Institution: Imperial College London Business School		
Unit of Assessment: C17 Business and Management Studies		
Title of case study: Household financial decisions and reform of the structure of the mortgage markets in the UK and India		
Period when the underpinning research was undertaken: 2003-2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
David Miles	Professor of Financial Economics	1996-2004, 2013-present
Tarun Ramadorai	Professor of Financial Economics	2016 - present
Period when the claimed impact occurred: from 2014		
Is this case study continued from a case study submitted in 2014? N		

1. Summary of the impact (indicative maximum 100 words)

Professor David Miles and Professor Tarun Ramadorai have both, over an extended period, undertaken research on household financial decisions. Both have been appointed to conduct landmark studies of national mortgage markets: Miles by the UK Government (2003), Ramadorai by the Reserve Bank of India (2016). Their reports have affected significant and far-reaching changes to mortgage regulations.

The Miles Review led to major changes in the regulation of mortgage sales and mortgage lenders in the UK. Specifically, lenders are now obliged to stress test the borrower's ability to deal with significant upward adjustments in the level of interest rates. This change has promoted financial and economic stability and improved the way the market operates. It affects around 1 million new mortgages that are sold every year. It has helped to limit the number of highly indebted households in the UK. The Ramadorai Report made a suite of policy recommendations for the Indian mortgage markets, insurance, credit, and asset markets. It made specific recommendations on how to improve the efficiency of the mortgage market by making interest rate comparisons easy and transparent, ensuring borrowers can identify the best rates for them. This has led to subsequent regulatory policy change in the Indian home loans market, which impacts how mortgage loans are quoted and how offers are made. This affects the choices of close to 50 million applicants per year.

2. Underpinning research (indicative maximum 500 words)

Miles and Ramadorai have both, over an extended period, undertaken research on household financial decisions: looking at aspects of household saving, borrowing, and the ways in which consumers may be poorly served by financial institutions and the products they offer. Their work is marked by a focus on the asymmetries between financial firms and households - in both financial information, and the understanding of product features – and how this can generate undesirable outcomes. Both apply a similar methodological approach: where models of decisions are grounded in coherent theory and fleshed out to match relevant data that is carefully collected from individuals.

Miles and Ramadorai were each commissioned (by the UK Government and the Reserve Bank of India, respectively) to report on whether the most important financial decision made by households – buying and financing home purchase – could be improved. Central to their analysis of the UK and Indian markets is a focus on what information households have, and how they understand it when making decisions about borrowing. Their reports focus on transparency, transaction costs, and information problems in the market.

Miles's two-volume report to the Chancellor of the Exchequer (The Miles Review, volume 1, 2003 and volume 2, 2004 [see 3.1]) presented evidence that households attached overwhelming importance to the initial cost of mortgages, with relatively little attention to how affordability might change in the future as interest rates varied. This analysis is presented in his subsequent paper "Incentives Information and Efficiency in the UK Mortgage Market" in The Economic Journal [see 3.2]. His work placed great emphasis on the importance of assessing how borrowers could be made more aware of the risks of stretched affordability; he illustrated in some detail various ways this might be done. He further analysed the aggregate risk issues – and their link to monetary policy – in "Housing, Leverage and Stability in the Wider Economy", Journal of Money, Credit and Banking, vol 47, 2015 [see 3.3].

Ramadorai's report to the Reserve Bank of India [see 3.4] was published in 2017. It presented evidence that households were unable to make effective choices between mortgages, due to the lack of an established benchmark for comparing interest rates. The recommendations in the report that dealt with asset markets, were informed by his work on over 20 million households in the Indian stock market: presented in his papers "Do the rich get richer in the stock market? Evidence from India" [see 3.6] and "Endowment effects in the field: Evidence from India's IPO lotteries" [see 3.7]. The report also builds on (and cites) Ramadorai's earlier preliminary survey of the Indian household finance landscape [see 3.8]. Research by Ramadorai is international in nature and has involved close collaboration with regulatory agencies from countries including India, Denmark, the US, and the UK. He has conducted research on large administrative datasets on mortgage markets from multiple countries. For example, "Sources of inaction in household finance: Evidence from the Danish mortgage market" [see 3.5].

