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Cc: [ANZ Suncorp Merger](#); [Mark Basile](#); [Stella Leung](#)
Subject: ANZ-Suncorp application for merger authorisation - submission published on the PR [SEC=OFFICIAL]
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Good afternoon,

We have recently published a report, prepared by Nick de Roos for the ACCC, on [ACCC's public register](#) for this matter.

Regards,

Kaitlin

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(she/her)

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The ACCC acknowledges the traditional owners and custodians of Country throughout Australia and recognises their continuing connection to the land, sea and community. We pay our respects to them and their cultures; and to their Elders past, present and future.

Framework for assessing coordinated effects

Nicolas de Roos

April 5, 2023

1 Coordinated effects

Describe the concept of ‘coordinated effects’ as it applies to the competition assessment of mergers and acquisitions in general.

The *coordinated effects* of a merger or acquisition refer to the impacts arising from a change in the likelihood and nature of coordinated behaviour between firms. Intrinsic to this definition is the concept of *coordinated behaviour* between firms. Coordinated behaviour refers to conduct used by firms that is beneficial only with the forbearance of other firms in the market. Coordination could occur with respect to any strategies of mutual interest to the firms in the market, including but not limited to: coordination on interest rates; the allocation of customers or market shares; investment, research and development; product design; entry and exit into product lines; and marketing and advertising strategies. For illustration, I shall often refer to coordination on interest rates as a running example.

Coordinated behaviour is typically associated with tacit or explicit collusion.¹ The principle distinction between collusive and non-collusive conduct made by economists is that collusive conduct involves expectations of future payoffs that are contingent on current conduct. In the case of explicit collusion, colluding firms are party to an agreement that stipulates expected conduct. Compliance with the agreement is supported by promises of future rewards for cooperation and threats of punishment in the event of non-compliance. In the case of tacit collusion, firms may rely on a mutual understanding of expected conduct rather than an agreement. In this case, expectations of future rewards and punishments are implicit. Without these implicit or explicit expectations of punishments and rewards, conduct that is mutually beneficial to firms in the long run may not be sustainable.

2 Impact on coordinated effects

Set out a high-level framework for assessing any change in the likelihood, extent or severity, and sustainability of coordinated effects arising from the Proposed Acquisition compared to a counterfactual in which the Proposed Acquisition did not proceed.

I propose a framework with three main elements.

¹A range of terminology is used to refer to alternative forms of coordinated behaviour between firms. Alternative forms of coordinated behaviour are distinguished by variation in the nature of communication between firms. The primary distinction made by economists is between explicit collusion (in which firms communicate directly by phone calls, meetings, emails) and tacit collusion (in which firms do not directly communicate). See, for example, [Kaplow \(2013\)](#) for a more detailed discussion.

1. Identify the relevant markets that are at risk.

What are the primary products that are affected? What is the scope (in terms of product definition and geography) of competition in each market? In this definition, give consideration to the substitutability of products both on the demand and the supply side of the market. For example, to consider the geographic limits of market definition, the following type of question would be relevant. Would a consumer in Sydney consider purchasing a product offered by a supplier operating in Queensland, and do consumers in fact choose products offered by banks without a presence in their home state. On the supply side, would a supplier in Queensland be in a reasonable position to offer products in Sydney. Similar questions determine other dimensions of market definition. For example one might ask whether consumers are likely to switch between home loans with different terms such as the time to maturity, fixed versus flexible interest rates, and loans with and without lower introductory interest rates.

2. Assess the likely impact on the ability of firms to initiate cooperative behaviour.

Successful cooperative behaviour requires firms to have a common understanding of the nature of cooperation, the rewards for cooperative behaviour, and the penalties associated with deviation from cooperation. Establishing a common understanding is facilitated by communication, broadly defined.²

If firms do not communicate directly (by phone, in person, by email), then alternative means of communicating intent and understanding are required to establish cooperation. For example, media announcements, interest rate announcements, or extensive familiarity with rival interest rate setting and other market practices could help build a common understanding of expectations.

