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# Funding Shocks to New Zealand's ACC Scheme

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# Funding Shocks to New Zealand's ACC Scheme

## Abstract

This paper illustrates the impact of financial shocks on the levy rates of the New Zealand Accident Compensation Corporation (“ACC”) Scheme. It is intended to identify potential financial shocks which would result in a significant levy rate increase under the current funding policy.

Keywords: funding, shocks, levy rates.

## Executive Summary

The Accident Compensation Corporation (“ACC”) is a Crown Corporation, set up by the New Zealand Government to administer New Zealand's accident compensation scheme and provide comprehensive 24-hour, no fault personal accident cover for all New Zealand citizens, residents and temporary visitors to New Zealand. ACC provides this cover by collecting levies and paying benefits from seven different “Accounts” (see Appendix 1).

The ACC Scheme was established under and is governed by the Injury Prevention, Rehabilitation, and Compensation Act 2001 and subsequent amendments (“IPRC Act”).

The current funding policy, set out in Appendix 2, is designed to smooth levy rate changes. This policy allows the ACC Board to manage most financial shocks to the scheme and avoid significant levy rate increases. However, there are some scenarios which could increase levy rates significantly, even under the current funding policy.

This paper describes several types of financial shocks and illustrates the levy rate impact for each.

The most likely financial shock having significant impact on levy rates is a reduction in the long term investment earnings rate just prior to the year 2014 when the residual claims must be fully funded. There is a 50% probability that bond yields could fall by more than 0.85% in one of the next 10 years.

A more devastating financial shock to the scheme is an increase in the long term inflation rate, again just prior to 2014. There is a 10% to 20% probability that the long term inflation outlook could increase by more than 1.5% in the next 15 years.

The table below illustrates percentage increases in levy rates under the current funding policy for a decrease of 1% in the long term investment earnings rate in 2012 and for an increase in long term inflation of 2% in 2012.

### Percentage Increase In Levy For Shock Occurring In 2012 And Reflected In The Levy For 2013/14

	<b>Most Likely Shock</b>	<b>Highest Impact Shock</b>
	<b>Decrease in Long Term Yields by 1%</b>	<b>Increase in Inflation by 2%</b>
Employers Composite Levy <sup>1</sup>	14%	55%

Earners Levy	12%	46%
Motor Vehicle Levy	42%	107%

1. Employers Composite Levy = Employers' Account levy + Residual Claims Account levy

These two scenarios can also illustrate the issue of the current legislative requirement to fully fund the residual claims by 30 June 2014. There is no legislative ability to smooth shocks over a longer funding horizon. The scenario with the *Highest Impact Shock*, if occurring in 2007 would require a 38% increase in Motor Vehicle Account levy rate rather than 107% due to the longer period to smooth the shock in the residual portion of the account. If the *Most Likely Shock* occurred in 2007 rather than 2012, the Motor Vehicle Account levy rate would increase by 18% rather than 42%.

The next sections in this paper illustrate the impact on levy rates of other types of financial shocks to the scheme. Some of the larger, historical changes to scheme costs are listed as well as an indication of potential future shocks with ranges of probability of occurrence.

In any of these scenarios, both the size and probability of the event will determine the magnitude of the risk being managed by ACC. The paper is to provide some generic scenarios illustrating possible increases in levy rates which may not be easily managed under the current funding policy.

The final section of the paper reviews the strategies to mitigate the risks of financial shocks and the actions that can be taken if a shock happens.

### Summary of Financial Shocks and Levy Implications

In this section, the percentage increase in levy rates is shown for seven scenarios of financial shock to the accounts. The shock occurs either in 2007, first reflected in the 2008/09 levies or in 2012, reflected in the 2013/14 levies.

For the purposes of these scenarios, the current funding policy is assumed to be followed when determining the levy impact.

Note the more significant impact in 2013/14 levies due to the short time to fully fund the residual claims by 2014.

Levy Year	Percentage Increase in Levy		
	Employer Composite	Earners	Motor Vehicle
<b>1. Long term outlook for inflation rises by 2% while bond yields remain unchanged causing a \$2,716 million shock in 2007 or \$3,879 million in 2012.</b>			
2008/09	27%	28%	38%
2013/14	55%	46%	107%
<b>2. Long term bond rates decrease by 1%.</b>			
2008/09	9%	9%	18%
2013/14	14%	12%	42%

### Percentage Increase in Levy

Levy Year	Employer Composite	Earners	Motor Vehicle
<b>3. Equity markets are devalued by 30%, decreasing ACC assets value by \$1,147 million if occurring in 2007 or \$1,635 million if occurring in 2012.</b>			
2008/09	10%	6%	10%
2013/14	10%	8%	12%
<b>4. A 10% increase occurs in the cost of all future accidents as a result of new legislation.</b>			
2008/09	8.7%	11.6%	6.0%
2013/14	8.2%	12.3%	6.1%
<b>5. The actuarial valuation increases in the liability for all past claims by \$500 million in 2007 or \$637 million in 2012 and is shared across all accounts. For example, serious injury costs are now assumed to inflate at a greater rate than previously expected.</b>			
2008/09	6.3%	5.8%	6.0%
2013/14	11.6%	6.9%	15.6%
<b>6. A \$100 million increase in one year's claim costs occurs in each account occurs in 2007 or 2012. For example, an earthquake increases the number of claims for only one accident year.</b>			
2008/09	3.9%	2.5%	3.6%
2013/14	3.4%	3.1%	3.8%
<b>7. Investment earnings are nil for one financial year, rather than as assumed at 6.75%.</b>			
2008/09	4.4%	3.6%	3.8%
2013/14	11.3%	7.1%	18.0%

## Background

### Scheme Funding Policy

The current funding policy, set out in Appendix 2, meets the legislative requirement that:

- Cost of current claims are to be fully funded in the year the claim is incurred, and
- For claims incurred prior to 1 July 1999 (residual claims), the cost is to be fully funded by 30 June 2014.

One of the key objectives of ACC is to provide fair and stable levies. To this end, the ACC Board has further specified that the funding policy is to manage funding shocks and smooth levy rates. In particular:

- Any over or under funding of claims from 1 July 1999 to the current year is spread over the next five years (i.e. a 5 year funding horizon).
- Any over or under funding of residual claims is funded over the remaining years to 30 June 2014.
- The discount rate assumption for pricing is 6.75% and is expected to remain stable rather than changing yearly depending on the then current long term bond rates. The discount rate used for financial reporting at 30 June 2006 was 5.83%.

Although the accounts must be fully funded by levies collected in each year (or by 2014 for residual claims), the ACC Board has the authority to set the funding policy. The policy is designed to adequately fund the accounts with a low potential for being under funded and to provide stable levy rates.

Currently claims since 1 July 1999 in all accounts are either fully funded or over funded with a portion of any excess proposed to be returned through a reduction in the 2007/08 levies. The residual claims are on track to be fully funded by 2014.

