness at this point, we acknowledge the weaker condition of 'dynamic controllability' which just requires the objectives to be achievable at a single point of time. But for primary objectives, what we really want is 'path controllability' in the medium-term.
[12] An economy hit by a shock of arbitrary size is said to be stabilisable if a feedback (or feedback-feed forward) policy rule exists that would stabilise that economy to an arbitrary degree, including its dynamics (and under rational expectations if they are present) following that shock.

of interventions and whether particular agents act as, for example, Stackelberg leaders[13]. But much of the analysis can apply equally to a single authority with multiple objectives[14].

27. The policy co-ordination literature generally sets out problems with multiple primary objectives. It is important to note that having multiple primary objectives does not require equally weighted objectives. Weighting can reflect both units of measurement as well as relative preferences. But notwithstanding that observation, the weighting is only really important when the objectives cannot all be achieved exactly at the same time. To generate a coherent medium-term problem with multiple primary objectives, all one actually needs is non-zero relative preferences between targets which are not mutually exclusive. Of course, in the short-term it may not be possible to achieve all objectives at once, so the weighting can certainly affect the trajectory chosen to the equilibrium. In that sense one of the most interesting experiments within a given problem can be to vary the weights attached to different objectives to map out different paths to the same medium term end-point. One can also use game theory, or straightforward dynamic calculus, to check the dynamics of coordinating authorities for a stable path.

28. The first question to ask ourselves is whether it is inherently necessary that policies for prudential regulation are inconsistent with those for facilitating competition i.e. are they mutually exclusive objectives? We will address this issue at several points in the paper. Here we take a simple macroeconomic approach.

29. The UK Government has chosen to delegate a number of policies to independent agencies, all of which affect the path for the macro-economy. It seems sensible to assume, that by design, all of these agencies should be acting consistently with achieving the Government's overall economic and social objectives. Indeed, we shall see in the next section that this has generally been provided for by way of secondary objectives albeit with various wording. The relevant government objective is to have the highest rate of sustainable growth in output, income and employment. It would be reasonable to assume that this sustainable growth rate requires an appropriate degree of safety and soundness in the financial system (financial crises are not consistent with sustained growth) and a certain degree of competition in financial markets. As long as the different agencies are given medium-term objectives consistent with the highest sustainable growth path, then it should be possible for both objectives to be achievable at the same time in the medium term. We do not see any grounds for concluding that achievement of the appropriate degree of safety and soundness, and of competition, consistent with this over-arching vision for growth, should be inimical.

30. In the short run, it is unlikely that one would ever actually reach a situation in which all firms were appropriately safe and sound or all markets appropriately competitive. Both demand and supply side shocks are continually throwing the economy off course and the duty of the agencies is always to be steering it back. But as long as this is understood, there is no macroeconomic reason

[13] Stackelberg leadership is where one agent acts and the other then follows. And this is known by both agents.

[14] Fisher (2014) addresses how monetary policy, financial stability and prudential regulation are consistently pursued by the Bank of England.

why the objectives of a prudential regulator and a competition regulator should be in conflict with each other or with the meta objective of sustainable growth. If they were so formulated to give a conflict, that would be a policy error, which Parliament would need to correct, otherwise it can't expect to achieve its broader objective.

31. Some other considerations can also be made at this stage. First, we know that when there are multiple objectives, co-ordination between different agencies or authorities is extremely important. Put simply, if the PRA – or the wider Bank of England powers – have a significant impact on competition, then the PRA/Bank should be co-ordinating with the competition authorities to avoid potentially destabilising outcomes. That holds even if the PRA did not have its secondary objective. Fortunately co-ordination is well provided for between the PRA and the FCA. The CEO of each sits on the other's Board – and both sit on the FPC - and that allows for free flow of information and helps co-ordinated decision making.

32. Second, if we consider that it is indeed feasible and coherent to hit competition objectives and the PRA's safety and soundness objectives jointly in the medium-term (or at least absent new shocks) then we should not talk about a 'conflict' of objectives. Words matter. If the discussion is around resolving conflicts then different agencies are likely to adopt defensive postures in order to protect their chances of hitting their own targets. But if we think such conflicts are at most just short-run trade-offs which disappear in the long-run (such as the Phillips Curve) then it would be better to talk about 'spill-overs'. The solution to such short-term spill-overs should be that each agency should position itself to understand and predict the consequences of another's actions and adjust their own in a co-ordinated fashion so that they each still expect to hit their own targets. Ideally the solution would be fully cooperative. But a less demanding solution might be where each Agency was the Stackelberg leader in respect of its primary powers and objectives and a follower on its secondary objectives. We do not investigate these strategic options for coordination further in this paper.

33. Our observation is that the PRA, FCA and CMA do have such a constructive relationship even if it is not always perfect. However, it is often not the case with overseas regulators, hence this is something which could slip away and needs to be preserved and nurtured.

34. The analysis so far leaves open the question of whether, from a micro-economic perspective, conflict may actually be inevitable, and we address that in Section 4. The analysis so far also holds regardless of whether the PRA has a competition objective or not. And in particular we have the outstanding issue of the secondary nature of the PRA's competition objective. So we turn next to the precise meaning of the PRA's objective.

3.2 The Presence of a Secondary Objective

3.2.1 How should we interpret the nature of secondary objectives?

35. One possibility (e.g. Bean (2004)) would be to interpret secondary objectives as being an expression of lexicographic preferences. Lexicographic orderings describe comparative preferences whereby an economic agent prefers any amount of one good (X) to any amount of another (Y). Specifically, if offered several bundles of goods, the agent will always choose the bundle that offers the most X, no matter how much Y there is. Only when there is a tie between bundles with regard to the number of units of X, will the agent start comparing the number of units of Y across bundles. In our context, one would take this to mean that the PRA should do what it could to facilitate competition, only if it never affects safety and soundness of firms negatively to even the tiniest degree. It is also worth noting that because they are not continuous, lexicographic preferences are not very amenable to analytical solutions or even helpful graphical representation. So this interpretation is not helpful in any sense. To the extent that people have interpreted secondary objectives in such a way, invoking lexicographic preferences could be a source of confusion about exactly what a secondary objective means and why there does not appear to be any useful academic literature on the subject.

36. One way of expressing the competition objective is indeed to take the view that the nature of competition to be facilitated by the PRA is only competition between safe and sound firms. Although one can make a solid basis for such an approach, given the precise formulation of the objective, we should be alert to the possibility that, without care, it can push one into a lexicographic preference interpretation. We don't need to use this definition and taking it as the starting point would give a strong impression that a secondary objective would be best always ignored!

37. If a secondary objective is not a target with lower priority/weighting, nor is the extreme case of Lexicographic preferences then what is it? In our view it does not easily fit any conventional academic concepts. It is clearly not an Intermediate Target that would set an additional constraint on the choice of other objectives/instruments, nor does it provide boundaries to the choice of instrument. Nor is it simply a statement of timing preferences.