The task here is then to assess the impact of the Proposed Acquisition either on the likelihood of firms developing a common understanding of the details of cooperative behaviour, or on the nature of the common understanding held by firms. This involves identifying how firms coordinate or might be expected to coordinate, what role do or would the Target and Acquirer play in coordination, how important are these roles, and how might these roles be affected by the Proposed Acquisition. A possible strategy is to examine instances of and opportunities for communication about coordination in the relevant and related markets.

3. Assess the likely impact on the ability of firms to sustain cooperative behaviour.

Suppose the building blocks are there for firms to initiate cooperative behaviour in a market. The next question is whether cooperative behaviour is sustainable. For illustration, suppose that firms wish to coordinate on a mutual rise in mortgage rates above their cost of funds. Would each firm, individually, have an incentive to maintain higher mortgage

²For a discussion of the challenges of initiating collusive conduct without explicit communication, see [Green et al. \(2014\)](#). For a recent example of successful tacit initiation of collusive conduct, see [Byrne and de Roos \(2019\)](#).

rates? The essential tension is that each firm could lower their interest rate below their competitors, advertise this to consumers, and benefit from a gain in market share and a short term increase in profits. They may anticipate that such a course of action will trigger a subsequent response (“punishment”) from their competitors (for example, by triggering interest rate reductions from their rivals). Thus, for firms to cooperate, they must resist the temptation of short-term profits in favour of the future returns to cooperation.

Assessing the sustainability of cooperative behaviour involves evaluating the opportunities for effective deviation from cooperation (for example, can firms extract substantial market share gains by undercutting their rivals?), the ability of firms to detect and rapidly respond to such deviations, and the way that firms trade-off current and future profits. In the economics jargon, the “patience” of the firms describes this trade-off between current and future profits. If firms are sufficiently patient, then they will resist the temptation of the short term profits of a deviation and cooperative behaviour will be sustainable.

The patience of a firm can be measured by a discount factor or interest rate. A patient firm uses a low interest rate to discount future payoffs. In practice, if monitoring is frequent (for example, monthly) and effective, then this means that firms are very patient for the purposes of this comparison. This is because the rewards for cooperation come very soon. We would therefore expect firms to be able to resist the temptation to deviate for a fleeting gain in profits.

2.1 Key features

The key features and attributes of markets and firms that raise or lower the likelihood, extent, severity, or sustainability of coordination between firms, and how and in which direction those features and attributes operate.

Below, I discuss a number of interrelated market or firm attributes that are relevant for the ability of firms to initiate and sustain cooperative behaviour.

Market structure

Market structure is a measure of the number and size of firms operating in a market. In a *concentrated* market, a small number of firms control a substantial share of the market. Generally, in more concentrated markets, it is easier for firms to initiate and sustain cooperative behaviour. Initiation is easier because there are fewer large firms to coordinate with, and their interests are more likely to be aligned. Maintaining cooperation is also easier with fewer and larger firms because each firm will have a greater market share under cooperation, and therefore less market share to gain from undercutting the interest rates of their rivals.

Symmetry and alignment

Symmetry between firms (in terms of market shares, costs, product design, and other attributes) tends to make coordination between firms easier. A firm with a smaller market share has more to gain from deviating from cooperation, and less to lose in the event that such deviation is punished. If firms are similar in other dimensions, then they are more likely to have incentives that are aligned. This reduces the complexity of the communication required for firms to initiate cooperation.

For illustration, consider two firms that operate in the same market. Firm *A* has a lower market share than Firm *B*, reflecting aspects of non-price competition. For example, Firm *A* may not have widespread brand recognition or may not be able to offer an extensive package of related services. The firms may therefore have different goals. For example, Firm *A* may be interested in building market share and brand recognition, while Firm *B* may be more interested in earning higher current profits. Were they to attempt to coordinate, the firms may therefore differ in their preferred interest rate or non-price objectives. Further, they may differ in their incentives to maintain cooperation. For example, Firm *A* may be willing to build market share by competing more vigorously, while Firm *B* may have a greater interest in cooperative conduct relating to interest rate setting or other aspects of conduct.

