frontier economics

BUSINESS MODELS IN FINANCIAL SERVICES

Price discrimination and cross-subsidy

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CONTENTS

1 PRICE DISCRIMINATION AND CROSS-SUBSIDY

Cross-subsidy broadly describes a situation where some prices are set below a certain cost benchmark and prices for other products or customer groups are above it. Questions about cross-subsidy, and broader questions about pricing practices, are frequently levelled at financial services products. These questions have been looked at many times by the Competition and Markets Authority (CMA) and its predecessors, and are due to be raised again by the Financial Conduct Authority (FCA) in its forthcoming strategic review of retail banking business models.

The FCA published an Occasional Paper on "price discrimination and cross-subsidy in financial services" last year to build a common understanding of its approach to certain pricing practices. It identified examples of cross-subsidy in retail products, including personal current accounts (PCAs) and "front-book" pricing. The FCA's Occasional Papers may not necessarily represent the position of the FCA, but are intended to contribute to its work by stimulating debate. We expect the thinking in its Occasional Paper to feed in to the FCA's business model review.

PRICE DISCRIMINATION IN DIFFERENT MARKETS

Different prices charged for:

- identifiable groups – e.g. £3 cinema tickets for those over 55 or 10% student discount at a fashion retailer;
- different days – e.g. 20% discount vouchers for restaurants that can only be used Monday to Thursday;
- different times – e.g. £84 off-peak return train ticket from London to Liverpool and £318 for anytime return;
- introductory periods – £12 for first quarterly subscription to *The Economist* magazine and then £53;
- advanced booking – e.g. £195 ticket for a flight from London to Madrid this week and £33 next month;[1]
- price-sensitive customers – e.g. discount vouchers offered through print media or third party websites;[2] and
- service level – £510 for an economy ticket from London to New York and £2,739 for a business class ticket.[3]

This paper is Frontier's contribution to the debate, based on our experience working with providers in the relevant markets and our assessment of the evidence.

Price discrimination broadly describes a situation where firms charge different prices to different customers for the same good. More broadly, there may also be situations where a firm earns different margins on different products that it sells. These pricing practices are normal in competitive markets – see the box for

1 London to Madrid with Easyjet on 2 April 2017 for flights on Tuesday 4 April and 9 May.

2 Examples include wow-coupons.co.uk, Quidco.com or supersavvyme.co.uk.

3 British Airways flight on 1 May 2017.

examples. We therefore mainly address the question of cross-subsidy, but also reflect on price discrimination and the existence simply of differential margins.

Cross-subsidy is not simply where one group pays more than another

> …it is not the case that some customers subsidise others.
>
> *CMA Retail Banking Market Investigation*

Cross-subsidy means different things to different people. For economists, cross-subsidy means some customers or products are served **below cost**. Most non-economists understandably use "cross-subsidy" in a much wider sense than the economic definition. This non-economic use of the term usually describes where some prices are observed to be too low and other prices are too high. Under this broad characterisation, and with no clear cost benchmark, the assessment of cross-subsidy can become subjective rather than objective. Often, this is associated with a distributional outcome where one customer group pays more than other groups, even if both groups are profitable to serve and so no group is subsidised in an economic sense.

Concerns associated with these distributional outcomes are legitimate, and policy makers may want to consider whether and how a "fairer" distribution can be achieved without leading to other unintended consequences. But critically, these concerns rarely involve a cross-subsidy and may instead be due more simply to price discrimination or differential margins.

Debate continues despite clear findings in financial services

Overall, the relevant findings of regulators and competition authorities in financial services have been clear – cross-subsidy is not widespread and not all-pervasive. Notably, after a thorough review of cross-subsidy in PCAs in its Retail Banking Market Investigation, the CMA concluded in August 2016 that "it is not the case that some customers subsidise others".[4]

Despite these findings, the debate appears to continue. Following the CMA's Final Report, the authors of the FCA Occasional Paper suggested that "PCAs provide an example of cross-subsidy between consumers".[5] And members of the Treasury Select Committee have continued to ask whether "in order to provide the free-if-in-credit PCA model, cross-subsidies are extended across all the product ranges".[6]

This is not just an academic debate. The concerns about a market where cross-subsidy is present are different, and perhaps more serious, than those where other pricing approaches exist, such as price discrimination or differential margins. The presence of cross-subsidy means some customers or products are served **below cost**, which could, although will not necessarily, make it more difficult for other firms to compete across the subsidised and subsidising

[4] Professor Alasdair Smith in evidence to the Treasury Select Committee, 1 November 2016, Q236.

[5] FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services", Occasional Paper No. 22, p. 22. Occasional Papers represent the views of the authors and may not necessarily represent the position of the FCA.

[6] Treasury Committee Oral Evidence, 18 October 2016, Q117.

products. They also suggest the presence of market power in another linked product market or in serving another customer group. These problems may require dealing with anti-competitive behaviour by one or more firms or, more generally, may indicate that there are barriers to effective competition. In contrast, other pricing practices, such as price discrimination and differential margins, can be welfare enhancing in a market.

“

PCAs provide an example of cross-subsidy between consumers

FCA Occasional Paper No.22

Our thinking seeks to provide precision and clarity on a definition of cross-subsidy in theory, then in practice, and to draw out the implications for regulation. Our view aligns with that of the CMA, which after reviewing the evidence appears clear in its findings on the existence and scale of cross-subsidy in financial services. Economic cross-subsidy in financial services is rarely identifiable. PCAs in particular do not meet the criteria required for a cross-subsidy. It is not clear why policy makers are asserting a different conclusion.

This does not mean there are no issues to address in these markets. But characterising these issues as relating to cross-subsidy may be unhelpful. It may confuse the diagnosis of the underlying issue, risk diverting effort and analysis to issues that are not relevant, and ultimately reduce the chance of successful policy intervention or lead to unwarranted interventions that could be detrimental to customers.

We first provide a summary and then some supporting material in the annexes.

2 THE CONDITIONS FOR CROSS-SUBSIDY

The key characteristic of cross-subsidy, properly defined, is that there is a product or group for which price is below cost. This is necessary, but not sufficient, and there are at least two other criteria, as illustrated below.

Figure 1 Our three criteria for identifying a cross-subsidy

1. The cross-subsidised **product or customer group is loss making**: priced below incremental cost
2. **Losses are intentional**: the firm makes the cross-subsidised sales with an up-front expectation that it will be loss making
3. **There are linked sales making excess returns**: used to fund the loss made on the cross-subsidised product or group

We describe each of these criteria in turn.

2.1 The subsidised product is loss making

The debate about whether prices are too low is not a new one. In 1979, William Baumol noted that:

> *"The vast preponderance of regulatory and antitrust pricing cases, and almost all of the pertinent discussions, have been devoted to limitation of price reductions rather than price increases."* [7]

Economists have articulated principles, discussed methodologies and applied these in practice on opposite sides of the regulator's table.

The concern is that firms with market power can "foreclose" competitors by pricing too low in one market, preventing rivals from competing effectively and thereby insulating a related market from being exposed to effective competition. See the box for an example.

EXAMPLE OF FORECLOSURE THROUGH TOO-LOW PRICES

Suppose a firm is first to market with new hardware and software technology that work together.