3. References to the research (indicative maximum of six references)

1. D. Miles, *The Miles Review: Taking a longer-term view*, 2004. (https://webarchive.nationalarchives.gov.uk/20071204131258/http://www.hm-treasury.gov.uk/consultations_and_legislation/miles_review/consult_miles_index.cfm)
2. *D Miles, "Incentives Information and Efficiency in the UK Mortgage Market," The Economic Journal, March 2005. DOI 10.1111/j.0013-0133.2005.00981.x
3. D. Miles, "Housing, Leverage and Stability in the Wider Economy," Journal of Money, Credit and Banking, vol 47, 2015. DOI 10.1111/jmcb.12187
4. T. Ramadorai, *Report of the Household Finance Committee for the Reserve Bank of India*, 2017. (https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=877)
5. Tarun Ramadorai, Steffen Andersen, John Y. Campbell, Kasper Meisner-Nielsen, "Sources of inaction in household finance: Evidence from the Danish mortgage market," 2020, American Economic Review, 110(10), 3184-3230. DOI 10.1257/aer.20180865
6. Tarun Ramadorai, John Y. Campbell and Ben Ranish, "Do the rich get richer in the stock market? Evidence from India" 2018, American Economic Review: Insights, 1(2), 225-240; DOI: 10.1257/aeri.20180158
7. Tarun Ramadorai, with Santosh Anagol and Vimal Balasubramaniam, "Endowment effects in the field: Evidence from India's IPO lotteries" 2018, Review of Economic Studies, 85(4), 1971-2004.). DOI 10.1093/restud/rdy014
8. Tarun Ramadorai Cristian Badarinza, Vimal Balasubramaniam. "The Indian Household Finance Landscape," 2017. India Policy Forum. (https://www.ncaer.org/image/userfiles/file/IPF_2017/IPF-Paper-1-2016.pdf)

References (1) and (4) are the products of landmark studies commissioned, respectively, by the UK Government and the Reserve Bank of India. References (2) (3) (5) (6) & (7) are published in peer reviewed journals of international excellence. Reference (8) appears in an annual joint publication of the Brookings Institution and the National Council of Applied Economic Research, both international centres for excellence in economic research.

**This research was undertaken whilst Miles was employed at Imperial College Business School, but was published shortly after his first period of employment.*

4. Details of the impact (indicative maximum 750 words)

In 2003 Miles was appointed by Gordon Brown, then the Chancellor of the Exchequer to undertake a study of the UK mortgage market. Its purpose was to inform the regulations of housing finance. At any one time around 11 million households in the UK (comprising about half of the population) have a mortgage. The majority of people have a mortgage at some point in their life, and the way in which mortgage contracts are structured and how they are sold is central to their financial well-being. The Miles Review (see 3.1) was published in 2004. Its recommendations – particularly on the information provided to households about mortgages, on potential conflicts of interest between advisors and households, and on the risks of interest rate changes – influenced major changes in the regulation of mortgage sales and mortgage lenders. As a result of this research, Miles went on to serve as a member of the board of the Financial Services Authority (the body which oversaw the financial regulation of mortgage markets) and the Bank of England's Monetary Policy Committee.

The changes in regulation culminated in the reforms introduced by the Mortgage Market Review in 2014. After that, stress testing of the borrower's ability to deal with significant upwards adjustments in the level of interest rates – a key focus of the Miles Review – became part of the rules that govern mortgage sales. This affects around 1 million new mortgages every year in the UK. Lenders are now required to assess whether borrowers can continue to manage mortgage debt, should interest rates rise by three percentage points. This change has meant that lenders can no longer rely on borrowers having their incomes rise before there is any significant increase to interest rates. This change is particularly significant in the post 2008 landscape: which is marked by an unusually slow growth in household incomes. Despite this, and because of the reforms, mortgage defaults have remained at exceptionally low levels.

As explained by Lord Mervyn King (former Governor of the Bank of England) "*The Miles Review made several recommendations about how the risk of variable rate mortgages could be better shared among savers, lenders, and borrowers. They led directly to the decision by regulators that lenders must consider the affordability of a variable rate mortgage were interest rates to rise substantially"* (see 5.1). In addition to this, he writes, the review also "*led to changes that eliminated the cross-subsidisation of mortgages taken out by households of different risk characteristics. There are few examples of research that has such a direct impact on policy and the opportunities faced by large numbers of households*" (see 5.1).