Multi-market contact

If firms interact in more than one market, then this also influences the likelihood of coordination. Multi-market contact provides firms with more experience interacting with their rivals and helps firms develop common expectations for behaviour. This will make it easier for firms to initiate coordination. This is particularly the case if firms have prior experience coordinating in other markets. Indeed, firms may wish to experiment with coordination in one market before coordinating in subsequent markets.³

Multi-market contact also influences the sustainability of cooperation through two opposing forces.⁴ First, multi-market contact increases the effectiveness of punishment and explicit or implicit threats of punishment because punishment can be enacted across multiple markets. In mitigation, multi-market contact also expands the opportunities for deviation from agreed or expected conduct. The net effect on the sustainability of cooperation depends on the relative strengths of the impact on the effectiveness of deviation and punishment.

Symmetry in multi-market contact is also relevant. For illustration, suppose Firms *A* and *B* operate in two common markets, while Firm *C* only operates in one of these markets. If Firm *C* were to deviate from an agreement or expectations of behaviour (for example, by undercutting the interest rates of Firms *A* and *B*), Firms *A* and *B* may find it difficult to punish Firm *C* (for

³See [Chilet \(2018\)](#) for an example of the gradual introduction of collusive behaviour across a sequence of related markets.

⁴For a discussion of the role of multi-market contact in theory, see for example, [Bernheim and Whinston \(1990\)](#); [Spagnolo \(1999\)](#); [Matsushima \(2001\)](#). For an empirical illustration of the role of multi-market contact, see [Ciliberto and Williams \(2014\)](#).

example, by initiating a price war) in one market without also disrupting cooperation in the second market. These considerations will make coordination more difficult to sustain.

Communication devices

If firms have opportunities to communicate pricing intentions, then this makes it easier to coordinate. For example, highly visible public interest rate announcements enable firms to communicate clearly their intentions to their rivals, and provide some level of commitment to their pricing or interest rate plans. If firms have commonly understood focal points on which to coordinate (for example, benchmark interest rates or well established pricing practices), then this can also aid coordination.

Price transparency between firms

The more easily interest rates are observed by rivals, the greater the ability of firms to coordinate and agree on interest rate setting strategies; and monitor adherence to those strategies. If interest rates are perfectly observed without delay, then firms will be able to detect and respond quickly to any deviation from agreed or expected conduct. This reduces the gains from deviation, making coordination easier to sustain. If interest rates are observed by other firms with a delay, then this allows a firm to deviate and obtain higher profits until their deviation is detected and a response implemented. This will make coordination more difficult to sustain. However, coordination is still possible if firms are sufficiently patient such that they care sufficiently about future profits to forego the short term profitability of a deviation.

More granular information about interest rates also aids, but is not essential to sustain coordination. For illustration, suppose that firms are able to observe partial information about the interest rates of rival firms, such as headline interest rates, but they are not able to observe individual customer transaction interest rates. In this case, in order to verify compliance with an agreement or expectations of conduct, firms may be able to rely on informative signals of interest rate setting. For example, firms may be able to detect changes in their market share or profits if their rivals undercut their interest rates; or they may learn partial information about transaction interest rates through their interaction with customers or mortgage broking or interest rate comparison services.⁵

Consumer choice frictions

The stability of cooperative behaviour between firms depends on the ability of firms to restrict the profitability of deviation (for example by undercutting the interest rates of competitors). If consumers face choice frictions, then this makes it more challenging or costly for them to switch suppliers. This reduces the effectiveness of deviations and therefore reduces the incentive to

⁵See [Green and Porter \(1984\)](#) on the sustainability of collusion with imperfect public monitoring.

deviate and strengthens cooperation between firms.⁶ Consumers face many choice frictions. For example, products may include costs of exiting a contract or switching a supplier; consumers may face costs and require time to gather product information; product descriptions, including pricing, may themselves be complex, making them challenging to evaluate; and interest rates may vary frequently making them hard to compare. Further, a consumer who is unfamiliar with all of these details may perceive that there are costs or barriers to choosing or switching products.

2.2 The nature of coordination

The most likely way(s) in which firms may coordinate with and without the Proposed Acquisition and the factors that influence the extent and severity of each.