38. In our view the most helpful way of characterising a secondary objective in the context of the multiple objectives of the Bank of England and other regulators is as follows. It is sensibly used in a situation where an agency (A) is given a primary objective with specific powers or instruments designed to deliver that objective, but those powers also impact materially on the objectives of another agency (B). So agency A is then asked, subject to achieving its primary objectives, to have a secondary objective for which it is not given any specific powers or instruments. It is the absence of relevant direct powers that makes the objective secondary. If there were additional, independent powers then there would be no need, indeed no point, in the objective being classed as secondary – it would have to be regarded as primary, albeit with some degree of weighting if in conflict. Secondary objectives can be seen as a mechanism for forcing co-ordination where that is appropriate.

39. Other agencies do have relevant primary objectives and powers for all the Bank of England's secondary objectives across its policy committees. For employment, growth and productivity, it is clearly government economic ministries – especially HM Treasury and the Business, Energy and Industrial Strategy (BEIS) ministry which lead on fiscal and supply side policies and have the relevant tax, spending and legislative levers to deliver those objectives. On competition it is the CMA and FCA (and other regulators across the economy) which have the primary objectives and have been given specific powers of intervention to promote competition.

3.2.2 How can an agency seek to achieve a secondary objective?

40. To enable the PRA to advance its secondary objectives beyond information sharing, requires it to identify some dimension of the powers that it has been given, whereby a degree of discretion can be used in advancing the primary objective, so as also to advance the secondary. To a certain extent, this may depend on the primary objective being slightly under-specified in some dimension(s).

41. Drawing on experience of the MPC and FPC to date, the one dimension that has been used to provide such discretion is time. A central bank is always inclined to take a medium-term view of its policy objectives. This is crucial: one can argue that the very reason for delegating monetary policy and macro-prudential policy to a central bank is the time it takes for policy decisions to have their desired outcomes, in the face of time-varying short-term trade-offs. In particular there are often thought to be such trade-offs which not only don't exist in the medium-term, but where it is positively harmful to exploit them (inflation vs unemployment being the classic example). In such a situation, politicians with short-term horizons could be – and in the past have been - tempted into policy choices which are bad in the medium-term , whereas a central bank, with a longer horizon, can be instructed to independently set policy with an eye to the medium term outcome.

42. The Government should be setting consistent objectives for all responsibilities it has delegated to independent agencies. As argued above, it is obviously desirable for overall economic success that fiscal, monetary, macro- and micro-prudential and supply-side objectives are all consistent with the same medium-run sustainable growth path. For example, the vision of the sustainable path for the economy should be consistent with low stable inflation and a desired degree of financial stability, safety and soundness of firms and a healthy degree of competition. None of the objectives should be pursued to extreme, as each could then have negative consequences for sustained growth.[15] These are the conventional arguments for 'Fiscal Leadership'.

43. If Parliament had not set consistent objectives (or has missed setting some altogether) then that could lead to a major policy failure. As long as the objectives are consistent and coherent, then an agency needn't be distracted by short-term trade-offs and it is vital that all authorities focus on

[15] Although sometimes agencies face additional restrictions, e.g., competition cases must be decided on their individual merits.

their medium-term outcomes. The main issue then would be about how the authorities coordinated policies to aim for the simultaneous medium-term achievement of them all. We note that policy coherence is necessary but not sufficient, e.g. a coherent set of policies could still fail if there was a key element omitted altogether or if execution was poor.

44. Nevertheless, there are occasions when, because there are short-run correlations, changing the time period over which a policy is enacted can leave the achievement of the primary objective unaffected in the medium-term, but advance a secondary objective. Two recent examples are:

a. During the great financial crisis, price inflation in the UK twice surged to over 5%, largely on the back of sharp rises in energy prices. The MPC consciously took the collective view that it should not try and return inflation quickly to target – it was most likely that would happen naturally without aggressive intervention, once price level shocks wore off and as long as expectations of medium-term inflation remained anchored. In the meantime, the MPC could support its secondary objective on growth and employment by not acting precipitately. As a hypothetical counter-factual, had output growth been booming, the arguments would have been reversed and there would have been a strong case to support the secondary objective (as well as the primary) by aggressively tightening.[16]

b. On the regulatory reform agenda, there has occasionally been pressure internationally to water down tougher regulation because of weakness in various parts of the global economy. The Bank of England approach has generally been not to compromise on the medium-term objective. But the Bank has been more than willing to agree to long timescales for implementation, given the state of the economy. That enables resilience to be built over time whilst supporting the secondary objective in relation to output and employment in the near term.

45. The time period over which policies are enacted, therefore gives one dimension in which the PRA's secondary objective can be advanced. The use of the time profile of instruments to help hit an objective is well known in the control literature and is referred to generally as Dynamic Controllability. It would not necessarily lead to a sustainable equilibrium (ie Path Controllability). But in the context of the secondary objective at least, it does not need to, because we are only dealing with short-term spill overs – other, lead agencies should use their powers to ensure that the overall competition objective is hit in the medium-term.

46. There have been some examples where this discretion over timing has been used to facilitate competition, usually in a context where, when implementing new rules that advance safety

[16] Paul Fisher was a member of the MPC from March 2009-August 2014. And prior to that, a member of the Secretariat taking MPC minutes. So the first example is his personal assessment of what happened. The same author was a member of the interim FPC from 2011-2013 and the second example is his personal view of the approach taken during that period and subsequently within the PRA.

and soundness, allowing reasonably long transitional periods can help smaller firms adjust.[17] It can also support financial stability by maintaining the provision of financial services, which could be threatened by abrupt rule changes.

47. What else could the PRA do, given the absence of direct powers? There are two areas to consider: making rules (regulation) and firm-by-firm supervision. The use of discretion fits with the PRA's published strategy to be proportionate and judgmental. That has been used, for example, to exempt, or lessen the burden on, smaller firms from some requirements (e.g. the Senior Managers Regime) that would be overly onerous, without advancing the PRA's primary objective.

48. But a focus on small firms may only have a marginal effect on the level of effective competition. In economic theory, barriers to entry and exit are generally a key feature of what limits competition. But a focus on such barriers may be inappropriate given the existing structure of the markets for financial services. Most of the financial markets in which PRA authorised firms operate can be described as exhibiting imperfect competition. For example, the top 4 banks in the UK, have over 70% of the market for personal current accounts.

49. The key questions then are around whether and how rule-making and supervision impact on the degree of monopolistic power, and how to facilitate effective competition to the largest firms. To explore this further we need to understand the importance of effective competition.