The firm may sell the hardware *at a loss.* The firm can then sell the software to its hardware customers at a higher price, which it uses to cross-subsidise the hardware sales.

However, this cross-subsidy is only a problem if it means that others cannot enter. It may mean that competitors must enter once they have developed *both* the software and hardware technology. This could delay entry and could foreclose entry entirely if there is some reason why rivals would struggle to offer the software product in addition to the hardware product.

Over the years, some common understanding of when prices are too low has emerged. The cost of the product being sold must have a critical role in determining what is "too low".[8] But the question then arises as to what "cost" to use. As Baumol explains,

[7] Baumol (1979), "Minimum and Maximum Pricing Principles for Residual Regulation", Presidential Address, Eastern Economic Association; Boston. (Original emphasis).

[8] Ibid.

"economists have long been passionate in their rejection of the full-cost pricing criterion", that is the relevant "cost" measure should not include all costs of producing the good or service.[9]

There is an understanding that any price set by a monopolist below "short-run marginal cost" (that is the costs that change in the short-run with the last units produced) can be assumed to be "too-low" or "predatory".[10]

These considerations have shaped European competition law, and cases today still refer back to these common principles that emerged in the regulation of cross-subsidy in the 1970s. For example, the European Commission in the case of Deutsche Post noted:

> *"From an economic point of view, cross-subsidisation occurs where the earnings from a given service do not suffice to cover the incremental costs of providing that service."* [11]

Incremental costs are then later defined as:

> *"The incremental costs solely comprise costs incurred in providing a specific parcel service. They do not include the fixed costs not incurred only as a result of providing a specific service (the common fixed costs). Common fixed costs are not related solely to a specific parcel service and are eliminated only when the company ceases to perform all its services."* [12]

Whether a cross-subsidy can be identified therefore requires an understanding of the incremental costs and profitability of serving the relevant product or customer group. Where incremental costs are low, which may be (although is not necessarily) where shared and fixed costs are high, it may be that a product or customer group can make a positive contribution even with low revenues.

Some of the confusion when identifying a cross-subsidy comes from adding shared or fixed costs to these incremental costs to calculate average total costs. This may make a customer or product appear loss making if average revenue is less than average total costs.

When prices are above incremental cost, but below average total costs, European law says it can no longer be assumed that there is a plan to eliminate competition – it must be shown. In predatory pricing cases, this has typically involved looking at internal company documents for evidence of a "plan" to weaken or limit competition.[13]

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9 Ibid.

10 This was asserted by the lawyers Areeda and Turner (1975) in the US in their paper "Predatory Pricing and Related Practices under Section 2 of the Sherman Act", Harvard Law Review, Vol. 88, No. 4, pp. 697–733. The assumption is that pricing below cost will involve some profit loss and would therefore not be rational absent any subsequent benefits from predation. The authors note that in the absence of market power, there may be reasons for a firm to price below marginal cost, for example if a new entrant is seeking to become established in a market.

11 EC Decision in Case COMP/35.141 — Deutsche Post AG.

12 Baumol (1979), "Minimum and Maximum Pricing Principles for Residual Regulation", Presidential Address, Eastern Economic Association; Boston. (Original emphasis).

13 European Commission (2005), "DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses", paragraph 110.

2.2 Losses are intentional

The FCA's Occasional Paper also recognises that a cross-subsidy requires losses to be identified "up-front":

> *"It is when a consumer group that can be identified up-front as loss making on average is offered below-cost prices that competition and efficiency concerns arise."*[14]

For this to happen, it must follow that the firm *intends* for at least one product to be loss making. Intent on the part of the firm is one of the bastions of identifying predatory abuse in European competition law.[15] There is no separate abuse for cross-subsidy in European competition law, and it is analysed under the broader category of predatory pricing. The European Commission's official guidance in analysing whether prices are predatory says:

> *"The Commission will generally intervene where there is evidence showing that a dominant undertaking engages in predatory conduct by deliberately incurring losses or foregoing profits in the short term (referred to hereafter as 'sacrifice'), so as to foreclose or be likely to foreclose one or more of its actual or potential competitors with a view to strengthening or maintaining its market power, thereby causing consumer harm."*[16]

> It is when a consumer group that can be identified up-front as loss making on average is offered below-cost prices that competition and efficiency concerns arise…
>
> *FCA Occasional Paper No.22*

It can appear that there is economic cross-subsidy when looking at *ex post* outcomes in a market. Some products sold to some customers may indeed be loss making over the relevant period in question; for example, a customer who defaults on a loan, or a customer who purchases an annual membership to a tourist attraction and then visits too frequently. Importantly in such cases, it is often not possible for the firm to identify these loss-making customers up-front and distinguish these from more profitable customers.

While *ex post* it can be observed that over any period some customers may be loss making while others generate higher returns, this does not meet the economic conditions of cross-subsidy as set out by the FCA. These conditions require that a firm intends to acquire a customer on which it knows or expects it will make a loss. It follows that any assessment of potential cross-subsidy must consider whether the firm is able to identify which customers will be high margin and which will be loss making up-front before products are sold to individual customers. If, in expectation, firms are unable to identify and

[14] FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services", Occasional Paper No. 22.

[15] See for example European Commission (2005), "DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses", paragraph 112. It is even possible for prices that are above incremental cost but below average total cost to be considered predatory, provided that there is evidence of intent to weaken or eliminate a competitor.

[16] European Commission (2009), "Communication from the Commission – Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings", paragraph 63. (Emphasis added).

discriminate between these distinct customer groups, *ex post* outcomes should not be identified as a cross-subsidy.

2.3 There is a linked product or customer group

When at least one product is priced below incremental cost by a firm with market power, this is assumed to be predatory.[17] Even if a product is sold below this cost threshold, for cross-subsidy to be shown to exist, then there must be another product or bundle of products capable of at least covering these costs. This condition was set out in what has become known as the "combinatorial test", first proposed by Faulhaber in 1975.[18]

The FCA set out and adopt the same condition on cross-subsidy in financial services:

> *"[A cross-subsidy is where] a firm charges a price below economic cost (i.e. is loss making) for some consumer groups or products, but recoups this loss through profitable sales of another product or of the same product to another consumer segment."* [19]

The European Commission in the case of Deutsche Post stated that cross-subsidisation occurs where, in addition to a loss-making service:

> *"There is another service or bundle of services the earnings from which exceed the stand-alone costs. The service for which revenue exceeds stand-alone cost is the source of the cross-subsidy and the service in which revenue does not cover the incremental costs is its destination."*[20]

This criterion also links to the important question of why a firm would ever want to cross-subsidise. It should be possible to identify the linked "subsidising product" over which the firm has some element of market power, (i.e. a product making returns above incremental cost) which importantly is strengthened or maintained by the cross-subsidy.

There is a further criterion that is more contentious, namely the need for the cross-subsidy to be shown to be profitable overall. In predatory pricing cases in Europe, the Commission has stopped short of requiring evidence that initial losses will be recouped in future (or in the case of cross-subsidy by another product).[21]

[17] Areeda and Turner (1975), "Predatory Pricing and Related Practices under Section 2 of the Sherman Act", Harvard Law Review, Vol. 88, No. 4, pp. 697–733.

[18] Faulhaber (1975), "Cross-Subsidization: Pricing in Public Enterprises", American Economic Review, Vol. 65, No. 5 pp. 966–977.