### Current Funding Position of Each Account

For pricing purposes, the funding position is estimated as at the beginning of the levy year which is 1 April 2007 for all accounts except the Motor Vehicle Account which is 1 July 2007. The liability in each account is based on that projected by the latest valuation of liabilities for the financial reports with the exception of the discount rate being 6.75% rather than 5.83%.

#### Composite Employers:

- Employers' A/c            Over funded by \$662m (60%)
- Residual Claims A/c    \$2,442m required if fully funded now (equates to 83% of liabilities)

#### Earners' Account:

- Fully funded claims    Over funded by \$272m (15%)
- Residual claims        Currently slightly over funded by \$94m

#### Motor Vehicle Account:

- Fully funded claims    Over funded by \$358m (28%)
- Residual claims        \$2,268m required if fully funded now (equates to 92% of liabilities)

The legislative requirement that residual claims must be fully funded by 30 June 2014 means that a financial shock close to 2014 has little time to be funded. However, financial shocks to claims incurred since 1 July 1999 can be spread over the current five year funding horizon. Thus, whether the shock occurs now or in later years has little bearing on the change in fully funded levy rates.

### Categories of Financial Shock

The categories of shocks are:

*One off* shock affecting one accident years' claims, such as a pandemic or earthquake

*New claims* shock such as introduction of lump sum payments

*All claims* shock such as increased costs of rehabilitation

*Investment* return and asset values shocks

It is important to determine/distinguish the category of potential shock as the impact on levy rates is quite different, as are the strategies to manage levy rate stability.

### Past Funding Shocks

There have been funding shocks to the scheme in the past from several sources. For the purposes of this paper, a funding shock is not limited to an unforeseen increase in cost or levy rate. Changes in the amount of levy income received have not been included.

#### *Examples of one-off shocks*

An example of a one-off shock to the scheme was the impact of a court decision requiring the payment of backdated attendant care. The initial estimate of \$216 million was immediately set as a provision to fund this one off financial shock.

In 2005, an amendment to the IPRC Act shifted most of the funding of work related, noise induced hearing loss claims from the Employers' Account and Self Employed Work Account to the Residual Claims Account. Although shifting costs between accounts is not an increase in overall scheme costs, this amendment shifted the claims from being fully funded from the date reported to requiring all future reported claims to be estimated and funded by 30 June 2014.

#### *Examples of shocks affecting new claims*

Changes to legislation generally only impact new claims. The IPRC Act amendment of 2002 was expected to add \$0.05 each year to the average Employers' Account levy rate of which \$0.02 was for the introduction of a lump sum benefit for bodily impairment.

The IPRC Act was amended in 2005 to give a fairer set of rules for calculating weekly compensation for people who are newly self-employed. The average Self Employed Work Account levy rate was increased by \$0.06 to cover the cost expected to arise from this change in legislation.

#### *Examples of changes affecting all claims*

Listed below are some examples of changes to the value of ACC's outstanding claims liability in the last five years which were over \$200m:

Year	Cause of Change to the Claims Liability	Liability Increase (\$m)
2005	<b>Increase in the serious injury social rehabilitation liability reflecting:</b> Unfavourable experience (~\$125 m); Increases in short-term superimposed inflation (~\$383 m); Increase in home based rehabilitation contracted rates (~\$46 m); Change in mortality assumptions (~\$45 m); and Transfer of some claims from serious injury to non-serious injury (~\$77 m).	\$432
2004	<b>Increase in the serious injury social rehabilitation liability reflecting:</b> Increases in short-term superimposed inflation (~\$260); and Changes to the serious injury model (~\$62 m).	\$322

Year	Cause of Change to the Claims Liability	Liability Increase (\$m)
2003	<b>Increase in the <i>non-fatal weekly compensation liability</i> reflecting:</b> Lower than expected exit rates for long-term claims (~\$137 m); and Increase in the projection period (~\$136 m).	\$296
2005	<b>Increase in the <i>claims handling expense (CHE) liability</i> reflecting:</b> Changes in the methodology used to assess the CHE liability.	\$219

There were three decreases in the value of ACC's outstanding claims liability over the past five years between \$130m and \$140m excluding changes to economic assumptions:

Year	Cause of Change to the Claims Liability	Liability Increase (\$m)
2003	<b>Decrease in the <i>rehabilitation liability</i> reflecting:</b> Increases in the average claim size for non-serious injury care and capital costs in the Medical Misadventure Account; Reduction in the average claim size assumptions for other rehabilitation in the Motor Vehicle Account; and Favourable rehabilitation payment experience in the past year.	-\$132
2004	<b>Decrease in the <i>non-serious injury social rehabilitation liability</i> reflecting:</b> Lengthening of the projection period from the 40 years assumed in the previous valuation (~\$39 m); and Changes in the run-off assumptions (~-\$177 m).	-\$138
2004	<b>Decrease in the <i>other rehabilitation liability</i> reflecting:</b> Faster assumed run-off of long duration claims (~\$152 m); and Lengthening of the projection period from the 40 years assumed in the previous valuation (~\$19 m).	-\$133

### ***Examples of Investment shocks***

The valuation of liabilities for the 30 June 2005 financial report was \$497 million higher than expected due to the decrease in long term bond rates. The discount rate used for valuing liabilities decreased from 6.2% to 5.75%, resulting in this liability increase.

Note that the current funding policy established a discount rate of 6.75%. Therefore, the change in the long term bond rates for financial reporting (6.2% to 5.75%) did not have an impact on levy rates.

### **Scenarios to Evaluate Potential Future Shocks to the Scheme**

Future levy rates will increase (or decrease) as a result of changes to the cost of claims and level of liable earnings (or number of motor vehicles and petrol consumption). This paper illustrates the change in levy rates, whether foreseen or not, due to a change in expected benefit costs (additional claims or increase cost per claim) compared to the previous year's levy. The effects of actual levy income being different from expected is not the focus of this paper.

As there are many potential shocks from different sources and more than one may occur in any financial year, results have been presented for one scenario in each category of shock.

**One off** shock affecting one accident years claims, such as a pandemic or earthquake

**New claims** shock such as introduction of lump sum payments

**All claims** shock such as increased costs of rehabilitation

**Investment** return and asset values shocks

The scenarios presented are scalable to other amounts, allowing impacts to be estimated for any potential shock.

This paper limits analysis of levy rate impacts to the Employers’ Account, Earners’ Account, Residual Claims Account and Motor Vehicle Account.