4. The interaction of effective competition, prudential regulation and stability.

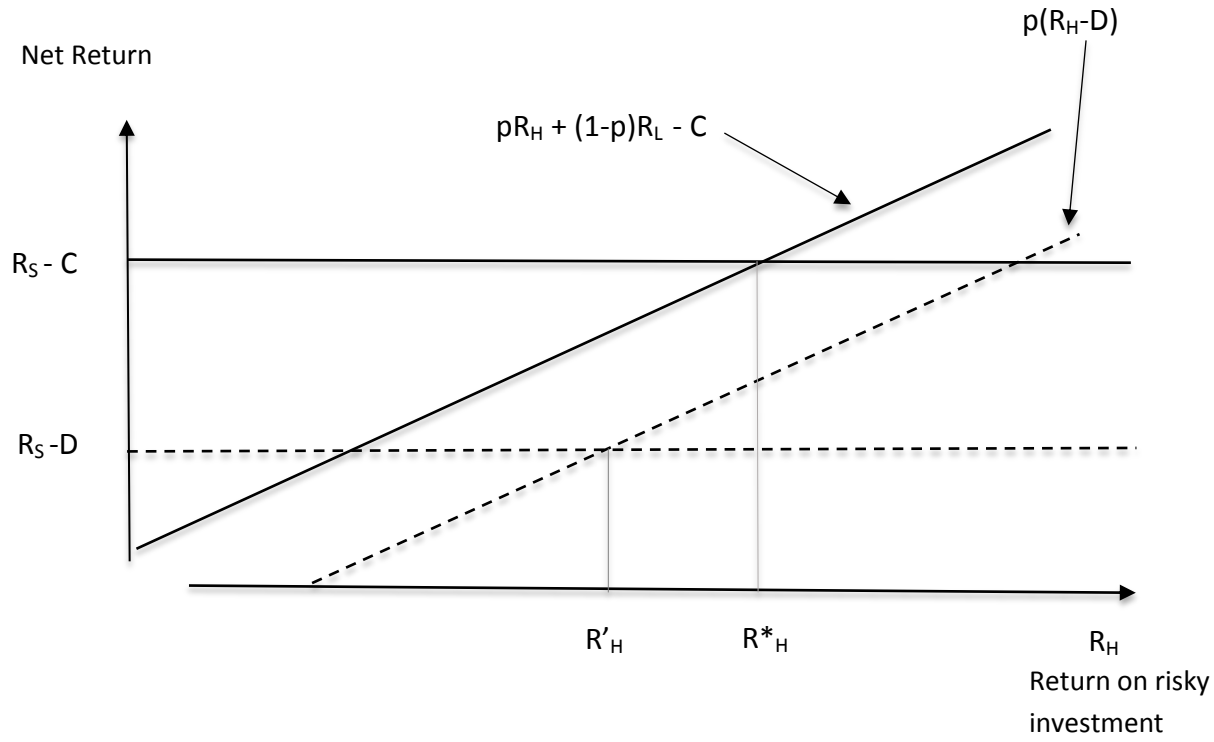
4.1 Stability and competition

50. The historical perspective on stability and competition has been scoped by an extensive literature, both theoretical and empirical, which addresses the question of whether greater competition increases the stability of the financial system or reduces it. Unfortunately, the literature does not provide a clear answer to this question but in the broader policy arena there has been traditionally a relatively common consensus that there is a conflict between competition and financial stability. The basic insight into how tension between competition and stability can arise can be shown easily in a basic diagram representing a simple stylized moral hazard investment problem. It is useful to present this since it makes it clear why conflict between competition and stability is not universal (it will depend on the specific market where competition is increasing or decreasing) and also helps to elucidate the role of prudential regulation in this potential conflict. Further detail of the basic moral hazard problem underlying the intuitive explanation is provided in the Annex.

[17] Again, Paul Fisher was on various PRA decision making bodies from June 2014-July 2016, including a spell of 6 months as a PRA Board member. The assertion is based on that experience, but we examine some examples in Section 5.

51. Take two alternative investments with exactly the same set up cost, C, one of which is safe and gives a guaranteed revenue of R_S and the other risky giving a high revenue, R_H, with probability p < 1 and a low revenue, R_L<R_S otherwise. Figure 1 shows the return on these two alternative investments for different values of R_H, holding everything else constant (solid lines). The risky project gives a higher (expected) return than the safe project if $R_H > R_H^*$ and lower than the safe project otherwise. So if the interest is in maximising aggregate expected return then risk is at an optimal level if the risky investment is chosen when R_H is greater than R_H^* and the safe investment otherwise.

Figure 1: the lender's choice between safe and risky investments



52. The outcome is different, however, if the investment decision is made by an intermediary that has no capital, borrows from depositors, invests in the project and returns to the depositors either an agreed amount D or, if returns are lower, whatever is available. In this case the intermediary is optimising its own profit which is R_S-D if the safe investment is undertaken and p(R_H–D) if the risky investment is undertaken.[18] For convenience, to separate from later discussion, call this Scenario 1. The returns to the intermediary are also shown in Figure 1 (dashed lines) and can be

[18] To focus on the simple intuition, we do not outline all the implicit assumptions here. These are presented in the Annex. However, to give bite to the example in the figure, an important assumption is that there is some real risk in the system. Hence we are assuming that the actual R_H is revealed to the financial intermediary after D is agreed and that the risky project has a possibility of losing money, i.e., the cost of setting up a project is greater than R_L. These assumptions imply D is greater than R_L.

compared to the overall return on the project. If the intermediary opts for the safe investment the returns to the intermediary are R_S-D, and hence the relevant return line drops by exactly the extent that D is greater than C. However, when the risky investment is taken the difference between the overall returns and the returns to the financial intermediary is less than the difference between D and C. This is because whenever the project delivers the low return the intermediary can only pay R_L to the depositors, not D, hence whenever the intermediary opts for the risky investment the depositors are putting D-R_L at risk and they then lose this amount with probability 1-p. Given that the intermediary is thus able to pass off some of the risk to depositors when the risky project is chosen the risky project is now comparatively more favourable for the intermediary and so the new intersection point, R'_H, lies to the left of R^*_H. Hence the intermediary opts for the risky investment too often, i.e., there is too much risk in the system. The ability to pass off part of the risk to depositors creates a moral hazard problem (arising from the asymmetry of information between the intermediary and the depositors) and encourages the intermediary to take on the risky investment when the expected returns do not justify doing so.

53. The excessive risk is greater the larger the deposit rate, which suggests potential for a clear relationship between competition and stability. If the amount that banks have to pay depositors depends on competition, then more competition for deposits is likely to increase D and thus lead to more excessive risk taking (see, e.g., Allen and Gale (2000)). Hence, even in a very simple investment model there can be an inherent conflict between competition and stability.

54. Of course, banks also compete in the market for loans and an almost identical simple investment model can be used to suggest the opposite relationship between competition and stability. Suppose the intermediary has no better information than depositors and simply raises funds in a competitive market, aggregates the funds and invests in perfectly correlated businesses. The businesses borrow from the bank and make a repayment of D to the bank. To separate from the previous case call this Scenario 2. At some point a business must choose the exact nature of the project it is undertaking, safe or risky as above, but whether the business adopts the safe or risky investment is private information, hence the moral hazard problem is now between the borrower and the intermediary. In this case greater competition to provide loans lowers D and reduces excessive risk taking, implying that greater competition improves stability, and critically moves the level of risk closer to the optimal level (see, e.g., Boyd and De Nicolo (2005)). Here there is a natural complementarity between competition and stability with more competition helping to ameliorate the moral hazard problem rather than exacerbating it.

55. The essential point here is that almost an identical moral hazard problem can exhibit opposite relationships between competition and financial stability according to where the core asymmetry of information sits. Hence, there is no simple answer to the question of whether competition conflicts with stability or helps increase it. In a world with ineffective prudential regulation, it does not make sense to suggest one should generically seek to promote competition or not since either policy, if it is helping improve stability in one part of the system will be likely to make it worse somewhere else. The relationship between competition and stability in banking is by its

very nature complex and will be different in different circumstances, indicating that one should not expect theoretical models, nor empirical studies, to provide a unique answer.