Below, I discuss several of the most common forms of coordinated conduct. This is not intended to be an exhaustive list. In 2.4, I provide additional examples to illustrate possible impacts of the Proposed Acquisition.

- Price or interest rate fixing:

Firms could coordinate on elevated interest rates to generate margins above those achievable through competition. For products in which the price is a payment to consumers (such as deposit products), firms could instead coordinate on depressed prices for such products. Absent opportunities for explicit communication, coordination is most likely to take place through indirect communication channels. These could include public announcements or media releases, interest rate signaling, marketing and advertising, information sharing through product comparison or broking services, and accumulated experience with rival conduct.

- Market share division or customer allocation:

Firms could divide the market between them and effectively fix market shares. If firms are able to fix market shares, then in principle there may not be a need to coordinate on pricing. This relies on a mechanism for ensuring that market shares are fixed and for “correcting” any deviations from agreed or expected market shares.⁷ This could be achieved by dividing the market along geographic or product lines. Without explicit communication, it may be challenging to coordinate on such a division. Alternatively, firms may be able to achieve some degree of stability in market shares by refraining from attempting to attract customers from rivals.

- Coordination on product development and new product introduction:

⁶For a discussion of the impact of choice frictions on collusion, see for example, Petrikaitė (2016); de Roos (2018); de Roos and Smirnov (2020, 2021).

⁷See Harrington and Skrzypacz (2011) for a discussion of recent explicit cartel practices of market share fixing and monitoring and compliance measures.

Firms may agree either explicitly or by tacit understanding not to develop and introduce new products that may disrupt the market or attract customers from rivals.

- Coordination on other non-price strategies:

Firms could refrain from aggressive marketing and advertising strategies that are intended to attract customers from rivals. Firms could also constrain research and development so as not to disrupt the market.

- Complete and incomplete participation in coordination:

Coordination between firms could take place between all firms in the market or a subset of firms. An “incomplete cartel” in which a subset of firms coordinate is most likely to arise if it is too challenging to coordinate the behaviour of all firms in the market or if different firms have divergent incentives. For example, smaller firms might have less incentive to coordinate, and may prefer instead to attempt to build market share by undercutting the interest rates of their larger rivals. For an incomplete cartel, participants will coordinate their behaviour taking as given the behaviour of non-participants.⁸

2.3 Sustaining coordination

The most likely way(s) in which firms may attempt to sustain each of the forms of coordination between firms identified in 2.2 with and without the Proposed Acquisition.

Sustainable cooperation requires expectations of rewards for cooperative behaviour (i.e. the absence of vigorous competition for major segments of the market) and expectations of punishment for non-cooperation (for example, an interest rate price war could be triggered). Absent opportunities for direct communication, these expectations will likely develop through extensive mutual experience of pricing practices or prior experience with coordination in related markets. For example, if firms have developed an understanding that increases in interest rates will be matched by their major competitors, without subsequent undercutting, then this will increase the likelihood that an increase in interest rates will be sustained.

The existence of personalised discounts relative to headline interest rates may complicate coordination. If transaction interest rates are not perfectly observable, then a deviation may not be quickly detected, making it harder to quickly coordinate on punishment. However, if firms have developed an understanding of discounting practices, then deviations may be easier to detect, making coordination easier to sustain. Firms could develop such an understanding through extensive experience interacting with the same set of competitors, and by obtaining information through interaction with customers, and mortgage brokerage and interest rate comparison services. For example, firms may have developed an understanding of the types of discounts that are available for customers with different characteristics or for customers who show different propensities to shop around. Further, firms may have also developed a common practice of

⁸See, for example, [Bos and Harrington \(2010\)](#) and [de Roos and Smirnov \(2021\)](#) for discussions of incomplete cartels.

quoting discounts relative to a headline interest rate, simplifying the process of coordinating on discounts and detecting a deviation.

2.4 Illustrative examples

In this section, I use examples to illustrate the potential impact of the Proposed Acquisition on the nature and sustainability of coordination. The examples are not intended to be exhaustive. For each of the forms of coordination in 2.2, the effectiveness of coordination could be impacted by the Proposed Acquisition.