To illustrate the impact of the timing of the shock, the levy impact was determined assuming the shock occurred:

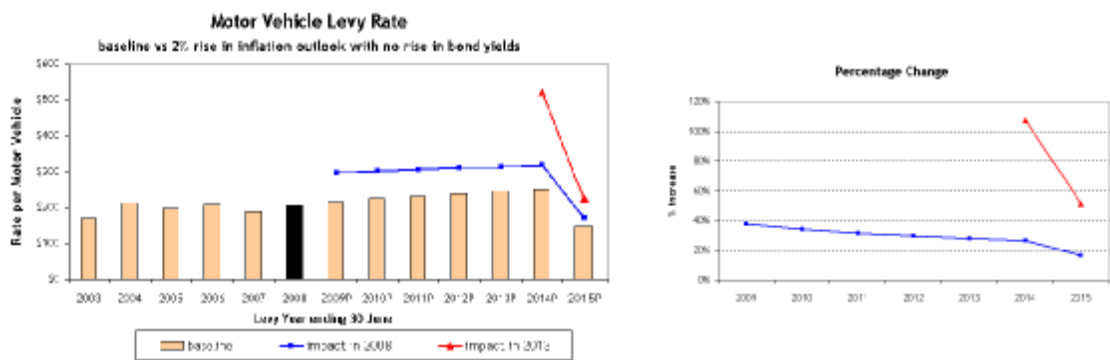
- During 2007/08 and first reflected in the 2008/09 levy rates, and
- During 2012/13 and first reflected in the 2013/14 levy rates.

The scenario having the greatest impact on the scheme is an inflation rate 2% higher in future years than is currently assumed, with no corresponding increase in bond yields.

In the Motor Vehicle Account the levy rate would increase by \$81 per vehicle (or 38%) if the event occurred now. If the event occurred in 2012, the increase would be \$270 per vehicle (or over 100% increase) for the 2013/14 year. However, the following year (i.e. 2014/15), the levy rate would reduce by nearly \$300 as the residual levy ceases to be collected from 30 June 2014.

In the following graphs, the bars represent the past and projected levy rates as expected under current estimates of changes to costs and earnings.

The lines are the projected levy if a shock occurs in 2007/08 first reflected in the levies in 2008/09 (longer graph line) or a shock that occurs in 2012/13 reflected in the levy in 2013/14 (shorter graph line).



The Motor Vehicle Account levy rate is expected to gradually increase over time (represented by the bars above) as the costs of claims are increasing faster than the number of vehicles on the road. The graph of “Percentage Change” illustrates that the percentage declines over time. The impact of the

residual claims in this account with their progressively shorter funding period is evident in the above charts.

The above illustrates the impact on the Motor Vehicle Account. Similar information is available for the Employers' Account and for the other categories of financial shocks. See Appendix 3.

### Potential Financial Shocks

Based on past shocks and current inflationary pressures on costs, some further shocks can be expected to the scheme. The table lists some shocks showing the full cost impact and probability of occurrence.

Cause of Change to the Claims Liability	Liability Increase (\$m)	Probability of Occurrence
<b>Investment/asset shock</b>		
A rise in long term inflation outlook of more than 1.5% with no increase in bond yields	\$1,500 - \$3,500	10% - 20% probability in next 15 Years
Weakness in global equity markets when equity values fall by more than 25%	\$500 - \$1,500	40% probability in next 10 years
An Australasian banking crisis affecting investments	\$250 - \$500	2% probability in next 10 years
Decline in bond yields of more than 0.85% (no change in inflation)	\$500 - \$1,100	50% probability in next 10 years
<b>Benefit changes affecting all claims</b>		
Exit rates for long-term, non-fatal weekly compensation claimants decrease	\$150-\$200	Expected once in next 5 years
Serious injury social rehabilitation claim costs increase by 5.0% per annum for an additional two years after the three years assumed in the current valuation	\$290	Expected once in 3 years
Long term medical superimposed inflation on the non-general practitioner, non-physiotherapist and non-radiologist costs is 3.5% per annum rather than the 2.5% per annum assumed	\$70	Expected once in 4 years
Hearing aid costs increase in excess of inflation for one additional year over the assumption in the valuation	\$77	Expected once in 3 years
Hospital rehabilitation (elective surgery) costs continue to grow in excess of inflation and current growth assumptions	\$12-\$25	Expected in next 2 to 3 years
<b>Gradual process claims</b>		

Cause of Change to the Claims Liability	Liability Increase (\$m)	Probability of Occurrence
Identification of a new category of gradual process claim <u>Example:</u> Gradual process hearing loss claims being lodged in the Residual Claims Account (estimated amount to fund all future claims as at 30 June 2006 was approximately \$525 million) <u>Note:</u> This only impacts funding if unreported claims need to be pre-funded (e.g. if the claims are funded out of the Residual Claims Account).	\$100-\$1,000	Expected once in 10 years
<b>Extreme events causing one off shocks</b>		
Earthquake of magnitude 7.5 centred in downtown Wellington at midday during the working week	\$100-\$500	Expected once in 500 yrs
Tsunami with warning system effective at 95% level for distant source and 10% effective for local source	\$125	Expected once in 50 yrs
	\$3,500	Expected once in 1000 yrs
Pandemic (See Appendix 4 for further detail)	Minimal claim impact	

## Mitigation Strategies

For the purposes of this paper, risk mitigation strategies are considered in two categories.

- Prior to the event, risks are managed within the business as usual operations, but with a focus on specific processes to reduce the potential of a financial shock along with an adequate early warning system.
- Risk mitigation after the event requires pre-planning of the likely actions which would be used to manage towards best possible outcomes.

In the following subsections, pre and post event mitigation strategies are discussed for several areas with ACC.

### Operations Division

The financial risks to the scheme are significant increases to numbers and costs of claims. Within claims management, there a number of ways the Operations area mitigates the potential financial shock of cost increases.

ACC operates a clearly defined cover determination process. Claimants who meet the cover definitions in the legislation have access to entitlements. This may be a key factor in the event of a pandemic for example. Maintenance of appropriate training and audited processes ensure this “gatekeeper” manages the potential of unforeseen cost increases.

Where injuries to a claimant are significant, ACC seeks independent and qualified medical, social and vocational assessments to determine appropriate entitlements to regain the person’s independence at

the earliest opportunity. This control ensures that ACC helps the claimant over time to an appropriate level of independence while not creating a situation where the claimant becomes dependent on ACC.

ACC purchases a significant amount of treatment, rehabilitation and other services under regulation and under contract. These contracts are monitored to provide certainty over both quality and cost.

In the event of an unintended increase in entitlements under legislation, there are other options available to manage financial shocks to the scheme. These relate to legislative changes to limit or cap entitlements.

### Strategic Policy and Research Division

The research programme is currently being examined to ensure closer fit with ACC's strategic priorities and to support current and future risks. In particular research is placing greater emphasis on population, labour market and demographic shifts that are likely to impact the scheme. This is supported by both research and policy relationships with agencies such as the Ministry of Health, Department of Labour and the Ministry for Economic Development which provides the ability to wherever possible, anticipate and respond operationally to medium term risk.