56. There are a large number of theoretical arguments identifying conflict between competition and financial stability, arising from various sources (see, e.g., Allen and Gale (2000; 2004), Carletti and Vives (2009), Dewatripont and Tirole (1994), Keeley (1990), Marcus (1984), Freixas and Rochet (2008), Vives (2011)). For example, greater competition can:

- increase banks' incentives to take risks because of agency problems (as alluded to above);
- reduce future profits (charter value) and hence banks' discounted profits are less likely to be hurt by current risk talking;
- reduce incentives to screen borrowers; and
- simply reduce banks' ability to absorb losses.

57. But, as indicated earlier, there are also theoretical arguments that suggest greater competition may aid financial stability (see, for example, Boyd and Nicolo (2005), Padilla and Pagano (1997), Perotti and Suaraz (2002), Degryse and Ongena (2008), Vives (2016)). For example, greater competition may:

- reduce borrowing rates and increase stability because of agency problems (as above);
- ease entry by more efficient banks, who can drive out less well managed firms;
- encourage a broader array of investments reducing systemic risk; and
- incentivise entrepreneurs to work harder.

58. The empirical evidence is similarly diverse in its conclusions (see for example, Beck, Demirguc-Kunt and Levine (2006), Bertrand, Schoar and Thesmar (2007), De Nicola and Kwast (2002), Schaeck, Cihak and Wolfe (2006), Boyd, De Nicolo and Jalal (2009), Berger, Klapper and Turk-Ariss (2008), Schaeck and Cihak (2007), Hughes and Mester (1998), Dell'Ariccia, Friedman and Marquez (2008)).

4.2 Diverse ownership models

59. Before bringing the interaction of regulation, competition and stability into the picture, it is useful to consider the relationship between the competition vs financial stability debate and the debate surrounding the promotion of corporate diversity. It is often suggested that promoting diversity in business models helps alleviate moral hazard problems because 'non-standard' corporate forms are less likely to suffer from instability and undue risk (e.g. Michie (2010)). For example, if depositors are the corporation's shareholders then it would appear that, at least theoretically, the moral hazard present in Scenario 1 above could be diminished since the core moral hazard problem arises because the bank's shareholders benefit from exploiting its depositors. If they are one and the same, then the simple story does not go through. In contrast the moral hazard present in Scenario 2 would not be ameliorated. We have a similar problem to the competition v

stability debate in that a corporate form that helps ameliorate one form of moral hazard does not help ameliorate the other. Hence, there is no simple message that one corporate form is better than another, it all depends on the circumstances. Indeed, the UK building society model has its shareholders drawn from both depositors and borrowers but their incentives are very different and may be far from complementary.

60. Credit Unions and other forms of non-profit organisations could in theory help resolve stability problems since it is commonly argued that this institutional form may encourage more pro-social behaviour, which in the context of Scenario 1 may limit the bank's willingness to engage in undue risk taking at the cost of the depositors. Again Scenario 2 is driven by the incentives of borrowers and hence would not be helped unless the pro-socially driven actors within the credit union could somehow obtain better information about borrowers' intensions. In practice credit unions are probably less prone to the problem because of the nature of the agents that they lend to rather than the change in the incentive structure of a lender arising from a not-for-profit status. Furthermore, although there is strong evidence that employees in non-profit institutions display greater pro-social motivation, the empirical literature (to the extent that it has investigated this question, see Gregg, Grout, Ratcliffe, Smith and Windmeijer (2011)), does not show that the institutional form creates pro-social behaviour. Rather it suggests non-profit organisations attract pro-socially motivated agents from for-profit institutions. Consequently any gain in stability arising from an additional not-for-profit organisation servicing the market may be offset elsewhere by greater risk in institutions that have less pro-socially motivated employees as a result of the additional not-for-profit entity.

61. The general point here is that there is nothing overtly special about competition as a second best tool when it comes to mitigating risk in the absence of good prudential regulation. The diversity of corporate models, at least from a theoretical standpoint (the empirical evidence is not clear), can have similar features. Furthermore, the lack of a single clear message appears to be general.

4.3 The Role of Prudential Regulation

62. A common theme of the competition and stability debate is that the role of prudential regulation is muted in the analysis of the conflict between stability and competition, i.e., changes in prudential regulation are typically absent or held constant in the discussion of the disadvantages or merits of competition (see Hellman, Murdock and Stiglitz (2000) for an important exception). Prudential regulation is the policy instrument that is typically used to assert stability and once prudential regulation is brought to the fore, the role of competition changes. The moral hazard in the simple investment problem outlined above arises because the intermediary is able to pass off some of the losses to depositors in the event of a poor outcome. The problem would not arise if the intermediary's repayments to depositors could be conditional on the choice of action by the intermediary. In this case a contract could simply make the bank confront the true cost of any undue preference for risk. However, there are many reasons why this may not be possible. For example, asymmetries of information may prevent the depositors from observing the bank's actions

and true assets, or at the time that investments are made the expected returns may be 'soft' information (non-verifiable).

63. A prudential regulator is better placed than depositors to avoid asymmetries of information (e.g., pooling and comparing information across banks, close monitoring of banks' assets), can regulate on soft information and continually update its behaviour. For example, if the regulator sets a bank's capital requirements according to changes in perceived risk, the intermediary will face the true cost of the risks it has generated. In this simple investment example, by adopting different capital requirements according to the level of D, the regulator can ensure that the bank is incentivised to choose the appropriate level of risk and hence there need be no conflict between competition and the appropriate level of safety and soundness. In terms of Figure 1 an increase in capital requirement to $D - R_L$ or greater ensures that the difference between the two positive sloped lines is D, thus bringing R_H^* and R'_H together. The fact that in this example one can use changes in prudential regulation to deal with changes in competition and hence sidestep the conflict between competition and stability is, in essence, restating the point made at the start of the paper that as long as there are sufficient instruments, one can usually meet the relevant targets. Of course, if holding capital is expensive this may come at some cost and so being able to sidestep any conflict does not mean that free entry is always optimal (see 4.4.2 below). The SCO actually ties together changes in prudential regulation and actions to facilitate competition quite specifically, because actions to facilitate competition can only be taken when the PRA is discharging its general functions in a way that advances its primary objectives. Thus actions to facilitate competition cannot be taken unless prudential policy is being considered.

64. The simple example also highlights the importance of the quality of prudential regulation in side stepping any potential conflict between competition and stability (see, e.g., Vives (2016)). The ability to ensure an appropriate degree of safety and soundness whilst facilitating effective competition may depend on how good prudential regulation is. In the extreme, if the regulatory process is totally ineffective (the instrument being ineffective) then the situation is essentially that described in the simple investment model above, i.e., there is no real prudential regulation. It is then possible that changes in competition may achieve different levels of stability, but it is not clear that this is particularly helpful. If the regulatory agency does not know what is an appropriate level of capital requirement, it is unlikely that the same agency or a competition agency will know the required degree of competition to achieve an appropriate degree of safety and soundness. Hence, even when prudential regulation is less than ideal it is not clear that this cuts across the general point of whether stability conflicts with a policy of facilitating competition. The general point that a proactive approach to competition is not harmful, and most likely beneficial, is unlikely to be affected.