The effects of these changes are celebrated by Alex Brazier – current Executive Director for Financial Stability issues at the Bank of England, and member of the Financial Policy Committee – for having promoted economic and financial stability. He writes: "[Miles's] *work on the UK mortgage market, particularly his analysis of how new borrowers over-weight initial mortgage payments, contributed directly to the introduction by the Financial Policy Committee (FPC) of affordability stress tests for new mortgage borrowers in the UK and limits on high loan-to-income mortgage lending. These policies have limited any growth in the number of highly indebted households, promoting economic and financial stability*" (see 5.4). Lord Gus O'Donnell – former Permanent Secretary to the Treasury, and Cabinet Secretary – echoes this sentiment when he writes: "[Miles's] *work on the mortgages market had a significant impact on thinking at the Treasury which eventually resulted in policy changes that, to this day, have improved the way the market operates. It is an excellent example of how serious economic analysis can lead to policy change*" (see 5.2).

In 2009, Miles was appointed to the Bank of England's Monetary Policy Committee. He served for 6 and a half years on this 9 person committee which was the decision-making body for UK monetary policy. The influence of its decisions on the mortgage market is direct and immediate.

Miles's landmark research on mortgages influenced how he and others on the committee made their decisions on interest rates and on quantitative easing – the policy whereby the committee decided to purchase around £300 billion of assets during the period when Miles was on the Committee.

With a similar mandate from the Governor of the Reserve Bank of India (then Prof. Raghuram Rajan), Ramadorai was asked in 2016 to report on the demand for, and provision of, financial services to Indian households. Ramadorai focused on many of the same questions for India that Miles had analysed for the UK. The Ramadorai Committee report (see 3.4) was publicly released in 2017 by the Reserve Bank of India, and revealed the challenges that Indians face in being able to participate efficiently in the formal financial system.

The report contains many recommendations (detailed in 5.8) to help households make better financial decisions. It incorporates an important sub-set dealing specifically with the mortgage market. These include: increasing incentives for first time homebuyers with mortgage tax deductions and, in particular, introducing requirements that all banks offering mortgage finance must do so by quoting rates relative to a single agreed standard national base rate. Linking these floating rates to a common benchmark simplifies, and makes more transparent, the relative rates charged by lenders. Prof. Viral Acharya – former Deputy Governor of the Reserve Bank of India – has said the following: the report "*informed several important policy decisions taken by the Reserve Bank of India and the Ministry of Finance […] It combined novel research conducted while Prof. Ramadorai was at Imperial College with significant practical policy recommendations. Of these, several have since been implemented, including the linking of mortgage rates quoted by banks to external benchmarks such as the central bank's repo rate*" (see 5.6).

As referenced above, and as a direct consequence of the report, the Reserve Bank of India now mandates that all new home loans are linked to the repo rate from October 1, 2019. This change is beginning to transform a market with over 50 million mortgage applications per year. It has already resulted in better customer outcomes in market, on account of improved transparency in the comparison process, meaning that customers are less likely to get into a mortgage that has uncompetitive terms. In addition, these changes have improved the monetary policy transmission mechanism in India since the linking to external benchmarks also directly connects household mortgage rates to changes in the monetary policy rate. Responding to the Ramadorai Report, Prof. Raghuram Rajan (former Governor of the Reserve Bank of India) has said: "*It is a serious, evidence-based contribution to policy thinking in Indian household finance… For example, the Reserve Bank of India has just mandated linking mortgage rates paid by households to external benchmarks such as the repo rate, aiding the effective transmission of monetary policy, and facilitating household product search in financial markets… [Ramadorai's] research on this topic has had important practical implications for, and impact on, policy decisions in this context in India*" (see 5.5).

The report has received massive national and international coverage in the financial and policy practitioner domains: over 51 articles and broadcasts in newspaper, radio, and television tier 1 Indian and international media. For a summary of the coverage see 5.9, which documents coverage around the release of the report.

5. Sources to corroborate the impact (indicative maximum of 10 references)

1. Supporting letter from Lord Mervyn King – former Governor of the Bank of England.
2. Supporting statement from Lord Gus O'Donnell – former Permanent Secretary to the Treasury, Cabinet Secretary.
3. Supporting letter from Sir Callum McCarthy – former Chairman of the Financial Services Authority.
4. Supporting letter from Alex Brazier – current Executive Director for financial stability issues at the Bank of England and member of the Financial Policy Committee.
5. Supporting letter from Prof. Raghuram Rajan – former Governor of the Reserve Bank of India.

6. Supporting letter from Prof. Viral Acharya – former Deputy Governor of the Reserve Bank of India.
7. Supporting letter from Suresh Mathur – current Executive Director, Insurance Regulatory and Development Authority of India.
8. Public Presentation of the Ramadorai Report at Imperial College Business School (2017).
9. Documentation of the media coverage surrounding the Ramadorai Report's release.