[19] FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services", Occasional Paper No. 22.

[20] EC Decision in Case COMP/35.141 – Deutsche Post AG.

[21] European Commission (2005), "DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses", paragraph 110.

3 CROSS-SUBSIDY IN FINANCIAL SERVICES

Financial services products appear to be particularly prone to common misunderstandings surrounding cross-subsidy as described above.

- **Distributional outcomes.** Some of the distributional outcomes in financial services, such as the relatively high gains from switching accounts for heavy overdraft users, can appear to be stark.[22] These outcomes may concern regulators and policy makers but are not economic cross-subsidy.
- **Low incremental costs.** Many of the costs to serve financial services products are fixed or shared between many different products (such as branches, advisors or IT infrastructure). It is therefore sometimes difficult to provide a definitive value for these costs as there is no unique economically correct way to allocate shared costs (such as the costs associated with developing and maintaining IT systems) or cyclical costs (such as credit risk) to specific products or customer groups. In any case, the actual incremental costs of serving a product or customer group are likely to be relatively low. This means that even with relatively low revenue, a product or customer group is likely to make a positive contribution.
- **Structural cost changes.** Any assessment of costs is complicated because of the significant shift towards digital channels taking place in many financial services markets. Existing providers may retain legacy fixed costs, but newer entrants could operate with both low fixed and incremental costs. This means there is currently uncertainty over what incremental costs will be in future and the possibility that providers may operate below historic incremental costs to compete with newer entrants.
- **No up-front intention.** For most financial relationship products, it is not possible for firms to identify at the outset whether a customer will make a positive or negative contribution with any certainty, as the margin for any customer will depend on their behaviour and external circumstances after they are acquired. There is no obvious reason why a firm would have the up-front intention to sell a product at a loss to certain customer groups. See the example in the box.

DRIVERS OF PROFITABILITY FOR PCA CUSTOMERS

PCA profitability will depend on many variables, including:

- average deposit balance;
- days of overdraft usage;
- average overdraft balances;
- value of debit card transactions;
- number of ATM withdrawals;
- number of branch transactions;
- value of overseas foreign transactions; and
- credit risk.

[22] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 59.

We note below the few examples we are aware of where the economic definition of cross-subsidy does appear to be met, noting where this appears to be driven by firms, and where this is driven by policy makers. We then categorise the most common examples where cross-subsidy in financial services has been claimed in the past but where this does not meet the economic definition described above.

3.1 Few products meet the criteria for an economic cross-subsidy

Two recent studies into corporate banking and payment and protection insurance (PPI) have posited that cross-subsidy does exist in some markets.

- **Broking services provided by corporate banks.** The FCA market study into investment and corporate banking noted, as part of the relationship with their clients, that corporate broking services can be provided for free, and corporate loans can be provided at or below cost.[23] The FCA further found that cross-subsidy helps corporate banks to gain sales in other related services.[24]

- **Loan customers and PPI.** Cross-subsidy was suspected by the Competition Commission (CC) in its market study into PPI in 2009. But the CC still encountered difficulties in identifying the extent of the cross-subsidy between products:

> *"From the profitability evidence alone, it is impossible to determine the extent to which declining margins (and in some cases losses) in personal loans result from ex-ante strategies to compete aggressively on APR and/or cross-subsidize APRs with PPI income or from unexpectedly high impairment rates."* [26]

> …lending and corporate broking are typically supplied at…below cost in exchange for a flow of transactional business, which is typically more lucrative…
>
> *FCA Investment Banking Market Study*[25]

The FCA's conclusion that economic cross-subsidy exists in corporate banking seems correct and uncontroversial based on the economic definition: free broking is an area where banks expect to and do price below incremental costs, and where doing so leads to increased sales of a linked product that makes the approach profitable. Even so, it still needs to be shown why these characteristics of corporate banking, especially since they are all-pervasive and well understood across the industry, can prevent or restrict entry. The evidence from the PPI investigation on the existence of an economic cross-subsidy is less clear and revolves around the extent to which observed losses were expected up-front. Further discussion of these examples is provided in Annex A.

23 Note that the FCA definition of a cross-subsidised product here was having prices that were below the economic cost of providing the service, including a return on capital employed. FCA (2016), "Investment and Corporate Banking Market Study: Interim Report", footnote 84.

24 FCA (2016), "Investment and Corporate Banking Market Study: Interim Report", paragraph 1.16.

25 FCA (2016), "Investment and Corporate Banking Market Study: Final Report", paragraph 3.6.

26 Competition Commission (2009), "Market Investigation into Payment Protection Insurance", paragraph 4.87.

3.2 Cross-subsidy has been imposed by policy makers

There are other examples of cross-subsidy in financial services that have been imposed directly by policy makers:

- **Basic bank accounts.** HM Treasury reached an agreement in January 2016 with the nine largest providers of current accounts in the UK to make basic bank accounts available to eligible customers for free.[27] These accounts have the same costs to serve as standard accounts (e.g. through ATM or branch withdrawals) but generate very little revenue. Some, but not all, banks have stated that these accounts are loss making.[28]
- **Flood and terrorism insurance.** For home insurance, the “Flood Re” and “Pool Re” schemes allow insurers to pass on the flood or terrorism risk element of the cover they provide to a reinsurance body, allowing the cost to customers in susceptible areas to be below the premium that would otherwise have been charged. Because insurers fund the scheme via a levy, the result is that domestic policy holders cross-subsidise at-risk policy holders.

While providers know they are selling these products to some customers at a loss, they pay for the losses from sales of similar products to other customers (“standard” PCAs and domestic insurance policy holders respectively). It is unlikely that this cross-subsidy would exist without the intervention of policy makers, as it would likely be more profitable for firms either to not serve the loss-making group or increase prices for these groups. In these cases, policy considerations about distributional outcomes have trumped concerns about efficiency.

3.3 Many supposed cross-subsidies do not meet the conditions for an economic cross-subsidy

There are three further examples of supposed cross-subsidy in financial services that are repeatedly raised. However, applying the economic definition developed above suggests that these examples are not economic cross-subsidies.

3.3.1 “Back-book” customers do not subsidise “front-book” customers

When customers hold products, such as insurance, credit cards or savings products, for a long time, they can often be split into those on the “front-book” and “back-book”. Front-book customers are those with new products who are charged lower introductory prices, while back-book customers are on older products with typically higher prices.

The FCA’s recent Occasional Paper refers to front-book pricing as a “mixed” case of price discrimination and cross-subsidy.[29] It suggests that “firms may use the

[27] See the “Revised Basic Bank Account Agreement” (www.gov.uk/government/uploads/system/uploads/attachment_data/file/386953/141211_basic_accounts_agreement_text.pdf) and “Financial Services and Markets: The Payment Accounts Regulations 2015” (http://www.legislation.gov.uk/uksi/2015/2038/pdfs/uksi_20152038_en.pdf).

[28] CMA (2016), “Retail Banking Market Investigation: Final Report”, paragraph 6.200.

[29] FCA (2016), “Price Discrimination and Cross-subsidy in Financial Services”, Occasional Paper No. 22, p. 20.