4.4 What type of competition is being facilitated?

4.4.1 The interpretation of effective competition

65. As indicated in Section 2, the Secondary Competition Objective requires the Bank of England to facilitate 'effective competition' not to facilitate 'competition'. The appearance of the term 'effective competition' appears to be unique in prudential legislation. In contrast, the terminology 'effective competition' appears quite frequently in legislation relating to other public institutions, notably competition regulators, and in their judgements (European Commission, Federal Communications Commission (US), Competition and Markets Authority (UK), Financial Conduct Authority (UK)). The addition of 'effective' is important in the context of competition regulators. The relevance of 'effective' in the context of competition in the sphere of prudential regulation is somewhat different but probably even more important.

66. Effective competition is typically not directly defined by authorities, tending to be implicitly defined by its absence. For example, in an EU context, dominance 'prevent(s) effective competition by ... the power to behave to an appreciable extent independently of its competitors, customers and ultimately of consumers' (United Brands, Case 27/76), and 'concentrations which would significantly impede effective competition … by the creation or strengthening of a dominant position' (Council Regulation (EC No 139/2004).

67. The notion of effective competition stems initially from Clark's concept of workable competition, which was introduced to provide a practicable notion of competition, given that perfect competition is a theoretical benchmark and not something almost any industry can realistically aspire to (Clark (1940)). Later, however, Clark replaced his notion of workable competition with effective competition because he felt 'workable stresses mere feasibility' implying 'forms of competition (that), while tolerable, are still inferior substitutes for that 'pure and perfect competition', whereas effective 'is better than the 'pure and perfect' norm because it makes for progress' (Clark (1961)).

68. Clark's focus on effective competition (and indeed the modern focus on effective competition by competition authorities) relates to achieving the appropriate degree of market power: enough competition to make markets work effectively by balancing avoidance of exploitative 'abuse' against incentives for entry and innovation. While the focus on market power works well for competition regulators, it is rather less apt for prudential regulation since the notion of effective takes on additional dimensions in the prudential sphere.

69. From the prudential perspective a helpful attempt to define workable competition comes from Markham (1950):

> 'An industry may be judged to be workably competitive when, after the structural characteristics of its market and the dynamic forces that shaped them have been thoroughly examined, there is no clearly indicated change than can be effected through public policy measures that would result in greater social gains than social losses.'

70. Markham's focus on corrective policy measures, and hence workable competition as that degree of competition which is achievable once policy makers have done what is possible to correct market failures, has the advantage of being expressed quite broadly with regard to market failure. It does not limit social gains to gains that arise from reduction in market power, it can be applied to any market failure.

71. When addressing market failure in the banking context there are two primary concerns. One is market power, which can impact on consumer welfare and quality of provision of services. However, externalities have been shown to be an even greater market failure in the context of prudential regulation. For example, competition may be ineffective because a bank's behaviour creates risks for other parties that do not enter into the bank's calculus when it determines its risk appetite (i.e. unpriced risk shifting). Banks may achieve competitive advantage because they are exporting the true cost of their activities onto other parties who are not compensated for the risks they hold, and so banks may take undue risks, implying that the competition we observe is not effective even if there is no significant market power in the market place.

72. The focus on broader market failure and the idea that competition cannot be effective if competitors are not paying the correct price for the risks that they create, suggests that the goal of achieving the appropriate level of safety and soundness and the goal of achieving effective competition are likely to be aligned rather than working in opposite directions. If banks are exporting risk without paying the appropriate cost then they will be taking undue risk for the market as a whole. If banks can only survive if they are able to shift risk without appropriate compensation to cover the costs of others who now hold these risks, then encouraging the entry of such banks would not be facilitating effective competition. Constraining banks capital structures, liquidity ratios, etc., so that a bank's business model adequately reflects the costs of the risks that the bank is exporting, will simultaneously improve safety and soundness and make competition more effective.

73. The example of banks that are too big to fail (TBTF) is an obvious example. If a bank is sufficiently large and interconnected that the consequences of failure are very costly to the economy, then the authorities will intervene to keep it going in the presence of a major shock to the bank. A threat not to do so is not time consistent, i.e. when it comes to the shock, any threat from the authorities to let the bank fail is unlikely to be followed through. In rare cases where large financial firms have failed - such as Lehman Brothers in 2008 – the consequences have been so dire that it reinforced the TBTF message. Big banks and lenders have thus received an implicit subsidy relative to small banks and this encourages too much risk taking by large banks and distorts competition in favour of those who are not paying the full costs of their actions. Policies that seek to achieve the appropriate degree of safety and soundness by making banks face the true cost of their risk taking will, simultaneously, make competition more effective. Alternatively, approaching the problem through the lens of competition and asking what can be done to make competition more effective will land in the same place, i.e. removing the TBTF subsidy.

74. A definition which suggests that any competition that depends on the presence of externalities cannot be effective competition automatically brings closer together the focus of simultaneously achieving the appropriate degree of safety and soundness and of ensuring that competition is effective. Regulation to prevent pollution is an obvious analogy. If a firm's business model is such that it can only stay in the market by not paying the full cost of the externality it brings to society through pollution, then moves to facilitate effective competition will be pushing in the same direction as direct regulatory rules to ensure that a firm's costs reflect the cost of the pollution it is causing. Thus the focus on effective competition as opposed to a policy of facilitating any form of competition between parties in the market place is important. It provides a separate argument for why stability and competition may not conflict, i.e., absent regulation there may be conflict in some circumstances between stability and competition that disappears once one addresses stability and effective competition.

75. In one sense it would be legitimate to suggest that any potential conflict between competition and financial stability has been sidestepped and replaced by a complementarity simply by redefining acceptable competition as only that competition which implicitly contains an appropriate degree of safety and soundness. If effective competition rules out competition that fosters too much risk taking, then one should not be surprised by an alignment of effective competition and safety and soundness. Such general alignment, however, also rests critically on the approach to what is an appropriate level of safety and soundness. In the UK application, safety and soundness is to be pursued in a context of overall financial stability that is intended to support sustainable growth. So safety and soundness is not about stopping all risk taking, but making sure that the risks that are taken are consciously chosen and then priced and managed appropriately. The UK's prudential framework makes clear that an appropriate level of safety and soundness does not preclude failure, and entry and exit, as part of an efficient well-regulated financial sector. If all the risks are priced and the costs and consequences correctly understood, then some element of failure will always be present. In contrast, if a lower possibility of failure is automatically interpreted as providing more appropriate safety and soundness then the scope for alignment is broken. But if no risk taking was allowed then there would be limited credit, limited investment and the economy would decline. So the objective must be an appropriate degree of safety and soundness, not a minimum degree of risk. In general, if the approach to appropriate safety and soundness differed from the degree of safety and soundness associated with an equilibrium where all the risks are priced and the costs and consequences correctly understood, then there is likely to be some degree of misalignment.