### Investment Team

Managing investment risk and in particular balancing risk mitigation against the objective of maximising returns is the most important role of ACC's investment team. ACC's Strategic Asset Allocation policy is reviewed on a regular basis, taking into account the key risks which could impact upon the claims liability or investment returns and taking a view on the potential future returns of each asset class. While it would be possible to change investment policy to increase the degree of mitigation against one particular risk, the same change would either increase ACC's exposure to a different risk scenario or involve some sacrifice of expected investment return.

This on-going strategic asset allocation review process protected ACC from the worst impact of the fall in equity value in 2000, with the ACC fund delivering a 3.85% return compared to negative returns across most comparable funds. Similarly, after a significant change to equity valuations, or change in New Zealand's inflation outlook the asset allocation would be modified to maximise returns in the new environment.

### Levy and Scheme Management Division

The business as usual strategy is to have a robust funding policy that is reviewed and agreed annually. The policy should change to manage the environment in which levies are being determined. For instance, when excess surplus exist in the accounts as is currently the case, it may be returned more quickly than in other years.

The current policy will manage most financial shocks, especially in the fully funded accounts which are currently over funded. Up to a \$500 million shock to the liability spread across the accounts would not require a change in policy and would maintain ACC stable levy rate objective. Even a one off event like an earthquake costing \$100 million in each of the accounts would not cause a significant increase in levy rates.

However, the investment shocks or other shocks greater than \$500 million are beyond the current policy and require pre-event planning.

One option for managing larger investment shocks is to establish a special stabilisation reserve. Special reserves are established to identify a portion of surplus funds to be set aside for particular use. It is suggested the Board consider exploring the creation of an investment fluctuation reserve for each

account which is increased in years of excess investment returns and releases funds when returns are below expected.

Another option is to purchase reinsurance to cover catastrophic events such as earthquake and tsunami. ACC has self insured this risk for the past few years but insurance is available if the risk was considered to be above the level that can prudently be self insured.

### Monitoring

Key to managing risk is early warning of significant changes to expected results. Key drivers of the business are monitored via regular reporting on ACC's key performance indicators. Potential increases to liabilities are monitored quarterly by Actuarial Services.

### Managing a Significant Financial Shock

As previously stated, the funding policy can be revised in any year depending on the environment. It is within the ACC Board's authority to extend or reduce the funding horizon for any adjustment to levy rates as a result of a financial shock. However, only significant future claim cost increases in respect of past claims should be spread in this way. Funding the increased cost of new claims (i.e. accidents expected to be incurred in the levy year about to start) as a result of new legislation or perhaps court decision should not be delayed.

In the past, margins were included in the levy rates to accumulate assets in excess of liabilities. These funds are now being used to reduce the levy below the actual costs to ACC in all but the residual accounts. There is no prudential margin now included in the levy rates in the fully funded account while a 5% margin is being funded in the residual accounts. However, past accumulated margins still exist to fund shocks to the scheme.

The current funding policy has the objectives of stable levy rates and being fully funded. Under International Financial reporting Standards ("IFRS"), ACC has adopted the approach of reporting its liability estimate at a 75% probability of sufficiency, resulting in an 11% risk margin being added, reducing the need for an additional prudential margin in the levy rates. In the past ACC's reported the central estimate of its claim liabilities.

Under this new funding policy, stabilisation of levy rates is accomplished by allowing the scheme to be under-funded for short periods of time. It is acceptable from a funding perspective to set a levy rate that may not restore assets to 100% of liabilities in any single year as long as the policy is to reach 100% over time.

In the event of a financial shock which reduces the funding position to less than 100%, the levy can be set to restore that position over the same funding horizon methodology as used in the past.

If a special reserve is available which relates to the financial shock, it is released as provided by the objectives of the special reserve fund. This release supplements the smoothing mechanism in the funding policy.

### Residual Claims Accounts

Residual claims, those incurred prior to 1 July 1999 and gradual process claims with exposure prior to 1 July 1999 must be fully funded by 30 June 2014 under the current legislation. As this date draws nearer, the impact of any adjustment to the costs becomes more difficult to fund. There is no legislative provision for updating the funding after 30 June 2014.

The recent legislative amendment to require the Residual Claims Account to fund work related gradual process claims with exposure prior to 1 July 1999 illustrates the problem of this inflexible date.

The current low funding of the residual claims component of the Motor Vehicle Account increases the potential for levy rates to be quite unstable close to the year 2014.

## Appendix 1 – ACC’s Account Structure

The ACC Scheme is divided into seven ‘Accounts’. Each Account must fund the costs of injury for the group it covers.

ACC Account	Who funds it	What's covered	Entitlement
Employers’	Employers – based on the earnings of their employees; and private domestic workers – based on their earnings	Personal injuries in the workplace affecting employees and private domestic workers	Medical and dental treatment, income replacement (weekly compensation), elective surgery, rehabilitation (including aids and appliances, home and vehicle modifications, transport costs, home help, and help getting a job), lump sums, and death benefits for surviving spouse & children
Residual Claims	Employers – based on the liable earnings of their employees; and self-employed -based on their earnings	The continuing cost of work-related personal injuries (pre-1 July 1999) and non-work related injuries to earners (pre- 1 July 1992)	
Self-Employed Work	Self-employed - based on their earnings	Personal injuries in the workplace affecting the self-employed	
Earners’	Employees and self-employed - based on their earnings	Non-work injuries (at home and during sport and recreation) suffered by people in the paid workforce	
Motor Vehicle	Motor vehicle owners and users through an annual vehicle levy and a petrol levy	All personal injuries involving motor vehicles on public roads	
Non-Earners’	Government	Personal injuries suffered by people not in the paid workforce (such as students, beneficiaries, children, retired people)	
Medical Misadventure	Earners (through earner levies) and Government	Personal injuries caused by medical treatment	

## Appendix 2 – ACC’s Current Funding Policies

The following summary of the funding policy for the levied accounts (employers’, earners’, self-employed, residual and motor vehicle accounts) was used for proposing the levy rates for the 2007/08 year.

The funding policy for the non-earners’ and medical misadventure accounts is used to determine appropriation requirements from Government to fund these accounts. Note that 55% of the medical misadventure account is funded from the earners’ account. Currently this funding is determined on the same basis as the appropriation from Government.