(economic) profits gained on sales to more inert back-book customers to attract more active front-book customers, potentially by offering prices below cost to new customers".[30] Such theories have been considered as part of other investigations in the past, e.g. FCA Cash Savings Market Study.[31]

It is indeed the case that in many product markets (not just in financial services), introductory pricing is lower than when the introductory period ends. This can also include introductory bonuses, such as cashback or gifts, for joining or switching to a provider. The rationale for these discounts is to attract new customers, in part by meeting some or all of the costs (actual or perceived) that customers may incur to switch providers. The FCA found in its Cash Savings Market Study that introductory rates "have an important role to play in encouraging switching".[32] See Annex B for some other examples.

EC DECISION IN WANADOO INTERACTIVE

"It is not the firm's objective to produce an instantaneous profit. Rather the firm will seek to achieve a level of recovery of recurrent costs (network costs and production costs) which is sufficient to ensure that the margin between revenue and recurrent costs will, within a reasonable time, also cover the non-recurrent variable costs invested in the commercial development of the particular product, on items such as advertising, promotion, marketing etc. The non-recurrent variable costs are accordingly adjusted and spread over a certain period in line with the principle of the depreciation of assets. This method supposes that the firm seeks to secure a return on its investment within a reasonable time, rather than to recover all its costs at once. It may be that its prices will not fully cover its costs in the first few years of business, without driving off the market competitors with less financial stamina who are likewise investing with a view to reasonable profitability."[33]

It is not just the profile of pricing that changes over the lifetime of a customer. The costs incurred by a provider over the lifetime of serving a customer may often peak during the first period when the customer is acquired because of such activities as marketing, sales processes or new customer administration. An example of such a product was considered in the case of Wanadoo interactive. In this case, the initial customer acquisition cost of recruiting a broadband internet customer (through free modems and other offers) was not treated as an immediate cost for Wanadoo but rather as an investment that was to be written off over a "realistic lifetime" of the customer (judged to be a period of four years). The decision is quoted in the box.

In economic terms, for the purposes of assessing profitability and identifying cross-subsidy, there should be no difference between "non-recurrent variable costs" and "non-recurrent variable revenue". Expenditure on introductory discounts should be treated in the same way as advertising, promotion and

30 FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services", Occasional Paper No. 22, p. 20.

31 FCA (2015), "Cash Savings Market Study: Final Findings", Annex 1, paragraph 26.

32 FCA (2015), "Cash Savings Market Study: Final Findings", paragraph 1.12.

33 Commission Decision of 16 July 2003 relating to a proceeding under Article 82 of the EC Treaty (COMP/38.233 - Wanadoo Interactive), paragraph 76.

marketing. Some customers may pay different prices for these products, which may be an example of price discrimination but not cross-subsidy.

Assessing profitability using net present value over the expected lifetime of a customer would make it clear that there is no up-front cross-subsidy (assuming the provider expects the product overall to be profitable). Expected lifetime revenues would be greater than expected lifetime costs for each customer acquired. This is what the FCA itself found in its Credit Card Market Study:

> *"We did not find that cross-subsidisation materially affected competition in the credit card market. We found firms typically designed products to at least break even over a five-year period for all behavioural types targeted – in other words we did not find firms targeting particular groups or behavioural types with a view to cross-subsidising others."* [34]

> …introductory rates have an important role to play in encouraging switching…
>
> *FCA Cash Savings Market Study*

Even if a lifetime (net present value) approach to assessing profitability is not used, then the evidence still does not show that the three criteria for identifying a cross-subsidy are met.

- **Costs may exceed revenues during the introductory period.** The first relevant test is whether prices on the front-book are actually set below incremental costs. Switching bonuses and free introductory periods to attract new customers may appear generous, but where incremental costs to serve are low (as is the case in many financial services markets) these introductory prices may still be above incremental costs to serve. However, once initial acquisition costs are added in, it may be that there is a loss in the introductory period, even without introductory pricing.
- **Providers cannot intentionally target which customers will be loss making.** Even if front-book prices are below incremental cost, for this to be a cross-subsidy the firm must be able to identify up-front which customers will be loss making (e.g. those that will switch away soon after the introductory period ends). While firms may be able to model the likelihood that certain customers may switch, such models are unlikely to make accurate predictions. There are rarely, if any, customer groups that could be judged up-front to be loss making based on data the firm can observe at acquisition. Without the ability to identify a group up-front that will be loss making there is no cross-subsidy.
- **The back-book and front-book are not linked products.** In the case of back-book customers cross-subsidising front-book customers, there is no "linked product" in a separate economic market that provides the cross-subsidy. There is no group of customers for whom the back-book is the only product available, since back-book customers were once front-book customers. The back-book and front-book are not "linked" products; they are part of the same product, for which customers pay different prices over the lifetime. A firm has no economic incentive to give away any profit earned from

[34] FCA (2016), "Credit Card Market Study – Final Findings Report", paragraph 1.26.

current back-book customers to new customers that it expects to be loss making.

In summary, for this type of front-book and back-book pricing, the profitability (and losses) in each period should be assessed on a net present value over the expected lifetime of the product. In most cases, this would show that products are not loss making and therefore cannot be examples of cross-subsidisation. Even if this approach is not used, the conditions for cross-subsidy are unlikely to be met. Any identification of particular examples needs a full assessment of each of these conditions.

3.3.2 PCAs are not cross-subsidised by other products

> "
>
> … most PCAs are individually profitable and therefore banks do not need to sell additional products to ensure PCAs are profitable…
>
> *CMA Final Report*

The FCA's Occasional Paper and others have suggested that PCAs, and in particular so-called "free-if-in-credit" (FIIC) accounts, are loss making and are cross-subsidised by sales to other products such as credit cards and savings accounts. One bank CEO, in evidence to the Treasury Select Committee, said that the CMA's Retail Banking Final Report "does not talk about how much banks are willing to pay to get loss-leading current accounts, which is a real impediment to competition".[35]

FIIC PCAs do not meet the first condition required for an economic cross-subsidy – they are not loss making. The CMA concluded from its review of the evidence as part of the retail banking investigation that:

- *"All groups of PCA customers generated positive revenues to banks. There were almost no PCA customers incurring no cost of holding a PCA, and therefore effectively paying negative prices, once interest forgone is accounted for";* [36]
- *"Most PCAs are individually profitable and therefore banks do not need to sell additional products to ensure PCAs are profitable"*; [37] and
- *"There is no evidence that PCAs are a loss-leader used to attract customers, who can then be sold other financial products".*[38]

If PCAs are not loss making, there cannot be a cross-subsidy and no further analysis is necessary. However, even if PCAs were found to be loss making, there needs to be evidence that PCAs are intentionally loss making, or that there is a clearly identified "linked" product or set of products in a separate economic market that are making additional profits to subsidise this loss. To justify the view that PCAs are cross-subsidised by other products, the evidence must address each of these points.

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[35] Treasury Select Committee Oral Evidence, 18 October 2016, Q77.

[36] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 6.195.

[37] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 6.161.

[38] Ibid, paragraph 6.162.