4.4.2. How Much Competition is 'Ideal'?

76. The discussion to this point has focused on the conflict or complementarity of stability and competition in the presence of financial regulation. It does not automatically follow that, even with 'perfect' financial regulation (which is able to prevent conflict between competition and stability), one may wish to push fully to a free-entry equilibrium. This issue is not unique to banking. If firms have fixed set up costs then, in equilibrium, there will be a finite number of firms (imperfect competition) rather than the infinitely large number in the perfect competition model. It is well known that the optimal equilibrium may not involve free entry. A simple intuition is that, while a

small deviation from free entry will impact on consumers, the consumers who are disadvantaged (and possibly exit the particular market) will be those who are most marginal and whose alternatives are approximately just as good. In contrast, by not facilitating the entry of the very last firm, there is a social gain since prices in the market have to cover one less fixed cost of entry, which is a non-marginal gain. Hence a marginal shift from free entry can be beneficial not harmful (although this depends very much on the precise nature of the equilibrium and is not universally true). The fact that small deviations from free entry might bring benefits applies to banking as well as any other market (see, for example, Freixas and Rochet, (2008). Furthermore, even without fixed set up costs the argument may apply in banking. In the simple investment model used in Section 4.1, a small deviation from free entry will impinge on customers since they receive lower deposit rates. However, the lower deposit rates reduce the required capital that needs to be held by every other bank, i.e., exit by one bank creates a positive externality for all other banks. If the number of consumers that leave the market is small relative to the reduction in capital costs then it may be socially beneficial to have a minor deviation from free entry, even if the free entry zero profit outcome is attainable. The presence of charter value and the negative impact of capital requirements on charter value (and hence on the desire to increase risk) similarly suggests that it may be welfare improving to have small deviations from free entry (see Hellman, Murdock and Stiglitz (2000)). The net effect is that, at the margin, an objective to facilitate competition subject to achieving the safety and soundness could in theory push the level of competition beyond what is socially optimal.

77. One suspects that this discussion of what is the ideal amount of competition is rather more academic than practical. While we suggest that there are good arguments why a small amount of 'grit' in the system may not be harmful, it is unlikely that this is a pressing or indeed even relevant concern for a prudential regulation authority with a competition objective. Given the current level of competition in banking and the fact that the 'optimal' deviations from free entry that we are discussing here are likely to be marginal, it is unlikely to impinge on the choices available to the regulator. Thus again the general theme of the paper, that a proactive approach to competition is beneficial, is unlikely to be affected.

5 Competition in the UK financial sector and how the PRA has been advancing its secondary competition objective

78. The UK financial sector is highly concentrated in absolute terms, but this is not unusual for UK industry and commerce. Table 1 shows conventional concentration measures (Herfindahl-Hirschman indices) produced by the Department for Business Innovation and Skills (extracted from the Interdepartmental Business Register). Insurance is in the middle of the pack, whilst banking is in the lower third. This situation is also reflected in the market shares of the largest banks.

Table 1: Aggregated Herfindahl-Hirschman Index for industry sectors (2006-2015)

	Herfindahl-Hirschman Index		
Sector	**2007**	**2011**	**2015**
Care homes	175	144	120
Fund management	182	232	164
Professional Services	223	240	279
Banking	739	825	756
Retail	1,205	1,221	1,137
Insurance	1,784	1,238	1,377
Manufacturing	1,645	1,832	1,716
Utilities	2,128	4,012	2,296
Other financial	2,950	2,113	3,128
Telecoms	1,872	5,812	3,237
Passenger Rail	3,468	2,494	3,476

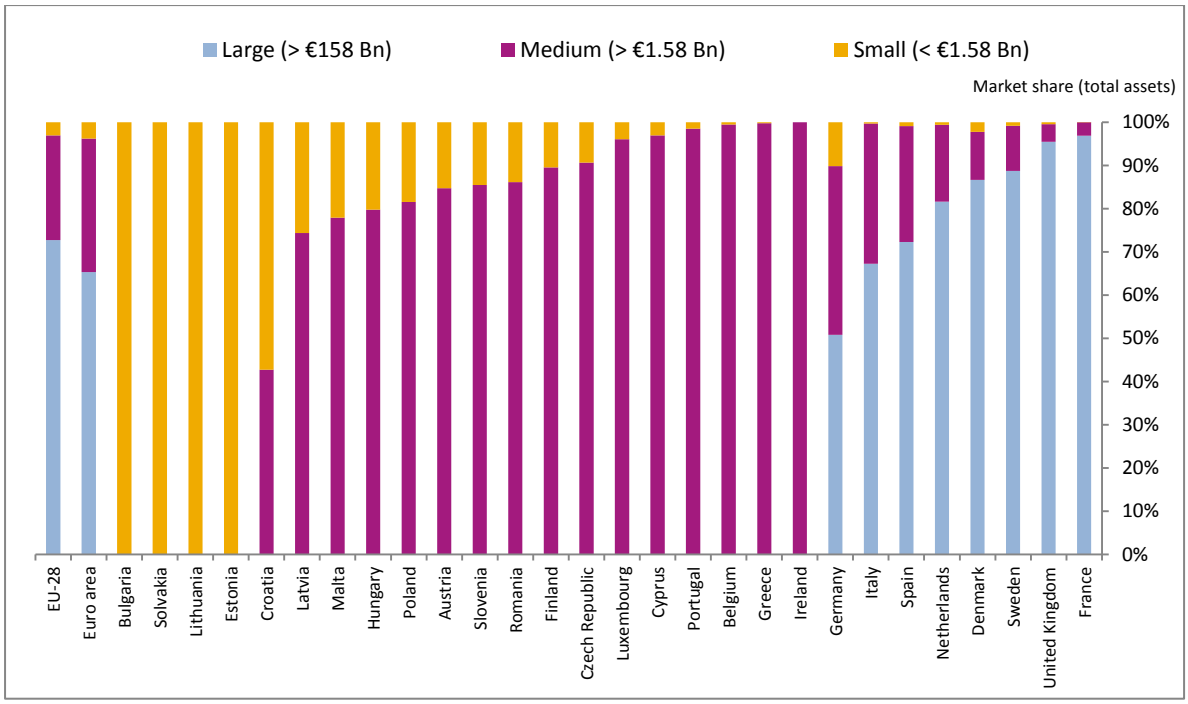
Source BIS.

79. In many industries it seems there is a natural tendency for a few large players to dominate the market. The banking and insurance industries certainly follow that pattern with 6 large domestic lenders (Barclays, HSBC, Nationwide, RBS, Santander and LBG) alongside many smaller players. The balance sheet gap between the big 6 and the next biggest bank is large.

80. This is further illustrated by comparisons across Europe of how big a proportion of the market is taken up by large firms. Chart 1 uses data collected in 2008 by the EBA. Banks were 'bucketed' into three sizes depending on their total assets as a percentage of the total consolidated assets of EU banks: Small (< €1.58Bn), Medium (>€1.58Bn) and Large (>€158Bn). For example, in the United Kingdom, Northern Rock Asset Management plc, and in France, HSBC France SA, are the largest banks classified as 'medium' in their respective markets.