Account	Includes	Full Funding/PAYG policy	Risk Margin <sup>1</sup>	Prudential Margin	Funding horizon	Discount rate <sup>1</sup>	Fully funded target <sup>2</sup>
Residual	All pre 1 July 1999 work claims & pre 1 July 1992 earner claims	Fully funded by 30 June 2014	11%	5%	By 30 June 2014	Long-term government bond rate + 0.92%	106% of the reported claims liability (under current GAAP)
Motor vehicle	All motor vehicle claims	Post 1 July 1999 claims fully funded. Pre 1 July 1999 claims (residual portion) fully funded by 30 June 2014	11%	0% fully funded portion, 5% residual portion	5 years fully funded portion, by 30 June 2014 residual portion.	Long-term Government bond rate + 0.92%	Fully funded portion, 101% of reported claims liability (under current GAAP). Residual portion, 106% of the reported claims liability (under current GAAP).
Non-earners	All non-earner claims	Full funding of post 1 July 2001 claims, PAYG for pre 1 July 2001 claims	0%	0%	3 years fully funded portion.	Long-term Government bond rate	100% of the reported claims liability (under current GAAP)

<b>Account</b>	<b>Includes</b>	<b>Full funding/PAYG policy</b>	<b>Risk Margin</b>	<b>Prudential Margin</b>	<b>Funding horizon</b>	<b>Discount rate</b>	<b>Fully funded target</b>
Earners	All post 1 July 1992 earner claims	Post 1 July 1999 claims fully funded. Pre 1 July 1999 claims (residual portion) fully funded by 30 June 2014	11%	0% fully funded portion, 5% residual portion	5 years fully funded portion, by 30 June 2014 residual portion.	Long-term Government bond rate + 0.92%	Fully funded portion, 101% of reported claims liability (under current GAAP). Residual portion, 106% of the reported claims liability (under current GAAP).
Medical Misadventure	All treatment injury claims	Not specified, but operates on the same basis as the non-earners' account, i.e. Full funding of post 1 July 2001 claims, PAYG for pre 1 July 2001 claims	0%	0%	1 year	Long-term Government bond rate	100% of the reported claims liability (under current GAAP)
Employers	All employer claims post 1 July 1999	Fully funded	11%	0%	5 years	Long-term Government bond rate + 0.92%	101% of the reported claims liability (under current GAAP)
Self-employed	All self-employed claims post 1 July 1999	Fully funded	11%	0%	5 years	Long-term Government bond rate + 0.92%	101% of the reported claims liability (under current GAAP)

Where a particular ACC account is not at its funding target, a reserves adjustment is included in the levy assessment that would restore reserves to the funding target over the next five years or by 2014 for residual claims/levies.

For the Government appropriated accounts, the appropriation is adjusted so that reserves are restored over the next three years (Non-Earners' Account) or 1 year (Medical Misadventure Account).

The risk margin of 11% has been included to meet the requirements of the New Zealand Equivalent to International Financial Reporting Standard 4 Insurance Contracts. The risk margin allows for the inherent uncertainty in the long term claims estimates. The 11% margin provides around 75% probability that the claims estimate will be adequate. It is also in line with the Australian Prudential Regulation Authority's requirement of private insurers in Australia.

ACC has previously included a prudential margin in the levy calculation for forecast uncertainty. This prudential margin is no longer required following the inclusion of the risk margin in the claims estimate. Essentially the funding target has not changed from last year. The addition of the 11% risk margin in the claim cost estimate has been largely offset by the removal of the 10% prudential margin. Note that a 5% prudential margin has been retained for the residual components of the levied accounts.

**Notes:**

<sup>1</sup> The risk margin (added to the central estimate of reported liabilities) for the Non-earners' and Medical Misadventure Accounts is 11%. However, this is currently not being funded (i.e. does not form part of the Government appropriations which fund these accounts).

<sup>2</sup> The fully funded target percentage is reflected as a percentage of the outstanding claims liability reported under current GAAP. Hence the fully funded target when expressed as a percentage of the outstanding claims liability under IFRS (i.e. with the risk margin included) will fall below 100%.

For example if the outstanding claims liability under GAAP is:	100
Risk margin	<u>11</u>
Outstanding claims liability under IFRS	111
Increase in discount rate by say 1%	<u>10</u> (approx)
Funding target	<u>101</u>
Expressed as a percentage of outstanding claims liability (GAAP)	<u>101%</u>
Expressed as a percentage of outstanding claims liability (IFRS)	<u>91%</u>

### **Appendix 3 – Scenarios to Evaluate Potential Future Shocks to the Scheme**

Future levy rates will increase (or decrease) as a result of changes to the cost of claims and level of liable earnings (or number of motor vehicles and petrol consumption). This paper illustrates the change in levy rates, whether foreseen or not, due to a change in expected benefit costs (additional claims or increase cost per claim) compared to the previous year's levy. The effects of actual levy income being different from expected is not the focus of this paper.

As there are many potential shocks from different sources and more than one may occur in any financial year, results have been presented for one scenario in each category of shock.

***One off*** shock affecting one accident years claims, such as a pandemic or earthquake

***New claims*** shock such as introduction of lump sum payments

***All claims*** shock such as increased costs of rehabilitation

***Investment*** return and asset values shocks

The scenarios presented are scalable to other amounts, allowing impacts to be estimated for any potential shock.

This paper limits analysis of levy rate impacts to the Employers' Account, Earners' Account, Residual Claims Account and Motor Vehicle Account.

To illustrate the impact of the timing of the shock, the levy impact was determined assuming the shock occurred:

- During 2007/08 and first reflected in the 2008/09 levy rates, and
- During 2012/13 and first reflected in the 2013/14 levy rates.

In the following graphs, the bars represent the past and projected levy rates as expected under current estimates of changes to costs and earnings.

The lines are the projected levy if a shock occurs in 2007/08 first reflected in the levies in 2008/09 (longer graph line) or a shock that occurs in 2012/13 reflected in the levy in 2013/14 (shorter graph line).

#### ***One-off increase of \$100 million in the cost of one years claims***

For each account, \$100 million has been added to the expected full funded cost of claims incurred in 2007/08 or 2012/13. This could be the result of, for example, an earthquake or pandemic. The first levy rate affected is the year following the event. As the increased cost is incurred in the year before the new levy rate is determined, the increased cost is part of the reserve adjustment and spread over five years.

As there is no impact on the residual claims, it makes no difference whether the event occurs now or near year 2014.

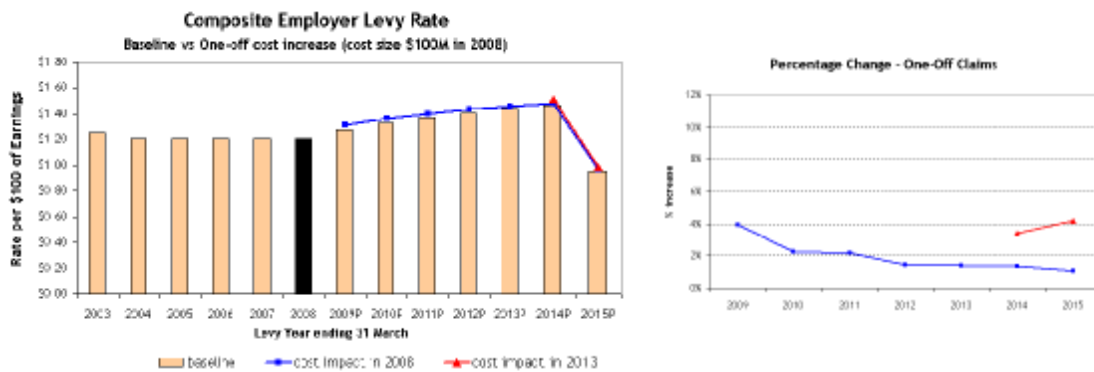
Note that a \$100 million event equates to a 22% increase in the expected annual full funded cost of new claims in the Employers' Account, 12% in the Earners' Account and 34% in the Motor Vehicle Account.