Consider some of the features discussed in 2.1 above. The Proposed Acquisition will lead to a change in market structure. If the Acquisition leads to an increase in concentration and a decrease in the number of firms with which to coordinate, then this may simplify the process of coordination. An increase in market concentration would also reduce the payoffs to deviating from cooperative strategies, making coordination easier to sustain.

By similar reasoning, if the Acquisition leads to a more symmetric distribution of market shares, then this could also make coordination easier to achieve and more sustainable. The smallest firms in the market tend to have the most to gain from deviating from cooperative strategies. Thus, a more symmetric distribution of market shares could also make coordination easier to sustain.

Price transparency could also be impacted by the Proposed Acquisition if the Target and Acquirer engage in different interest rate setting strategies. For example, if the major firms in the market are less familiar with the regime of discounts that the Target offers to customers and potential customers (when compared with the Acquirer), then the Acquisition may improve price transparency in the market. An improvement in price transparency would make it easier for firms to detect and respond to interest rate changes, making it easier to sustain coordination.

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30 March 2023

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Dear Nicolas

Letter of instructions
Proposed acquisition of Suncorp Bank by ANZ

1. The Australian Government Solicitor (**AGS**) acts for the Australian Competition and Consumer Commission (**ACCC**) in relation to the ACCC's assessment of Australia and New Zealand Banking Group Limited's application for merger authorisation in relation to its proposal to acquire 100% of the issued share capital of SGBH, which owns 100% of the shares in Suncorp Bank (the **Proposed Acquisition**).
2. We refer to your contract of engagement for the provision of expert advice in connection with the Proposed Acquisition. You are instructed to prepare a brief, non-technical report:
 - a. describing the concept of "coordinated effects" as it applies to the competition assessment of mergers and acquisitions in general; and
 - b. setting out a high-level framework for assessing any change in the likelihood, extent or severity, and sustainability of coordinated effects arising from the Proposed Acquisition compared to a counterfactual in which the Proposed Acquisition did not proceed.
3. The "high-level framework" referred to in paragraph 2.b above is to address to the following as they apply in relation to the Proposed Acquisition:
 - a. the key features and attributes of markets and firms that raise or lower the likelihood, extent, severity, or sustainability of coordination between firms, and how and in which direction those features and attributes operate;
 - b. the most likely way(s) in which firms may coordinate with and without the Proposed Acquisition and the factors that influence the extent and severity of each;
 - c. the most likely way(s) in which firms may attempt to sustain each of the forms of coordination between firms identified in 3.b with and without the Proposed Acquisition.

4. We would be grateful if you could provide the report by 31 March 2023.

Yours sincerely



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Reserve Bank of Australia, Sydney, January 1994 - June 1996

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Mark Armstrong and Nicolas de Roos, "Limited price and design comparability".

Matthew Backus, Nicolas de Roos and Leslie Marx, "Bargaining inside a cartel".

Nicolas de Roos, "Fundraising with momentum".

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Invited Speaker

2022: Dynamic Structural Econometrics Conference (Australian National University)

2018: Workshop on Behavioral Economics (Tinbergen Institute, Amsterdam), Workshop on Empirical Dynamic Industrial Organization (Tinbergen Institute, Amsterdam)

2017: Workshop on Competition and Pricing in Retail Gasoline Markets (University of Düsseldorf)

Conference Presentations

2023: Mannheim Centre for Competition and Innovation

2022: Asia-Pacific Industrial Organisation Conference

2021: Conference of the European Association for Research in Industrial Economics, Australasian Economic Theory Workshop, Melbourne Industrial Organisation Workshop

2019: Asia-Pacific Industrial Organisation Conference, International Industrial Organization Conference, Sydney Empirical Microeconomics Workshop

2018: Conference of the Mannheim Centre for Competition and Innovation

2017: Conference of the European Association for Research in Industrial Economics

2016: Asia-Pacific Industrial Organisation Conference, Australasian Economic Theory Workshop, University of Queensland Industrial Organisation Workshop

2015: Australasian Economic Theory Workshop

2014: International Industrial Organization Conference

2013: Econometric Society Australasian Meetings, Centre for Market Design Workshop in Industrial Economics

2011: Econometric Society Australasian Meetings, Asian Meeting of the Econometric Society, Conference of the European Association for Research in Industrial Economics

2010: Conference of the European Association for Research in Industrial Economics, Australian Conference of Economists

2009: Australian Conference of Economists

2007: American Economic Association Winter Meetings (Duke), European Economic Association and Econometric Society (Budapest), Conference of the European Association for Research in Industrial Economics.