3.3.3 PCA overdraft customers do not cross-subsidise other PCA customers

A second common claim about PCAs is that there is a cross-subsidy between overdraft users and other PCA customers. In evidence to the Treasury Select Committee the same CEO asserted that "it is all right to offer free banking for customers who are in credit, but clearly not everyone is in credit, and therefore there is a substantial section of the population for whom banking is not free. They are the ones who are subsidising the customers who have the credit to avail themselves of free banking".[39]

> "
>
> …there is no evidence that PCAs are a loss-leader used to attract customers, who can then be sold other financial products…
>
> *CMA Final Report*

PCAs are bundles of different services – primarily deposit holding, credit and payments. Each of these services carries a cost and is priced differently, but in the UK there is commonly no charge for making most payments and no fixed monthly charge. This means customers with low deposits, little or no credit and little debit card usage can pay very little (the CMA found that 45% of customers pay less than £10 per month[40]), whereas customers with large balances or overdraft usage can pay a relatively higher cost (10% pay more than £59 per month[41]).

It is clear that there is a skewed distributional outcome across these customer groups. Some services (such as ATM withdrawals) are loss making when considered in isolation, but this does not mean that there is an economic cross-subsidy between customer groups:

- **FIIC customers are only loss making in extreme cases.** The incremental cost of serving a PCA customer who does not hold deposits or use overdrafts is likely very low. A customer would need to undertake a lot of transactions with high incremental costs (e.g. branch or ATM cash withdrawals) to offset other revenues from interchange fees, forgone interest and overdraft usage. The CMA itself found that "all types of customers across different income groups and credit balances contribute to banks' revenues once interest forgone is taken into account".[42] While there is some evidence that loss-making can occur for some FIIC customers, this is not the case for FIIC customers as a whole.
- **Providers do not sell PCAs to any customers expecting to make a loss up-front.**[43] These extreme cases are not identifiable up-front at the point of sale. They can only be identified *ex post* and the loss-making group can only be described with reference to its specific type of usage (i.e. customers with high branch/ATM transactions, low overdraft, balances and debit card usage). A provider is unlikely to intentionally acquire such customers. It has no ability to identify them up-front, and no incentive to acquire them. Indeed, many

[39] Treasury Select Committee Oral Evidence, 18 October 2016, Q101.

[40] CMA (2016), "Retail Banking Market Investigation: Final Report", Figure 6.7.

[41] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 6.195.

[42] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 79.

[43] With the exception of basic bank accounts, as noted previously. Basic bank accounts do not offer overdraft facilities.

providers impose eligibility criteria to stop acquiring these customers onto some or all of its products. These criteria reflect a propensity for higher average balances, more debit card usage, higher-value ATM withdrawals and more overdraft usage.[44]

- **There is no link between the cross-subsidised group and the group making excess returns.** There is no causal link between the losses made on one PCA customer and the profits made on another, as this will depend on individual customer behaviour. Put another way, making a loss on one group does not affect the profit that can be made with the other group. It is unclear what the economic rationale would be to subsidise these extreme cases of loss-making customer groups from the profits earned on other customer groups.

After the CMA's overall consideration of the evidence, it stated that:

> *"We have considered representations made by parties that banks are 'cross-subsidising' across customer segments and/or products. Whilst we have not found evidence of cross-subsidy such that banks are not recovering the incremental cost of providing a product, a large existing back book of stable retail deposits gives incumbent banks flexibility in pricing such that different products and customers can make differential contributions to the recovery of common/shared costs."* [45]

Further discussion of PCA overdrafts is provided in Annex C.

3.3.4 Summary of different examples

The figure below summarises the differences between these products and the evidence on whether there is an economic cross-subsidy.

Figure 2 Examples of economic cross-subsidy

Loss-making	**Corporate broking**	**Loans**	**Basic bank account**	**Flood Re/ Pool Re**	**Front-book**	**PCA**	**PCA trans-actions**
Linked product	**Other services**	**PPI**	**Other products**	**Other customers**	**Back-book**	**Other products**	**PCA overdrafts**
Loss-making product or customer group?	✓	–	✓	✓	–	✗	–
Up-front intended loss?	✓	✓	✓	✓	✗	✗	✗
Linked product/group with higher margins?	✓	✓	✓	✓	✗	✗	✗
Economic cross-subsidy?	✓	✓	✓	✓	✗	✗	✗

[44] For example: First Direct require customers to pay in £1,000 per month, maintain a balance of over £1,000 or pay £10 per month; Lloyds Bank's Club Lloyds account requires customers to pay in £1,500 per month or pay £3 per month.

[45] CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 9.135(d).

3.3.5 Conclusion on cross-subsidy

All of the examples of possible cross-subsidy in financial services can be understood using the standard economic approach, which is related to the identification of predatory pricing and below-cost selling. In reality, examples of cross-subsidy are rare in that there are no loss-making products, no intention to make a loss and no linked product that can be subsidised. And even if there were cross-subsidies, it is not clear that this would lead to a restriction of competition. We believe parts of the FCA's Occasional Paper, and evidence to the Treasury Select Committee, need to be re-examined against these criteria. Continuing to debate the existence of cross-subsidy in financial services is unhelpful, as it diverts attention from robust diagnosis of issues and how to tackle genuine areas of concern.

4 IF IT ISN'T A CROSS-SUBSIDY, WHAT IS IT?

Even if front/back pricing and PCAs do not meet the definition of an economic cross-subsidy, this does not mean there should be no problems or concerns with how pricing works. Where a cross-subsidy is suspected, but it does not meet the economic definition, it may indicate **differential margins** or **price discrimination**. The presence of differential margins or price discrimination can lead to legitimate efficiency or distributional (fairness) concerns, which may merit investigation and interventions. However, neither the presence of differential margins nor price discrimination necessarily implies there are competition (efficiency) concerns in a market. This is more likely to be the case when all firms in a market are engaging in price discrimination or have differential margins.

The distinction between differential margins and price discrimination relates to who or what is making a larger contribution:

- "differential margins" refers to a firm earning a different margin on different products that it sells; and
- "price discrimination" refers to a firm charging different prices (or earning different margins) from different customers who purchase the same product.

This is an important distinction. Correctly diagnosing the issue helps to clarify the nature of potential problems associated with the issue. This means analysis can be targeted where most relevant, which ultimately makes a successful policy intervention more likely.

4.1 Differential margins

For any multi-product retailer with fixed costs, it is normal for margins to differ between products:

- cinemas earn higher margins on pick'n'mix and popcorn than on tickets;
- supermarkets earn higher margins on avocados than on milk; and
- restaurants earn more on wine than on food.

In financial services, margins differ across products (e.g. savings, cards, PCAs) and across services (e.g. arranged and unarranged overdrafts, branch withdrawals).

These differences in margin are a result of competition between firms for different groups of customers with different needs. The result of this competition is that margins will tend to be lower for products where customer demand is more elastic or responsive to price. Economic theory tells us that such differential margins can be more efficient than maintaining the same margin for all products. This is because the same contribution to fixed costs is achieved with less impact on customers. This is what economists call Ramsey pricing and is set out in more detail in Annex D.

4.2 Price discrimination

Price discrimination is common in many markets and can take different forms including:

- charging different prices to different groups, such as discounts for students or senior citizens; or
- charging different prices to customers that reveal their willingness to pay by selecting from a range of differently priced options, such as first class tickets.

However, it is rarely seen in consumer markets in its purest form, which is where each customer pays the maximum that they are willing to for a product. This is because, in practice, it is difficult for a firm to implement sustainably. But firms do have incentives to try to charge different customers different prices, if they have the ability to set prices individually, such as for insurance products. Current "discovery" work by the FCA is looking at whether insurance providers use information about customers to try to charge them an individually higher price where they are less likely to switch.[46] Price discrimination and common cost recovery in financial services are further discussed in Annex E.