As a one off change to claim costs, such as an earthquake, only affects one year of claims, the timing of the event has no impact on the amount of levy increase. The increase in levy for a \$100 million event occurring in 2007 adds \$0.05 per \$100 earnings to the composite employer levy in 2008/09.

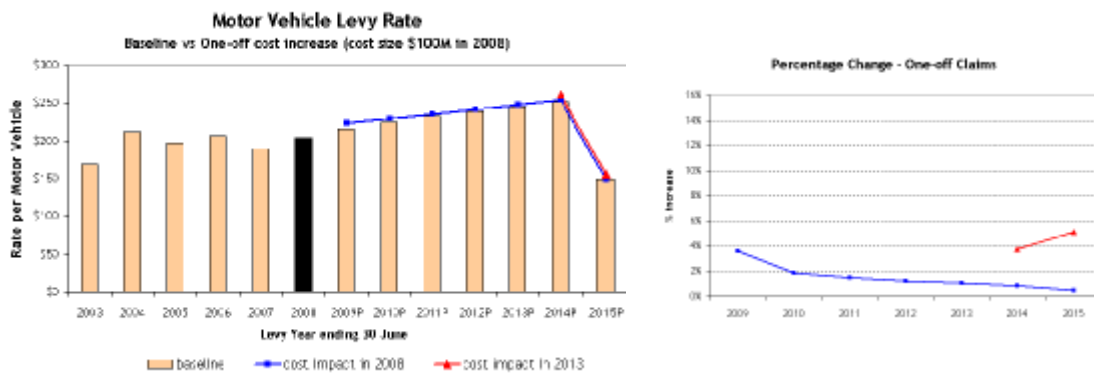
This is a 3.9% increase. The same event, adjusted for inflation and size of the account would be \$126 million in 2012 but would still add \$0.05 to the 2013/14 levy but is a 3.4% increase.

The percentage increase after 2014 will be higher due to the reduction in base levy. That is, after 2014 employers cease to pay a Residual Claims Account levy so that the composite employer levy then only consists of the Employers' Account levy.

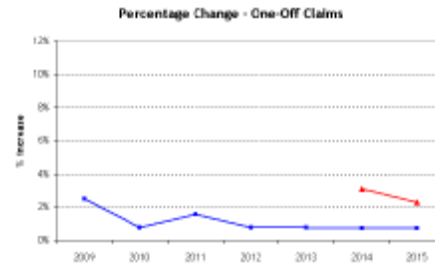
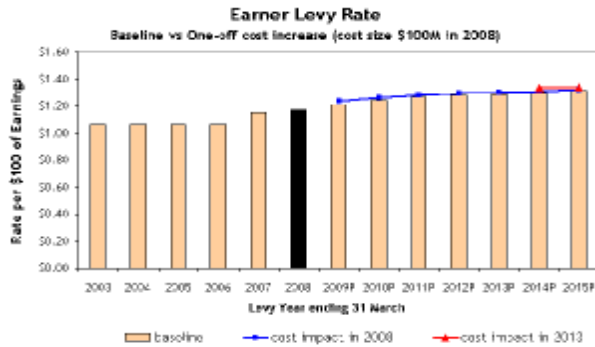
It should be noted that the levy rate is determined after the event and the cost is spread through the reserve adjustment over a 5 year period as provided in the current funding policy. The \$0.05 increase slowly reduces over time as the reserve adjustment mechanism continually re-spreads the remaining additional one year cost over 5 years.



A \$100 million one-off increase in cost to the Motor Vehicle account has a lower probability of occurring as a single event is difficult to define. However, if such an event occurred, the levy rate in 2008/09 would increase by \$7.76 per vehicle or 3.6%. An equivalent event in 2012 would increase the next year's levy rate by \$9.49 but still only 3.8% of the levy.



A \$100 million one-off increase in claims in the Earners' Account is more likely due to the exposure to earthquake or tsunamis. The Earners' Account earnings base is quite large adding only \$0.03 to the 2008/09 levy. This may mean that no increase is required as Inland Revenue requires the levy rate to be rounded to the nearest 10 cents on a GST inclusive basis. Note, the levy rates shown in the graphs below are not rounded and exclude GST.



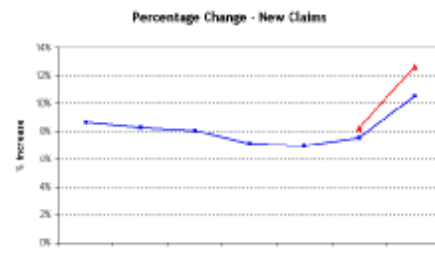
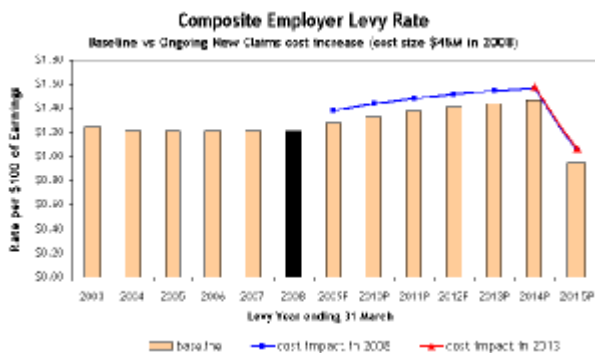
***New claim costs are increased by 10% in each account each year***

A change to legislation is the likely reason for an increase to costs for new claims going forward with no impact on current claims. An example was the increase in costs for lump sum entitlements which applied only to claims incurred from 1 April 2002.

For the purposes of this paper, an increase of 10% of the cost of new claims each year was added to the accounts. There is no impact on the residual accounts. It is assumed that the first levy change is the year following the year in which the increase occurs. Therefore, there is one year of cost which is spread over 5 years but all current accident years are fully funded by the levy. This situation occurred when the legislative change to give a fairer set of rules for calculating weekly compensation for self employed was finally passed after the levy rates were set for the year.

The 10% increase in costs for one year's incurred claims in 2008/09 amounts to \$45 million for the Employers' Account, \$83 million for Earners' Account and \$30 million for Motor Vehicle Account.

For employers, such a change would add \$0.11 per \$100 earnings to the levy rate, or an 8.7% increase in the 2008/09 composite employer levy rate. The equivalent change in 2012 would increase the 2013/14 composite employer levy rate by \$0.12 but is a slightly lower increase of 8.2%.



The Motor Vehicle Account levy rate would increase by 6% in 2008/09 and in 2013/14.

The Earners' Account levy rate would increase 11.6% in 2008/09 or 12.3% in 2013/14. The reason the Earners' Account percentage increase is greater than the other accounts is that the residual claims portion is a much smaller portion of the levy which is not affected in this scenario.