2006: Australian Conference of Economists

2005: ENCORE Workshop, The Economics of Collusion (The University of Amsterdam)

2004: Summer Workshop in Industrial Organization (University of Auckland), International Industrial Organization Conference (Kellogg School of Management), Conference of the European Association for Research in Industrial Economics.

2003: American Economics Association Annual Meeting (Industrial Organization session)

Invited Seminars

2022: University of Mannheim, University of Heidelberg

2021: University of Queensland, Queensland University of Technology

2019: The Wharton School, Harvard University

2018: University of Groningen, University of Vienna, The European School of Management and Technology (ESMT, Berlin), Mines ParisTech, Monash University, University of Adelaide, University of Technology Sydney, Stern School of Business (NYU)

2017: University of Mannheim, University of Giessen, University of Düsseldorf

2015: University of Queensland, Macquarie University

2014: Georgetown University, Stern School of Business at NYU, Harvard University, Boston College, New York University, University of Amsterdam, Free University of Amsterdam, University of Mannheim, University of Groningen

2013: University of Bielefeld, Australian National University, University of Queensland, University of New South Wales

2012: University of Melbourne

2011: University of Western Australia

2010: Macquarie University, Tinbergen Institute (Amsterdam), Australian National University, The University of New South Wales

2007: Tinbergen Institute (Amsterdam), Tilburg University, University of Groningen, University of Alicante

2006: Australian National University (RSSS), University of Sydney (Econometrics)

2004: Australian National University, Purdue University, Melbourne University, La Trobe University

2003: University of Sydney, Australian Graduate School of Management, Pennsylvania State University, University of New South Wales

2002: University of Virginia

2001: University of California at Irvine, Stern School of Business at New York University, London Business School, State University of New York at Stony Brook, Melbourne University, University of Amsterdam

Editorial Roles

Co-editor, *The Economic Record*, 2022-

Co-editor, *The Economic Record*, conference issue, 2017

Referee Experience

Econometrica, American Economic Review, Journal of Political Economy, Quarterly Journal of Economics, Review of Economic Studies, American Economic Journal: Microeconomics, Marketing Science, RAND Journal of Economics, Theoretical Economics, Economic Theory, International Journal of Industrial Organization, Journal of Economics and Management Strategy, Economic Record, Agenda, Journal of Industrial Economics, Australian Journal of Management, Australian Journal of Agricultural and Resource Economics, Journal of the European Economic Association, Bulletin of Economic Research, Economic Inquiry, Journal of Media Economics, Eastern Economic Journal, Theory and Decision, Australian Economic Review, Review of Financial Economics, Applied Cognitive Psychology, Journal of Law and Economics, Economic Modelling, Economics Letters, European Economic Review, Games, Experimental Economics, New Zealand Economic Papers, Energy Economics, Games and Economic Behavior, Economic Papers, Review of Industrial Organization, Oxford Bulletin of Economics and Statistics.

