THE UNIVERSITY OF SYDNEY

The University of Sydney Accounting Foundation

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Executive Summary

Accounting, Resilience Investments, and Disaster Risk Reduction in Australia

Contents

We recognise and pay respect to the Elders and communities – past, present, and emerging – of the lands that the University of Sydney's campuses stand on. For thousands of years they have shared and exchanged knowledges across innumerable generations for the benefit of all.

Accounting, Resilience Investments, and Disaster Risk Reduction in Australia

Key conclusions

This project shows that accounting, in its diverse forms, plays multiple roles in shaping how resilience investments are articulated and evaluated as part of the broader disaster risk reduction efforts in Australia. By framing the impacts of natural hazards into economic metrics, accounting numbers guide prioritisation of proactive disaster risk reduction and resource allocation. Evaluating resilience investments requires monetising both tangible and intangible benefits, yet operational challenges, particularly at local levels, limit analytical rigour and may hinder investment. Funding application processes often rely on simplified metrics and narratives, meaning that project approval could depend more on persuasive presentation than on rigorous calculative assessment of benefits.

Abstract

Natural hazards are endemic to Australia and result in substantial economic, social, and environmental costs. While resilience investments can reduce disaster impacts and enhance community preparedness, their evaluation remains challenging. This project examines how accounting, through numbers, calculations, investment appraisal techniques, and processes of quantification and monetisation, is used to evaluate resilience investments and support disaster risk reduction. Drawing on interviews with 20 experts and analysis of public reports from government agencies, consulting firms, research institutes, industry consortia, and NGOs, the project shows that accounting translates disaster impacts into economic metrics, guides prioritisation of prevention and mitigation efforts over reactive response, and facilitates assessment of tangible and intangible benefits. However, operational challenges and simplified funding application requirements can limit analytical rigour, possibly making project approval depend more on persuasive narratives than systematic evaluation. The findings highlight the crucial yet contested role of accounting in supporting effective resilience investment in Australia.

Introduction

Natural hazards such as bushfires, floods, heatwaves, and tropical cyclones are inherent to Australia's climate. When these hazards escalate into disasters, they result in loss of life, economic disruption, and population displacement. As of 2021, natural disasters cost the Australian economy an estimated of $38 billion annually (Deloitte, 2021). This figure is substantially higher when environmental, social, psychological, and other intangible impacts are taken into account (Deloitte, 2016; Productivity Commission, 2014).

Prior to the 2010s, disaster management in Australia focused largely on response and rescue. This reactive approach proved inadequate for long-term recovery and contributed to unsustainable public expenditure (Deloitte, 2013). Since the early 2010s, and in line with global developments, Australia has shifted towards a more proactive approach that emphasises prevention and preparedness while maintaining response capacity (Commonwealth of Australia, 2018; Council of Australian Governments, 2011; Deloitte, 2013). Central to this shift are resilience investments, which can accelerate recovery, lower long-term economic costs, and strengthen community resilience (Climate-KIC, 2023; Productivity Commission, 2014). Resilience investment projects include infrastructure projects (e.g., flood levees), advanced technologies (e.g., early warning systems), and community initiatives (e.g., risk awareness campaigns). Despite their demonstrated cost-benefit advantages, repeated policy initiatives, and increased government funding, resilience investments in Australia remain insufficient to address escalating disaster risks (Commonwealth of Australia, 2018; Deloitte, 2021).

Joining scholars in other disciplines, accounting researchers have, over the past decade, examined the interplay between accounting and natural disasters (Sargiacomo, 2014) and viewed disasters as sites where accounting matters (Sargiacomo, 2015). In the immediate response to disasters and throughout recovery processes, accounting calculations are routinely mobilised to determine whether humanitarian and economic assistance should be provided, the amount of funding to be allocated, and the bases on which resources are distributed to affected populations. Across different types of natural disasters, including hurricanes (Baker, 2014; Perkiss & Moerman, 2020), bushfires (Talor et al., 2014), floods (Lai et al., 2014; Sciulli, 2018), earthquakes (Jayasinghe et al., 2020; Sargiacomo, 2015; Sargiacomo & Walker, 2022; Sargiacomo et al., 2014), and droughts (Walker, 2014), existing studies primarily highlight the (mal)functioning of accounting tools and accountability mechanisms in disaster response and recovery.

Nevertheless, despite growing recognition that enhancing resilience to natural disasters requires strengthening pre-disaster resilience measures and intensifying disaster mitigation efforts, particularly through resilience investments, the role of accounting in this domain remains underexplored. While accounting scholars have demonstrated that accounting numbers, tools, and calculations play a key role in investment processes across both private and public sectors (Miller, 1991; Miller & O'Leary, 2007; Warren & Seal, 2018), how accounting contributes specifically to resilience investments and to the building of disaster resilience more broadly has received limited attention.