***All claim costs are increased, increasing the claims liability by \$500 million***

In this scenario \$500 million was added to the claims liability of the scheme. This may, for example, be as a result of new, costly medical treatments being provided to claimants. The shock impacts all exiting and future incurred claims.

The increase in liability of \$500 million across the scheme is shared proportionately by all accounts relative to their current claim liabilities. Note that, in practice, the reason for the expected increase in liability will dictate how the increase will be shared across accounts. However, as the results can be scaled, the estimated impact amount for the Earners' Account, for example, can be adjusted appropriately for any particular scenario.

A \$500 million shock to all claims liability in 2007/08 is shared as follows:

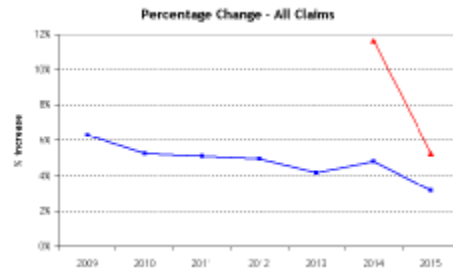
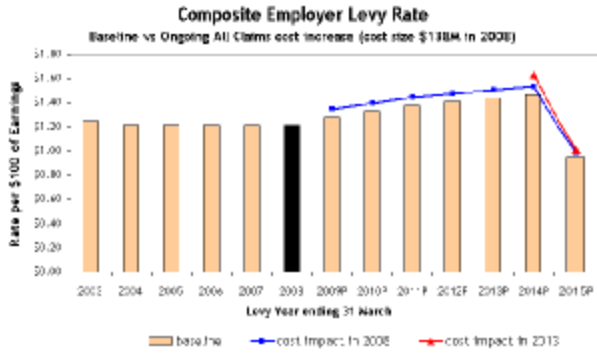
	<b>Fully Funded (\$m)</b>	<b>Residual Claims (\$m)</b>
Employers	\$44	\$94
Earners	\$76	\$19
Motor Vehicle	\$52	\$86
Other Accounts	\$64	\$65
<b>Total</b>	<b>\$236</b>	<b>\$264</b>

The proportional split of the \$500 million shock would be different in 2012 due to differences in fund growth.

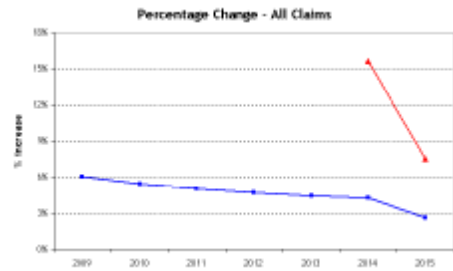
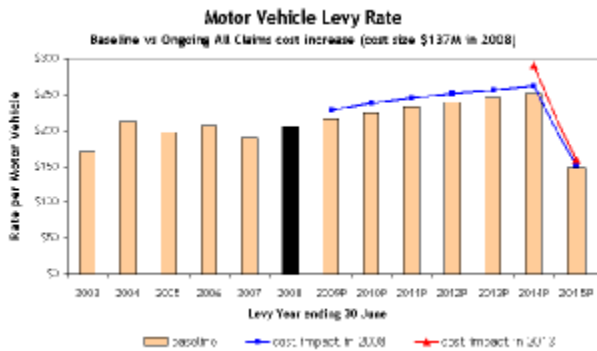
The graphs below illustrate the issue of funding changes to the projected costs of residual claims. An event occurring just prior to 2014 requires the residual portion to be funded in one year. Thus, the levy rate increase for the year following the event would be considerably greater than the same relative size event occurring now. Note that the residual levy ceases to be collected in 2015, so the impact on the post 2014 levy rates will be the same for an event occurring now or in 2012.

For employers, the liability in the Residual Claims Account is currently twice the size of the liability in the fully funded portion of the Employers' Account. By 2014, the Residual Claims Account liability is expected to be only 10% larger than the Employer's Account liability. Even though the residual liability will reduce, the short funding horizon for the residual claims drives the expected increase in levy rates.

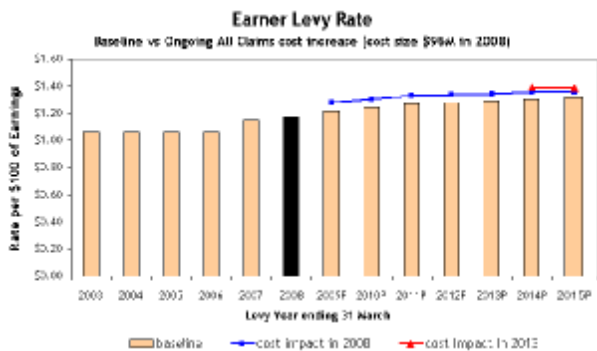
The 2008/09 composite employer levy rate is increased by \$0.08 per \$100 earnings or 6.3%. The same event in 2012 will increase the 2013/14 composite employer levy rate by \$0.17, an 11.6% increase.



For the Motor Vehicle Account, under this scenario, the levy rate increase in 2013/14 is \$12.94 or a 6% increase while that same event in 2012 will increase levy rates by \$39.24 or 15.6% increase.



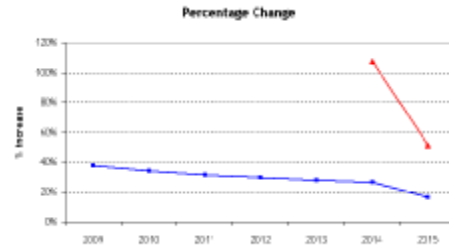
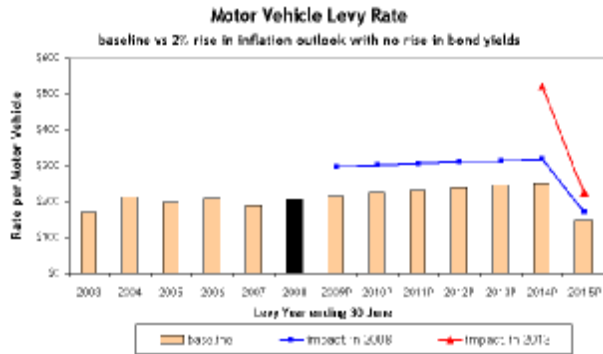
The result for the Earners' Account is similar except the impact in 2013/14 is minimal due to the much smaller size of the residual claims liability within this account.