81. The majority of countries' banking industries are made up completely of the defined 'small' to 'medium' size banks, 20 countries out of 28 countries. The remaining 8 countries are host to the 'large' banks which make up around 75% of the EU market share by total assets. Even within these 8 countries the concentrations of the industry vary: Germany's 'large' banks make up around 50.8% of the country's market share ('medium' banks making up 39.1% and 'small' the remaining 10.1%) compared to the United Kingdom where 95.5% of the market share is made up of 'large' banks. One has to be a little careful not to over-interpret this. If markets were closed to international competition then small countries would naturally have smaller banks by absolute size. But in fact the chart shows the UK to be much more concentrated than Germany or Italy – and about the same as France.

Chart 1
The distribution of the banking sector by size within the EU by market share of total assets[19]



Source: European Banking Authority Banking Data (2008 collection)

82. What can the PRA do to advance its competition objective in this context? Encouraging more entry must be part of any competition policy agenda, although allowing and encouraging very small banks[20], does not seem likely to generate significant competition to the UK's big 6 in the short and medium term. The PRA has set up, jointly with the FCA, a 'New Banks Start-up Unit' to aid entry. In addition, new banks are often given the benefit of a lighter regulatory touch as they get themselves going – even though they may be more vulnerable than larger banks, their failure would be less systemic and so less intervention is required in order for the PRA to meet its primary objectives.

83. Exit is another aspect of a conventional assessment of competition, but is more problematic in financial markets. The failure of large banks creates a systemic risk. The new approach to

[19] Banks with total assets greater than 0.5% of the total consolidated assets of EU banks are defined as large domestic banks, while medium-sized banks have total assets of between 0.5% and 0.005% of these total consolidated assets. Banks with total assets of less than 0.005% of the total consolidated assets are considered small. In terms of absolute amounts, the threshold is defined on the basis of the total assets of the banking sector according to data collected in the preceding year. Therefore, for the data collection exercise in 2008 (concerning end-2007 data), the thresholds were computed on the basis of total assets of EUR 31,556 billion, data taken from the 2007 collection exercise. This figure comprises the total assets of both domestic banks and non-EU foreign subsidiaries in all EU Member States at the end of 2006.

[20] In what follows, banks should be read to include building societies.

recovery and resolution, embedded in the European Recovery and Resolution Directive, involves bailing in private sector creditors so that a new 'good' bank can be created out of a failing entity, whilst equity investors and creditors bear any losses. Despite this new approach, it is probably easier to get into the banking industry than it is to get out completely.

84. A number of supervisory tools are only applied to the larger banks. Concurrent stress testing is only applied to the largest UK banks (the 6 big UK lenders plus Standard Chartered which is more internationally focussed). Structural reform will also apply only to those banks (not building societies) with UK balance sheets over £25bn (the big 6 lenders, less Nationwide, but including the Co-operative Bank unless it continues to shrink in size). The application of Total Loss Absorbing Capital (in Europe through MREL – Minimum Requirements for Eligible Liabilities) will only add requirements for those deposit takers big enough to warrant bail-in as a resolution procedure. And the Senior Managers Regime is run with a lighter regime for the smallest deposit takers. All of this is consistent with the PRA's statutory objectives and the requirement that it take into account the systemic effects of firm failure.

85. In addition to the policies mentioned above, other examples of policy choices made by the PRA which have facilitated competition are given in Bank of England (2016), an independent review of the PRA's approach to its competition objective. These include:

- FPC recommendations on limiting the flow of high loan-to-income ratios, which were not applied to small firms, some of which specialised in particular forms of lending;
- Updates to the discretionary elements of capital requirements (Pillar 2A) where the PRA has sought greater consistency to make sure there is a level playing field;
- Allowing long transitional arrangements for Solvency II transitional relief, so as not to damage insurers' existing business models and service provision, especially for firms with long-dated books of liabilities; and
- A review of the new PRA rulebook to check there were no unnecessary rules which would have harmed competition.

86. This enabled the independent review (Bank of England (2016)) to conclude that there were numerous positives in the PRA's approach. Yet issues clearly remain. One currently under consideration is the proposition that the Standard Approach (SA) to calculating capital requirements puts smaller firms at a disadvantage compared with the internal ratings based (IRB) model approach used by large firms, particularly IRB models for credit risk for assets such as mortgages.

87. The SA requirement is an approximation for an average portfolio of mortgages and is not risk sensitive. A firm which has a high quality book would substantially reduce its requirements by using an internal model to reflect the reduction in credit risk. Those internal models are expensive to set up and maintain and are data hungry: one needs a large portfolio to ascertain accurate probabilities of loss in the few cases of outright default. So they are much easier to setup and run for a large firm, which can reap economies of scale and will have the data history, than a small or new firm. A SA firm avoids the costs of maintaining a model but is incentivised to optimise its usage of capital by

going for the most risky portfolio, so a reduction in the SA requirement is not an appropriate way to resolve the comparison.

88. This is illustrated in Table 2, where one can see that the introduction of the IRB approach in 2008 led to a significant gap between the risk weights for different banks in the UK.[21] The gap is less for higher loan to value loans (LTVs) creating an incentive for SA firms to choose higher LTV mortgages (see Benetton, Eckley, Garbarino, Kirwin and Latsi (2017) for a detailed econometric analysis of the problem).

Table 2:
Basel mortgage risk weights for Standardised Approach (SA) and Internal Ratings Based (IRB) approach for LTV < 50%.

	Basel I		Basel II and III							
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SA	50%	50%	35%	35%	35%	35%	35%	35%	35%	35%
IRB	(50%)	(50%)	5.3%	6.9%	5.5%	6.0%	6.6%	9.0%	8.2%	7.9%

Source: Prudential Regulation Authority

89. One way to help level the playing field could be to make the SA a bit more risk sensitive. That would facilitate competition in one dimension, but the extra complexity and cost may have to be borne by SA firms. Another approach is to consider ways to make it cheaper to have a risk-sensitive model – either by providing standard models and/or arranging to share data. Making the capital requirements for mortgages more equal for smaller firms appears to be a sensible and viable policy proposition which would help the competitiveness of smaller firms.

90. In summary, the UK banking sector remains highly concentrated. Although it is not the PRA's primary objective, there are good examples of how the secondary objective has been advanced. However, it appears there remains a lot more for the agencies, collectively, to do.

[21] Gaps between IRB and SA risk weights and the implications for competition were also highlighted in PRA (2017).

6. Conclusions

91. After discussing the precise form of the SCO and its background, the paper has analysed the objective and discusses how it should best be interpreted and implemented.

92. The paper initially focuses on the conditions for achieving multiple objectives when there are multiple agencies and policy instruments. We argue that, where there are multiple authorities involved, there needs to be sufficient independent and effective instruments, appropriately assigned, so that the instrument most relevant to a particular target is appropriately allocated, to avoid dynamically unstable outcomes. In addition, where there are multiple objectives, co-ordination between different agencies or authorities is extremely important to enable each to achieve its own objectives. The allocation of responsibilities, objectives and powers should prevent any medium-term conflicts but there will be short-term spill-overs. The solution to these spill-overs should be that each agency should position itself to understand and predict the consequences of another's actions and adjust their own in a co-ordinated fashion so that they still expect to hit their own targets.