Objectives

This project aims to examine how accounting, in its diverse forms, ranging from numbers, calculations, and investment appraisal techniques to mechanisms of monetisation and economisation, is deployed to evaluate resilience investment projects and to operationalise aspirations for disaster risk reduction.

Research method

The project involves interviews with 20 individuals who have expertise in disaster risk mitigation and resilience building in Australia, including government officials, economists, valuation specialists, consultants, academics, and NGO personnel.

In addition, the project analyses a broad range of public reports produced by government agencies, consulting firms, industry consortia, NGOs, and research institutions, as well as relevant news articles and media commentaries.

Main findings and implications for practice

Accounting numbers, investment appraisal techniques, economic calculations, and processes of monetisation and economisation are deployed in diverse forms and to varying degrees across different aspects of resilience investments.

Mobilising economic metrics to justify prioritising disaster risk reduction

The report issued by Deloitte (2013) on behalf of the Australian Business Roundtable for Disaster Resilience, *Building our nation's resilience to natural disasters*, was the first to call on stakeholders in Australia to prioritise disaster prevention and mitigation beyond response and recovery. Drawing on a range of economic numbers, both historical and projected, the report articulates the severity of natural disasters for the nation, highlights the relative low level of investment in resilience measures, and justifies the need for greater effort prior to disasters. For example, it states that "[t]he total economic cost of natural disasters in Australia is forecast to rise to $23 billion annually by 2050, up from the current 6.3 billion" and that "carefully considered investment in resilience measures now will reduce Australian Government expenditure on natural disaster relief and recovery by more than 50% by 2050" (Deloitte, 2013: 4). At the same time, the report notes that Australia "has invested an estimated $50 million each year in mitigation measures to improve our communities' resilience to natural disasters", compared with an average annual spend of "$560 million ... on recovery". As it continues, "for every $10 spent on post-disaster recovery, only $1 is spent on measures to improve the safety of our communities prior to disasters" (Deloitte, 2013: 4). Our interviewees regularly refer to this report and its headline economic figures, which have played a key role in raising awareness of the need to devote attention not only to response and recovery, but also to prevention and risk mitigation.

Assessing resilience investments through quantification and monetisation of diverse costs and benefits

Resilience investments have distinctive features: they prioritise risk reduction rather than financial returns; address potential future natural hazards that may never materialise; involve diverse stakeholders; require multidisciplinary expertise; and generate benefits that unfold gradually over the long term (Productivity Commission, 2014). These characteristics make resilience investments difficult to evaluate, often resulting in underinvestment, suboptimal decision-making, and insufficient disaster risk mitigation. In response, consulting firms, government research institutes, NGOs, and academics have attempted to develop tools, models, and frameworks to evaluate resilience investments. As these emerging approaches largely build on and depart from cost-benefit analysis (CBA), they require the quantification and monetisation of diverse categories of costs and benefits.

Initial attempts have been made to estimate the total economic costs of natural disasters. Deloitte (2013, 2016) categorises these costs into four types: direct and tangible (e.g., damage to infrastructure), indirect and tangible (e.g., emergency response costs), direct and intangible (e.g., injury), and indirect and intangible (e.g., inconvenience and stress). Using these estimates, a CBA of disaster resilience compares expected disaster costs under a baseline scenario with those under a policy scenario, accounting for the cost of resilience measures. It hence evaluates whether investing in resilience is justified by the resulting reduction in disaster costs (Deloitte, 2013: 80).

Subsequent work by Deloitte (2021) has begun to look beyond economic costs to include social costs – "the costs of damages that cannot be easily priced" – to better capture "the true cost of natural disasters". While certain social impacts, such as fatalities, injuries, mental health impacts, alcohol and drug misuse, exacerbation of chronic disease, and family violence, can be quantified and incorporated into evaluative frameworks developed in the 2010s, many others remain unquantified and are not reflected in cost estimates, including permanent unemployment, education disruptions, loss of social cohesion, higher crime rates, environmental degradation, and loss of animal lives.

More recent developments, particularly those led by CSIRO and Value Advisory Partners, have sought to "incorporate value creation and systemic risk mitigation into the design and delivery" of resilience investments (Wise et al., 2022b: i). This approach frames resilience investments not only as a means to reduce disaster risk but also as opportunities to create value for communities across Australia. Evaluating these investments therefore involves assessing not only the disaster-related costs that can be avoided but also the broader societal benefits they can generate, which can help attract both government funding and private sector contributions. As a result, the estimation and monetisation of social, environmental, and community benefits, which are largely intangible, has become necessary, particularly to determine "a financial return for investors" (Climate KIC, 2023: 11). Similarly, the Queensland Reconstruction Authority has partnered with the International Institute for Sustainable Development (IISD) to customise the Sustainable Asset Valuation initiative Tool (SAVi). The SAVi Tool is an Excel-based CBA framework that seeks to incorporate the indirect and intangible benefits of resilience investments (Resilience Valuation Initiative, 2023; Resilient Futures Investment Roundtable, 2024).