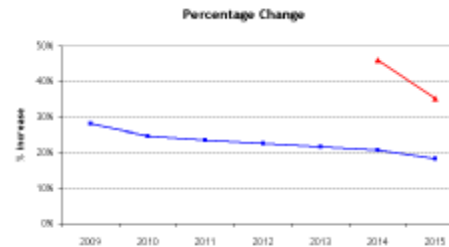
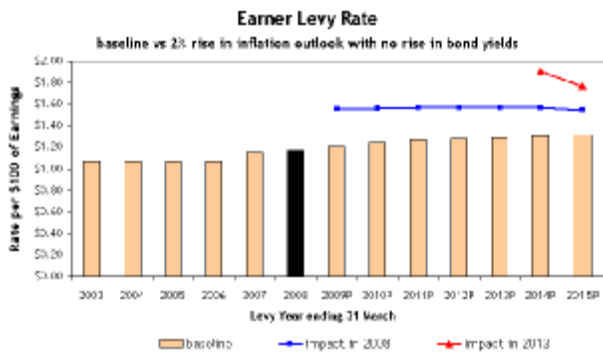
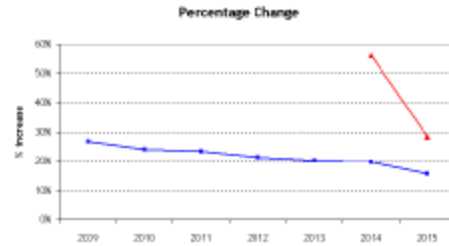
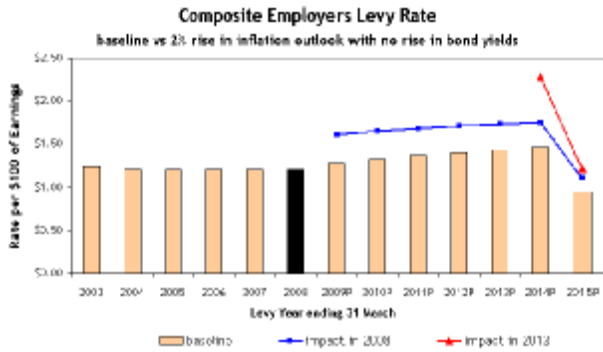
**Investment Returns and Asset Value Shocks**

**A 2% increase in long term inflation causing a \$2,716 million liability shock**

This is the scenario with the greatest impact on levy rates, particularly in 2013/14. The Motor Vehicle Account levy rate would increase by \$81 per vehicle (or 38%) if the event occurred now. If the event occurred in 2012, the increase would be \$270 per vehicle (an increase of over 100%) for that year. Note the following year, the levy would reduce by nearly \$300 as the residual levy ceases to be collected.



For employers and the Earners' Account, the increase is likewise much larger and more difficult to manage in 2013/14 as noted below.



***Weakness in equity markets***

A 30% decline in the equity market would decrease fund values by \$1,147 million if it occurred in 2007 or \$1,635 million if it occurred in 2012. The levy rate impact assumes this amount of asset value is not recovered through higher investment returns in subsequent years and must be recovered via levy income. The percentage increases in levy rates are:

	<b>2008/09</b>	<b>2013/14</b>
Employer Composite	10%	10%
Earners	6%	8%
Motor Vehicle	10%	12%

***Banking Crisis***

An Australasian banking crisis could adversely affect ACC's investment portfolios by about \$500 million if it occurred in 2012. This would be most likely to occur at the same time as a weak equity market but is valued independently here. The projected levy rate increases are:

	<b>2008/09</b>	<b>2013/14</b>
Employer Composite	2%	3%
Earners	1%	2%
Motor Vehicle	2%	3%

## Appendix 4 - Pandemic Risk

A pandemic in the nature of the major worldwide influenza pandemic of 1918 could potentially cause the death of approximately 28,700 New Zealanders. ACC's obligation under the National Civil Defence Emergency Management Plan is to ensure that during an epidemic people can continue to lodge claims, receive health and rehabilitation services and receive weekly compensation payments as well as ensuring that severely disabled are well supported. In addition, ACC is to pay health service providers for services but can defer levy collection.

The Influenza Pandemic Response Plan outlines how ACC plans to meet those obligations during a likely 22 week pandemic period when ACC work force is reduced or, if necessary, having staff perform critical operational functions from home.

A 22 week pandemic will likely have a greater affect on levy income than it will have on benefit payments to new claimants, benefit payments to current claimants or staff expenses. These are discussed separately.

### Levy Income

The Pandemic Response Plan would make invoicing of levies a non critical activity and it is assumed that a serious pandemic will prevent invoicing. Although it is planned to resume invoicing, decisions would be made as to how much bad debt would be written off. No estimates have been made of the debt that would be created nor the portion that would not be collected from employers or self employed.

The following table outlines a pessimistic view of the potential levy impact.

Account	Annual Revenue Expected for 2007/08	Potential Levy at Risk and Impact	Levy impact under Current Policy
Employers'	\$640m*	Smaller employers have a greater risk of default in levies. Employers with 10 or less employees represent about 30% of total earnings. If it is assumed that larger employers will not increase bad debt and 25% of small employers will not pay levies, levy income is reduced by 7.5%.	\$48m (\$0.01 on levy rate but negligible on residual)
Self Employed Work	\$230m*	Expect all self employed to be at risk of not paying levy due to business interruption. Assume 25% are unable to pay	\$57m (\$0.15 on levy rate but negligible on residual)
Earners'	\$800m	Expect all employers have PAYE continued if staff are working but assume 25% of self employed are unable to pay. The S/E portion of the Earners is \$70m at risk.	\$17.5m (\$0.025 on levy rate)
Motor Vehicle	\$620m	As these are not invoiced, assume no bad debt but fewer registrations are paid	Not significant

\* Including contribution to Residual Claims Account

### Investment income

A widespread pandemic would be likely to have a negative impact on investment returns due to the impact that it would have on corporate profitability and hence equity markets. However, investment markets are generally forward looking, so the impact of a pandemic on equity markets would be likely to be limited (less than a 10% decline) as investors would anticipate a recovery in profitability once the pandemic had subsided.

### Benefit payments to new claimants

During a pandemic, there are likely to be an increase in claims for work related exposure to the disease. These would be from health practitioners and possibly civil defence workers. These would not be expected to produce a large increase in overall claims. Note that under the current legislation only claimants who contract the disease during their normal working duties would be covered by ACC. People who contracted, or are likely to have contracted, the disease outside of work are not covered by the ACC Scheme.

Offsetting that is the reduced work hours for employees, reduced exposure to sports and recreational activities, and reduced road traffic due to quarantine restrictions. Overall, no significant increase or decrease in new claims is expected.

### Benefits to existing claimants

ACC will continue to pay weekly compensation and other entitlements to claimants and some claimants may receive over payments. The Pandemic Plan expects there to be some attempt to recoup payments but such decisions would be made after the pandemic ends. It is not expected that this would be an amount that would impact levies.

### Staff expenses

Although there may be some short term increase in staff expenses to relocate available staff and hire temporary staff, no long term impact is expected that would impact levies.

### Overall Long Term Impact

A severe epidemic may mean fewer people in the work force due to deaths and lack of employment. Although the levy rate may not change in the Employers' Account and Self Employed Work Account, the Residual Claims Account levy rate would increase. The Government support for the Non Earners' Account would likely increase if more people are unemployed.