93. This leads into the question as to how we should interpret a secondary objective. We reject the interpretation of secondary objectives as being an expression of lexicographic preferences. Instead we suggest they play a role when an agency is given a primary objective with specific powers or instruments designed to deliver that objective, but those powers also impact materially on the objectives of another agency. So the agency is then asked, subject to achieving its primary objectives, to have a secondary objective for which it is not given any specific powers or instruments. It is the absence of relevant direct powers that makes the objective secondary. The allocation of a secondary objective can be seen as a mechanism for forcing, or at least encouraging, co-ordination where that is appropriate. Finally, we argue that time is the dimension that provides discretion to pursue primary and secondary objectives. A central bank is always likely to take a medium-term view of its policy objectives and this provides the relevant flexibility since there are occasions when changing the time period over which a policy is enacted can leave the achievement of the primary objective unaffected in the medium-term, but advance a secondary objective. The PRA can also take a proportionate approach to regulation, with tighter rules and requirements for those firms which create most systemic risk (typically the larger ones).

94. Turning to the potential conflict between safety and soundness and competition, and hence conflict between the primary and secondary objectives, we provide a semi-formal theoretical analysis of the conflict between stability and competition and show why such a conflict can arise if there is poor or no prudential regulation but also show why it is unlikely to have a conflict between stability and competition in one market without a complementary relationship between stability and competition arising in other markets. We point out that there is nothing overtly special about competition as a second best tool when it comes to mitigating risk in the absence of good prudential regulation. However, once one recognises that prudential regulation is set at the same time that the competition objective is 'in play', then the conflict between stability and competition tends to

disappear and any decision to consider using a limit on competition to achieve optimal safety and soundness will generally be relegated to the margins. There may be reasons why pushing competition towards an extreme textbook position may be a step too far (assuming it is feasible) since it could be wasteful of resources and may impinge on innovation incentives, etc., but any such effect, however, is marginal and not a realistic constraint on facilitating competition. Thus the general theme of the paper, that a proactive approach to competition is beneficial and consistent with safety and soundness, holds.

95. The Secondary Competition Objective requires the PRA to facilitate 'effective competition' not to facilitate 'competition'. We discuss the appropriate meaning of effective competition in the financial context and argue that the focus on 'effective competition' provides an argument for the complementarity of the PRA's objectives rather than simply consistency of objectives.

96. The paper closes by discussing competition in the banking sector. The UK financial sector is highly concentrated in absolute terms, but this is not unusual for UK industry and commerce. The Bank has implemented many policies to facilitate effective competition but there is still much for the agencies, collectively, to do.

Annex

Here we provide a little background on the moral hazard example discussed in the main text. Following the main text, it is helpful to focus on two scenarios to illustrate that the source of financial instability can arise from incentives facing borrowers or incentives facing lenders – and the consequences for policy are different. Scenario 1 focuses on a bank that borrows from depositors/lenders and promises to pay them D in return at the end of the period. The money is invested by the bank, at a cost of C per project, and at some point during this investment process the bank must choose the exact nature of the investments it makes. In particular, the bank has an option of investing safely, giving a guaranteed return of R_S, or opting for a risky investment, which returns R_H with probability $p < 1$ and $R_L < R_H$ with probability (1-p). We assume that C, the cost of setting up a project, is greater than R_L. The exact values of R_H and R_L are uncertain at the start of the process but the specific values of R_H and R_L become known to the bank at the time it chooses whether to the risky or safe path. These values, and whether the bank adopts the safe or risky investment, are private information to the bank.

Scenario 2 is similar to Scenario 1 but differs in that it is the borrowers from the bank that make the risk decision. In Scenario 2 a bank raises funds in a competitive market, aggregates the funds and invests in businesses. The businesses borrow from the bank and make a repayment, again call this D, to the bank. At some point a business must choose the exact nature of the project it is undertaking, each project costing C to set up. It has an option of undertaking a safe project, giving a guaranteed return to the borrower of R_S, or making the project risky with returns R_H with probability $p < 1$ and $R_L < R_H$ with probability (1-p). The exact values of R_H and R_L are uncertain at the start of the process but the specific values of R_H and R_L become known to the borrower at the time it chooses between the risky or safe investment. These values and whether the business adopts the safe or risky investment is private information.

The main text provided a diagrammatic explanation of the relationship between stability and competition in the two scenarios. Initially, concentrate on Scenario 1. We consider for simplicity a specific R_L, in which case there will be a particular R_H where the expected return from the safe investment (R_S) is equal to the expected return from the risky investment ($pR_H + (1-p)R_L$). Call this R_H^*, i.e., for all $R_H > R_H^*$ the risky investment gives a higher expected return than the safe project. So if the social objective is to maximize expected output, one would want the borrower to adopt the risky investment when R_H is greater than R_H^* and the safe investment when R_H is less than R_H^*.

However, the bank does not receive R_S or $pR_H + (1-p)R_L$ from the investments since it must repay depositors, i.e. R_S-D and $p(R_H–D)$ will determine the bank's choice. The bank will prefer the risky investment whenever $p(R_H – D)$ is greater than (R_S-D). Define R'_H as the level of R_H that leaves the bank indifferent between the safe and risky investment (i.e. $p(R'_H – D) = (R_S-D)$). Figure 1 shows R_S-D and $p(R_H–D)$. R_S-D lies immediately below R_S - C and the difference between the two is D - C. In contrast, although $pR_H + (1-p)R_L$ - C and $p(R_H–D)$ have similar slopes, the difference between $pR_H + (1-p)R_L – C$ and $p(R_H–D)$ is less than D - C. Specifically,

$$pR_H + (1-p)R_L - C - p(R_H - D) = D - (1-p)(D - R_L) - C < D - C.$$

As is clear from Figure 1, it follows that the intersection of R_S-D and $p(R_H - D)$, R'_H, lies to the left of R_H*. That is, the banks will choose the risky investment more often than is socially desirable because of the inherent moral hazard problem.[22]

In Scenario 1 it is the asymmetry of information between depositors and banks that causes the problem whereas in Scenario 2 it is the asymmetry of information between the bank and the borrowers. With a borrower paying D to the bank and retaining all returns greater than D from the project it is undertaking, Figure 1 can be interpreted as the return to the borrower. Again the socially efficient outcome would be to opt for the risky project if R_H is greater than R_H* and to opt for the safe project otherwise. But (since D is greater than R_L) the borrower has an incentive to opt for the risky form of the project too often. Furthermore, as with Scenario 1, the greater D the lower is R'_H, i.e. the excess risk taking is greater. In this case, at the time that the decision is made whether to follow the safe or riskier form of the project, if the borrower takes the risky route it can pass off (1-p) $(D - R_L)$ to the bank. The expected value of this additional cost to the bank is in turn is passed onto the depositors.

[22] Note, the example is silent on the degree of deposit insurance. The presence or absence of deposit insurance does not affect the existence of a conflict between competition and stability per se but is important for the welfare effects arising from moral hazard and also for the level of deposit rates banks need to pay for any given level of competition.

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