Nevertheless, various commentators have highlighted the challenges of economising such intangibles and incorporating them into evaluative frameworks, such as CBA (Ryu et al., 2019; Wise et al., 2022a), a point echoed by our interviewees. This can lead to unreliable calculations of financial returns for private sector investors, potentially disincentivising their participation in resilience investment projects. At the same time, our interviewees recognise the complexity of quantifying and monetising these benefits, as well as the sophistication required to apply evaluative tools developed by Deloitte, CSIRO, or IISD, highlighting the lack of expertise at the local government and community levels.

Using simple metrics to evaluate resilience investments for government grant funding

Currently, resilience investments in Australia are primarily funded by the Federal Government through its flagship national initiative for disaster risk reduction and resilience building, the Disaster Ready Fund (DRF). The fund reflects a broader shift in federal disaster policy away from predominantly reactive recovery spending towards upfront resilience and mitigation investment. The National Emergency Management Agency (NEMA) administers the DRF in partnership with state and territory governments, overseeing the application process, stakeholder consultations, expert assessment panels, funding agreements, and project reporting. Rather than applying directly to NEMA, local governments, community partners, NGOs, and academic institutions submit applications to their respective state or territory governments, which act as the direct recipients of funding from NEMA.

Despite the gradual development of sophisticated evaluative frameworks (as discussed previously), and their possible operationalisation by state or territory governments to assess funding applications (as mentioned by some interviewees), applicants to the DRF, including local government agencies, communities, NGOs, and academic institutions, are rarely required to use these frameworks in their applications to justify the merits of their proposed projects. For instance, in the NSW application materials for DRF Round 1 (2023-2024),

applicants were asked to describe "the financial and non-financial benefits of the project" and whether "the project represent[s] good value for money in terms of the costs listed in … "Project Budget"" (NSW Government, 2023: 15). However, there was no requirement to quantify or monetise these benefits; they could be presented in narrative form. Similarly, in DRF Round 2 (2024-2025), while the application guidelines issued by NEMA emphasised the need to consider "the relevant financial and non-financial costs and benefits of each project proposal", they did not require any quantified analysis of these costs and benefits (NEMA, 2024: 39). In the most recent round (2025-2026), a CBA was finally required, but only for infrastructure projects, while for other projects only cost estimates were mandated (NEMA, 2025: 22).

While the quantification and monetisation of social, environmental, and psychological factors remain challenging, and continuous efforts have been devoted to addressing these challenges, some of our interviewees suggest that justifying the merits of resilience investment projects has become an exercise of storytelling rather than a rigorous, analytical process. Other interviewees adopt a more cynical view of these government grant applications, suggesting that success depends largely on skill in crafting persuasive applications rather than on the substantive merits of the projects themselves. That said, a report issued by the Australian National Audit Office (2025: 8) concludes that "the award of funding under the DRF was largely effective", while also noting that "strengthened assessment arrangements … would provide greater confidence that the approved projects are those that will make the greatest contribution to the Fund achieving its objectives".

Ultimately, some interviewees express concern that the DRF could be discontinued, as a change in government may lead to a new administration rejecting the previous government's initiative. This introduces uncertainty not only regarding future funding availability, but also regarding the evaluative framework through which investment projects will be assessed.

Implications for practice

- Accounting numbers and economic metrics should guide resilience investments by highlighting potential cost savings from disaster risk reduction efforts.
- Local governments and communities need technical capacity and accessible tools to quantify and monetise both tangible and intangible benefits of resilience investments.
- Rigorous evaluative frameworks can reduce reliance on persuasive narrative and support evidence-based funding decisions.

Conclusions

This project demonstrates that accounting, broadly defined, plays multiple roles across different aspects of resilience investments and in disaster risk reduction more broadly in Australia.

First, by translating the impacts of natural hazards into economic metrics, accounting numbers help prioritise proactive prevention and mitigation efforts over reactive response, shaping both policy attention and resource allocation. Second, evaluating resilience investments involves quantifying and monetising diverse and often intangible costs and benefits. While emerging frameworks seek to capture these broader values, their operationalisation remains challenging, particularly at the local government and community levels. This constrains the analytical rigour of decision-making and potentially contributes to underinvestment in resilience measures. Third, government funding mechanisms often rely on simplified metrics and narrative justifications rather than systematic cost-benefit analyses. This implies that the success of resilience investment funding applications may depend more on persuasive storytelling than on rigorous assessment of their potential benefits.

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Author(s), Author Affiliation, Author email address

Zhiyuan (Simon) Tan
Discipline of Accounting, Governance and Regulation,
The University of Sydney Business School,
The University of Sydney
simon.tan@sydney.edu.au

If you want to collaborate with The University of Sydney Accounting Foundation on an engaged research project, please contact:
business.accountingfoundation@sydney.edu.au

For more information on what we do, please visit:
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