There may also be benefits from price discrimination. In the case of front/back pricing, which is an example of price discrimination, the overall price a customer pays over the lifetime they hold a product will be different, and this will depend on how quickly they switch. The FCA notes in its recent Occasional Paper that competition between banks for credit card and savings customers can make it impossible for banks to set uniform prices.[47] A ban on this type of price discrimination may in fact have the unintended consequence of reducing competitive intensity between rival banks and could lead to worse outcomes for the customer than currently. The removal of such pricing by the energy regulator Ofgem has been blamed for reducing competition, with the CMA stating that there was:

> *"[…] a weakening of competition over the standard variable tariff over time. This is particularly apparent from 2009 which broadly coincides with the introduction of the prohibition on undue regional price discrimination."* [48]

Price discrimination does not eliminate fairness concerns, but pricing above incremental cost for all customers does reduce other concerns we may have about a market. In contrast to cross-subsidy, price discrimination does not indicate a possible attempt to exclude competitors from a market, nor the existence of market power in another linked product market.

[46] FCA (2016), "Feedback Statement: Call for Inputs on Big Data in Retail General Insurance", paragraph 1.35.

[47] FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services, Occasional Paper No. 22", p. 21.

[48] CMA (2016), "Energy Market Investigation: Final Report", paragraph 119.

4.3 Potential concerns about distributional outcomes and competition remain

In the case of both differential margins and price discrimination, the consequence is that, all else equal, a customer who consumes the high-margin services makes a larger contribution to fixed costs than others. This can raise concerns about the distributional outcome, for example where unarranged overdraft users contribute most to fixed and shared costs, or where customers who do not switch for a long period pay more than others, particularly if these customers are older or less financially capable. While there may be a desire to support interventions that rebalance the distribution across customers, this is an issue of equity (fairness), rather than efficiency.

The presence of cross-subsidy does not necessarily mean that there are problems with how competition is working. In a market with cross-subsidies, competitors may easily enter and exit the market as well as compete on price, quality and innovation. Equally, in markets with no cross-subsidies, pricing can inhibit competition, whether through differential margins that target vulnerable groups or price discrimination. But in each case a full assessment of the theoretical harm to competition and customers is required, and simply identifying a pricing practice is not sufficient.

4.4 For more detail…

We have summarised our assessment of cross-subsidy in financial services above, but further detail is contained in the annexes. Annex A provides more detail on some of the examples of cross-subsidy found in previous market studies. Annex B gives some examples of introductory pricing. Annex C further discusses PCA overdraft pricing. Annex D explains Ramsey pricing and differential margins, and Annex E provides further explanation and background on the economics of price discrimination and covers common cost recovery and price discrimination.

ANNEX A EXAMPLES OF CROSS-SUBSIDY FROM MARKET STUDIES

This annex provides further detail on the two examples where cross-subsidy has recently been considered in detail as part of a market study.

A.1 Brokering services

The FCA market study on investment and corporate banking noted that, as part of the relationship with their clients, corporate broking services can be provided for free and corporate loans can be provided at or below cost.[49] The FCA further found that cross-subsidy helps corporate banks to gain sales in other related services.[50] Despite this, the FCA concluded that cross-subsidy did not create insurmountable barriers to entry[51] and that corporate clients would not necessarily be better off absent the cross-subsidy.

> *"One respondent noted that cross-subsidisation is not necessary for the benefits of cross-selling to arise. While we agree with this assessment, we do not consider that the detriment from cross-subsidisation is sufficient to require us to intervene to change that model by introducing highly interventionist measures (e.g. measures which seek to separate lending or corporate broking activities from primary market transactional services, or measures which seek to govern how lending decisions are made). As noted in the interim report, such measures are likely to have significant unintended consequences for clients."* [52]

A.2 PPI

The CC's market study into PPI in 2009 considered the linkages between loans and PPI. Customers choosing to purchase loans would be offered PPI at the point of sale. The CC found that PPI providers earned persistent and substantial excess profits.[53] With excess profits in a linked market, the CC considered whether there was cross-subsidisation of loans. However, it encountered difficulties in identifying the extent of the cross-subsidy between products.

> *"From the profitability evidence alone, it is impossible to determine the extent to which declining margins (and in some cases losses) in personal loans result from ex-ante strategies to compete aggressively on APR and/or cross-subsidize APRs with PPI income or from unexpectedly high impairment rates."* [54]

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[49] Note that the FCA definition of a cross-subsidised product here was having prices that were below the economic cost of providing the service, including a return on capital employed. FCA (2016), "Investment and Corporate Banking Market Study", footnote 84.

[50] FCA (2016), "Investment and Corporate Banking Market Study: Interim Report", paragraph 1.16.

[51] FCA (2016), "Investment and Corporate Banking Market Study: Interim Report", paragraph 7.96.

[52] FCA (2016), "Investment and Corporate Banking Market Study: Final Report", paragraph 3.27.

[53] Competition Commission (2009), "Market Investigation into Payment Protection Insurance", paragraph 4.82.

[54] Competition Commission (2009), "Market Investigation into Payment Protection Insurance", paragraph 4.87.

The CC referred to evidence from pricing and strategy documents that income from sales of PPI influenced APR loan rates.[55] They acknowledged that removing the cross-subsidy for loan customers not taking out PPI by lowering the price of PPI would not necessarily alter the competitiveness of credit markets, simply that some customers will benefit and others will lose out.[56] However, on balance, they found that the inefficiencies resulting from high PPI prices and low credit prices were sufficient to warrant intervention and have an overall positive effect on total consumer welfare.[57]

[55] Ibid, paragraph 5.139.

[56] Ibid, paragraph 10.481–10.482.

[57] Ibid, paragraphs 84–89.

ANNEX B EXAMPLES OF INTRODUCTORY PRICING

When customers hold products, such as insurance, credit cards or savings products, for a long time, they can often be split into those on the “front-book” and “back-book”. Front-book customers are those with new products who are charged lower introductory prices, while back-book customers are on older products with typically higher prices.

These practices are common outside of financial services, as illustrated by the examples in the table below.

Figure 3 Examples of introductory offers

Sector	Product	Brand	Introductory offer	Value of offer p.a.
Financial services	Savings	Post Office	Online Saver: **1.01%** interest in first year, reverts to **0.25%**	£42
Financial services	Mortgages	Nationwide	2yr fixed: **1.19%** initial rate, reverts to **3.74%** standard rate	£4,590
Financial services	Credit cards	Tesco Bank	Purchases card: **0%** on purchases for 28 months, reverts to **18.9%** representative rate	£168
Financial services	PCAs	Halifax	£100 switching reward	£100
Media	Magazines	*The Economist*	**£12** for first 3 months, auto-renewing at **£53** thereafter	£41
Media	Broadband and TV	Virgin Media	Full House bundle: **£55** per month for first 12, then **£76** per month	£252
Media	Mobile phones	Talkmobile	**£50** Amazon gift voucher	£50
Clubs	Membership	British Medical Association	First month **free**, **£37** thereafter	£37
Retail	Wine	Laithwaites	**Half price** on first case and free delivery	£60
Retail	Membership	Amazon	Prime: first month **free**, **£7.99** thereafter	£8

Source: *Supplier websites as at 16 February 2017.*

Note: *Average savings of £5,600 (FCA (2015), “Cash Savings Market Study: Final Findings”, para 3.5); average mortgage of £180,000 (FCA (2016), “Mortgages Market Study – Terms of Reference”, para 2.1); average credit card balance of £890 (FCA (2016), “Credit Card Market Study: Final Findings”, para 5.50).*

ANNEX C PCA OVERDRAFT CUSTOMERS

This annex expands on the discussion of whether PCA overdraft customers cross-subsidise other PCA customers. We explained that this is not the case because PCA pricing does not meet the criteria for a cross-subsidy.