Academic and Professional Experience

Chair, Local Organising Committee, Asia-Pacific Industrial Organisation Conference, 2022

Program Committee, International Industrial Organization Conference, 2021-

Scientific Committee, Conference of the European Association for Research in Industrial Economics, 2018-

Program Committee, Asia-Pacific Industrial Organisation Conference, 2019-2020

Academic Advisor, Faculty of Arts and Social Sciences, 2019-2021

Internships Committee, Faculty of Arts and Social Sciences, 2016

Junior Recruitment Interview Panel, 2015/2016

Digital Humanities and Social Sciences Hub Committee, Faculty of Arts and Social Sciences, 2015-2017

Seminar Coordinator, School of Economics, internal seminar series, 2015-2017

Program Committee, Executive Member, Econometric Society Australasian Meetings, 2013

Undergraduate Coordinator (Economics), Faculty of Arts and Social Sciences, 2012, 2013

Undergraduate Coordinator (Economics), Faculty of Economics and Business, 2008 - 2010

Program Director, Bachelor of Economics, 2010, 2012, 2013

Executive Committee, School of Economics, 2012 - 2013

Junior Recruitment Committee, 2009/2010

Seminar Coordinator, Department of Economics, July 2004 - 2006

IT Steering Committee, Faculty of Economics and Business, 2006

Course Coordinator, Introductory Microeconomics, 2005 - 2006

Undergraduate Committee, 2005

Ph.D. Supervision, 2005 -

Honours (Fourth year) Thesis Supervision and Grading, 2003 -

Coach, Sydney University undergraduate and postgraduate teams, BCG Business Strategy Competition, 2005 - 2006 (joint with Phil Lee)

Teaching Experience

Interdisciplinary Project in Econometrics, University of Sydney, 2021

Interdisciplinary Project in Economics, University of Sydney, 2020, 2022

Firms and Markets (MBA), Stern NYU, 2019

Intermediate Microeconomics, Stern NYU, 2018

The Economics of Crime, University of Sydney, 2018

Market Structure and Strategic Behaviour (M. Economics), University of Sydney, 2018 - 2020, 2022

Principles of Econometrics (Master of Economics), University of Sydney, 2012, 2013, 2015 - 2017

Managerial Economics, University of Sydney, 2011

Honours Industrial Organisation, University of Sydney, 2010 - 2011

Strategic Business Relationships, University of Sydney, 2008, 2019

Economics for Accountants, University of Sydney, 2008 - 2009

Honours Econometrics, University of Sydney, 2006

Introductory Microeconomics, University of Sydney, 2004, 2005, 2006

Industrial Organisation, University of Sydney, 2004 - 2006, 2008 - 2017, 2020

Graduate Industrial Organisation, University of Virginia, 2003

Undergraduate Industrial Organisation, University of Virginia, 2003

Financial Markets (Teaching Assistant), Yale University, 2001

Financial Theory (Head Teaching Assistant), Yale University, 2000

Intermediate Macroeconomics (Teaching Assistant), Yale University, 2000

Graduate Microeconomics (Teaching Assistant), Yale University, 1998

Consulting Experience

HWL Ebsworth Lawyers: Economic Expert, 2022

South Australian Productivity Commission, 2020

Australian Competition and Consumer Commission: Consulting economist for merger analysis, 2013

Independent Pricing and Regulatory Tribunal: Consulting economist for “Determinants of residential energy and water consumption”, 2011

Bates White and Ballentine: Graduate consultant, September 2001 - November 2002

Fellowships, Honours and Awards

Australia Research Council Discovery Project, “Price Transparency, Search, and Collusion in Markets”, \$311,801, 2021 (with David Byrne and Matthew Lewis)

Melbourne School of Government Incubator Research Project Grant, \$16,000, 2013 (with Caron Beaton-Wells, David Byrne, and Roger Ware)

Prize for the best paper in the Economic Record, 2010 (for the article “Pricing dynamics in the Australian airline market”, with Gordon Mills and Stephen Whelan)

University of Sydney Competitive Grant, \$15000, 2009

University of Sydney Competitive Grant, \$40000, 2008

School of Economics and Political Science Research Grant, \$9000, 2006 (with Tim Fisher and Kunal Sengupta)

Nominated for Wayne Lonergan Outstanding Teaching Award, 2005

Faculty of Economics and Business Travel Grant, University of Sydney, \$4000, 2004

Yale University Fellowship, Fall 1996 - Spring 2000

The John Lorenzo Scholarship Prize, University of Adelaide, 1993

Professor Tew’s Prize for First-Year Economics, University of Adelaide, 1990

The Economics Society Prize for Economics 1, University of Adelaide, 1990