In particular we expand on the questions of:

- can one or more customer groups be identified that are loss making, taking into account the incremental costs of the services they use and the total revenue they generate; and
- can these customer groups be identified up-front as loss making on average?

C.1 FIIC customers are only loss making in extreme cases

There are clearly some parts of a FIIC PCA that are provided below incremental cost. This is because there are many services that PCA customers receive that are not charged for, such as charges for issuing a replacement debit card or using an ATM (for which the PCA provider is charged by the ATM provider). This is common to many service products where prices are simplified and do not reflect all incremental costs, for example annual memberships to tourist attractions; all-inclusive hotel resorts; supermarkets that offer free parking or coffee; and airlines offering free food and drink.

The FCA is clear that "it is when a consumer group that can be identified up front as loss making on average is offered below-cost prices that competition and efficiency concerns arise".[58]

Whether a customer group is loss making can only be answered using data from banks on the behaviour of customers and the incremental costs of particular services (i.e. not including fixed and common costs). A group may be loss making if it has high usage of services with material incremental costs, such as making low value ATM withdrawals, but has low usage of services that generate revenues, such as holding a balance or using an overdraft. We would expect that such customers do not exist in any material number and that providers would seek to prevent such behaviour. Indeed, several providers use eligibility criteria to stop acquiring certain customers that are more likely to be loss making, as shown in the table below.

58 FCA (2016), "Price Discrimination and Cross-subsidy in Financial Services", Occasional Paper No. 22, p. 14.

Figure 4 Examples of criteria used to avoid acquiring loss-making customers

Brand	Barclays	First Direct	Lloyds Bank	Santander	Co-operative
Product	Blue Rewards	1st account	Club Lloyds	123	Current account
Features	Rewards programme	£250 interest and fee free overdraft	2% interest up to £5,000 £100 interest and fee free overdraft	1.5% interest up to £20,000 Cashback on bills	£110 switching reward
Eligibility criteria		Pay in £1,000 every month, or maintain average balance of £1,000, or hold other product.	Pay in £1,500 per month 2 Direct Debits	Pay in £500 per month 2 Direct Debits	4 Direct Debits
Fee	£3 per month		£3 per month if eligibility criteria not met	£5 per month	
Product	Bank account		Classic account	Current account	
Features	No interest on balances		No interest on balances	No interest on balances	
Eligibility criteria	No criteria		No criteria	No criteria	

Source: Provider websites as at 16 February 2017.

Most customers will consume a bundle of services that makes a positive contribution overall. The CMA undertook this assessment and found that:

> *"All types of customers across different income groups and credit balances contribute to banks' revenues once interest forgone is taken into account, although there is considerable variation between customers in the revenue generated";*[59] *and*
>
> *"There is no strong evidence that overdraft users are effectively cross-subsidising other users".*[60]

C.2 Providers do not sell PCAs to any customers expecting to make a loss up-front

The second question requires an assessment of the relationship between any loss-making customer groups (if such groups exist) and characteristics of these groups that can be identified up-front. It is not clear which customer groups (identified based on observable characteristics such as age, income, family status, job, etc.) would behave in such a way as to make a loss. This group would need to consistently have behaviour such as very low overdraft usage, low balance, low debit card usage and a high volume of ATM cash withdrawals or branch transactions.

The CMA did not undertake this specific assessment as it did not find groups that were loss-making, but some of its evidence demonstrates that such up-front

59 CMA (2016), "Retail Banking Market Investigation: Final Report", paragraph 79.

60 Ibid, paragraph 6.204.

identifiable groups may not exist. The table below shows that some groups are more likely to not use an overdraft – these are older, less affluent and less educated groups. These groups are more likely to be loss making, with 88% of over 65s not using an overdraft. But even in these groups, a large proportion do use overdrafts or will have high balances and debit card usage, which means these groups are unlikely to be loss making on average.

Figure 5 Groups least likely to use an overdraft

Group	Probability of not using an overdraft
Age: 65+	88%
Education: No qualification	76%
Employment: Not working	69%
Age: 55–64	65%
Income: Low	63%
All customers	*57%*

Source: CMA (2016), "Retail Banking Market Investigation: Final Report", appendix 6.5.

Even if there is no cross-subsidy, there may be a concern about the distribution of prices and margins paid by PCA customers. The CMA looked at the possible distributional effects of some customers paying more than others for current accounts. In particular, they looked at whether poorer customers were paying more for PCAs than wealthier customers. Its analysis concluded that:

> *"It is not the case that customers with lower income are paying more for PCAs:*
>
> *(i) Basic bank account users are likely to be cross-subsidised to some extent by other users; however, to the extent that this is occurring this benefits customers in more vulnerable financial situations.*
>
> *(ii) Our analysis of the demographics of overdraft users shows that these are not less wealthy, or less educated, than those who do not use overdrafts; if anything, we find that arranged overdraft users tend to have higher income and higher education levels than both non-overdraft users and those who use unarranged overdrafts; we also do not find that heavier overdraft users are poorer than lighter users.*
>
> *(iii) When we take into account interest forgone as well as direct charges including overdraft charges, again we find that the costs of PCAs are highest for customers in the highest income deciles, and this is particularly the case for FIIC accounts.*
>
> *(iv) Customers with no overdraft and low credit balances pay the lowest costs. This suggests that customers with large credit balances are making a higher contribution to banks' costs than customers with low credit balances and who do not use overdrafts."*[61]

The implications of the CMA's findings, as discussed in its final report, is that there are different groups of customers making differential contributions to

[61] Ibid, paragraph 6.215.

common costs, but this does not mean that banks are making losses on some customers that are being cross-subsidised by others.[62]

If the FCA, or others, consider that there is cross-subsidy between customer groups, then further analysis would be needed to demonstrate the existence of loss-making groups and that these groups are identifiable up-front. Based on the evidence available today, this position would not be supported.

[62] Ibid, paragraph 6.198.

ANNEX D DIFFERENTIAL MARGINS AND RAMSEY PRICING

This annex expands on the explanation of differential margins and Ramsey pricing, and provides a worked example.

Even if a multi-product firm does not make a loss on one product, and therefore there is no economic cross-subsidy, it is likely that different products will be sold at differential margins.

In a competitive market with constant incremental or marginal costs and no fixed costs, a single product firm sets price equal to the incremental cost of making that sale. Firms pricing in this way do not need to make a contribution to fixed costs. Prices only need to cover the incremental cost of an additional unit (e.g. wholesale prices and distribution costs), not any up-front cost of producing the first unit.

In some sectors, these fixed costs are considerable. For example, the costs associated with acquiring land, building a cinema, developing a booking system and acquiring the rights to show the movies are large.[63] However, once the cinema is built and the licence has been purchased, incremental costs for each ticket sold are negligible.[64] If cinemas priced tickets at their incremental cost, they would never recover any of their initial overheads, and it is unlikely the cinema would ever be built in the first place.

Faced with this, the firm must consider the best way to price across the products it sells. By setting prices above incremental cost, the firm sells a lower quantity of each product but can make a larger contribution to fixed costs. Some products may make greater margin contributions than others, or the margin contribution may be spread across all products. For example, the cinema may choose to raise the price of tickets, the price of pick'n'mix, or the price of both above the incremental cost.

While individual providers may choose to test different strategies in the market, competition between providers will determine prices. If the cinema decided to offer the same margins for tickets and pick'n'mix, it may find fewer customers visiting the cinema in the first place. Cinemas with lower margins on tickets may attract more customers. Cinemas will iterate their pricing over time until they find the most successful strategy, which is normally lower margins on ticket prices and higher margins on pick'n'mix and popcorn.

Academic economists have been discussing for some time how markets can depart from incremental cost pricing in a way that limits the overall reduction in

[63] See, for example, the Independent Cinema Office for a discussion of the costs associated with operating a cinema (http://www.independentcinemaoffice.org.uk/resources/how-to-start-a-local-cinema/economics-of-operation). For the purpose of this example, the rights to show films in cinemas are treated as a fixed cost. In practice, this cost is largely variable (with only some fixed elements), with movie producers and distributors typically charging a share of the box office takings of a cinema of anywhere between 25% and 60%.

[64] For example, this may be limited to the cost of the paper the ticket is printed on, since all other costs (cinema ushers etc.) have already been sunk by the cinema.

social welfare.[65] Economists considering these issues have shown that the outcome that minimises the economic distortion from pricing above costs is where the reduction in quantity is of the same proportion for each good consumed. This is known by economists as Ramsey pricing.

EXAMPLE: RAMSEY PRICING IN CINEMAS

If we assume that both cinema tickets and pick'n'mix have a constant incremental cost of £10. Priced at incremental cost, 20 tickets and 10 bags of pick'n'mix are consumed. To contribute the same amount to fixed costs, we can apply a uniform mark-up over cost to each product (15% in our example), or a differential mark-up. Under a differential mark-up, prices increase so as to maintain the same ratio of tickets to pick'n'mix (e.g. 18 tickets and 9 bags). In order to achieve this outcome, it is necessary to increase the mark-up on inelastic products (pick'n'mix) by more than on products that are more elastic (tickets). The result is that pick'n'mix makes a greater percentage margin contribution to fixed costs than the tickets.

Figure 6 Illustrative example: uniform and differential mark-ups with constant marginal costs

	Tickets	Pick'n'mix
Incremental cost	£10	£10
Price elasticity	1	0.5
Incremental cost pricing		
Price	£10	£10
Volume	20	10
Contribution to fixed costs	£0	£0
Uniform mark-up		
% price increase	15%	15%
Price	£11.50	£11.50
Volume	17	9.25
Contribution to fixed costs	£25.50	£13.88
% volume decrease	15%	7.5%
Ramsey pricing		
% price increase	10%	20%
Price	£11	£12
Volume	18	9
Contribution to fixed costs	£18	£18
% volume decrease	10%	10%

[65] The key academic contributions in this area follow from the work of Ramsey (1927), "A Contribution to the Theory of Taxation" who showed in his paper that under certain conditions, for a multi-product monopolist the welfare maximising price mark-up of a product should be inversely proportional to its elasticity of demand. See also Baumol and Bradford (1970), "Optimal Departures from Marginal Cost Pricing"; Armstrong and Vickers (2001), "Competitive price discrimination".

Mathematically, Ramsey pricing is equivalent to applying percentage mark-ups that are inversely proportional to each product's price elasticity of demand.[66] So, the more sensitive consumers are to price, the lower the percentage mark-up cost that is needed. This is borne out in practice, as prices are usually higher on more inelastic goods in multi-product markets.

[66] See Baumol and Bradford (1970), "Optimal Departures from Marginal Cost Pricing", The American Economic Review, Vol. 60, Issue 3, pp. 265–283.

ANNEX E PRICE DISCRIMINATION IN FINANCIAL SERVICES

This annex provides further explanation and background on the economics of price discrimination.

Price discrimination is where firms facing the same cost charge different prices to different groups of customers. In financial services, there are two key characteristics of products that provide firms with the ability to price discriminate:

- financial services products are customer specific and cannot be resold or transferred between customers; and/or
- financial services providers can identify different groups of customer with a different willingness to pay.

These characteristics mean that price discrimination is common in financial services, as it is in many other sectors.

There are three broad forms of price discrimination.

- **First degree price discrimination.** This is where each person is charged a differential price, which is the maximum amount they are willing to pay for a product. This is an efficient form of pricing, but one where firms rather than consumers retain all of the benefit (or surplus in economic terms).
- **Second degree price discrimination.** As with first degree price discrimination, this typically involves a pricing structure with different prices charged to different customers. The customer is not directly charged their own willingness to pay, instead revealing their willingness to pay by selecting from a range of differently priced options. Examples of this type of price discrimination include quantity discounts, bundling and prices that vary over time.
- **Third degree price discrimination.** This is where a firm forms a view on the willingness to pay of a certain group of customers and charges each group a price based on observable criteria (e.g. student discounts, matinee discounts).

First degree price discrimination in its purest form is rare, as the willingness to pay of each customer is not observable, and even if it were it is not normally practicable to charge each customer a different price. However, some financial services products are unusual in that they do involve prices that are set individually.

For example, prices of credit and insurance products are calculated for each individual depending on risk characteristics. However, because prices are customer specific, there is the potential to also calculate prices based on willingness to pay. There are limits to the ability of firms to price in this way. Despite advances in Big Data, while it is possible to make some assessment of a customer's risk profile, it is not possible to identify each individual customer's willingness to pay for a financial services product.

Second and third degree price discrimination are far more common, both generally and in financial services. Financial services firms can and do engage in third degree price discrimination across customer groups based on certain observable characteristics. Several banks offer student accounts that differ in the benefits they provide compared to standard accounts (e.g. a National Express coach card or an interest free overdraft) and/or on the service offered (e.g. it may be easier to open the account online).[67] Similarly, there are products targeted at affluent customers that require a higher minimum monthly credit and a minimum number of direct debits.[68]

Financial services providers can also carry out second degree price discrimination, using product bundles, quantity discounts and variations in tariff structure to separate out different customer groups. Front/back pricing is an example of second degree price discrimination with some customers switching products more regularly and paying lower prices over time. Another example, such as credit card products, is where the tariff options include different combinations of rewards, balance transfer periods, annual fees and APR. Setting prices in this way can help providers segment customers into groups (e.g. reward seekers, APR watchers) and better tailor the charges to these groups that reflect their willingness to pay for different features of the credit card bundle. This is common across different markets, such as discounts for buying an annual magazine subscription or cheaper flights for early bookings.

[67] CMA (2016), “Retail Banking Market Investigation: Final Report”, paragraph 10.28(b).

[68] Ibid, paragraph 10.28(a).

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