

## **CREAM SKIMMING IN THE INSURANCE MARKET AND MECHANISMS THAT EXIST TO REDUCE ITS EFFECT**

**ROSMI YUHASNI MOHAMED YUSUF**

Faculty of Business Management  
Universiti Teknologi MARA Cawangan Pahang,  
26400 Bandar Jengka, Pahang,  
MALAYSIA

### **ABSTRACT**

Attempts to attract low risk clients or equivalently to discourage those with high risk from signing up an insurance policy are often referred to in the literature as cream skimming or cherry picking. This paper intends to explain the extent of cream skimming as a practice that could lead to the overall inefficiency in the insurance market, with particular attention given to the private insurance market. The first part of this paper will discuss around the basic theory of insurance market with asymmetric information with reference to the seminal work of Rothschild and Stiglitz (1976) that should be used to theoretically explain the basic reason of cream skimming practices among the insurers. The second part of this paper will discuss on the mechanisms available to reduce the magnitude of cream skimming problem such as regulation, risk adjustment and risk sharing with specific reference to the provision of individual health insurance in countries such as the Netherlands and the United States as widely discussed in the academic literature.

**Keywords:** Asymmetric information, health insurance, adverse selection.

### **INTRODUCTION**

As a starting point, it will be useful to define the scenario of asymmetric information that leads to the problem of adverse selection and moral hazard in the insurance markets. Asymmetric information flows, in general term, occur when one person or group knows something that others don't. Many economists now lean toward attributing most kinds of injustice, bureaucracy and societal inefficiency to asymmetric information flows. In insurance, consumers know more than insurance companies about their individual risks. The economic impact will be that insurance companies try to use different combinations of premiums and deductibles to get consumers to sort themselves. If this sorting is successful,

the riskiest people may not be able to afford insurance protection (Rothschild, M., and Stiglitz, J., 1976).

It will be useful here to differentiate between the two meanings of adverse selection and cream skimming. Adverse selection and cherry picking are two forms of selection that can be found in most literatures that discussed on the problem of asymmetric information in the insurance market. The idea behind adverse selection is that different characteristics of insurance policies will appeal to different categories of customers. As consumers self-select the policies, they may separate into groups with different average risk characteristics. In other words, adverse selection occurs because high-risk consumers have an incentive to buy more insurance coverage than low-risk consumers within the same premium group. It is important that a necessary condition for adverse selection to happen is that the consumers themselves know whether they are a high or low-risk within their premium risk group. On the other hand, cream skimming is the selection that happens because insurers prefer low-risk consumers to high-risk consumers within the same premium risk group. For cream skimming to happen, the insurers must know that there are high and low-risk consumers within the same premium risk groups (Pauly, 1984). As will be discussed later, cream skimming occurs when insurers take advantage on the problem of adverse selection.

Basically, cream skimming occurs when pooling equilibrium under asymmetric information can be broken by a separating equilibrium in which the lower risk customers would be 'skimmed' from the pool of customers, leaving only the high risk customers behind and as a result will produce losses for the pooled policy as its probability of payoff rose above the group average (Rees, 1989).

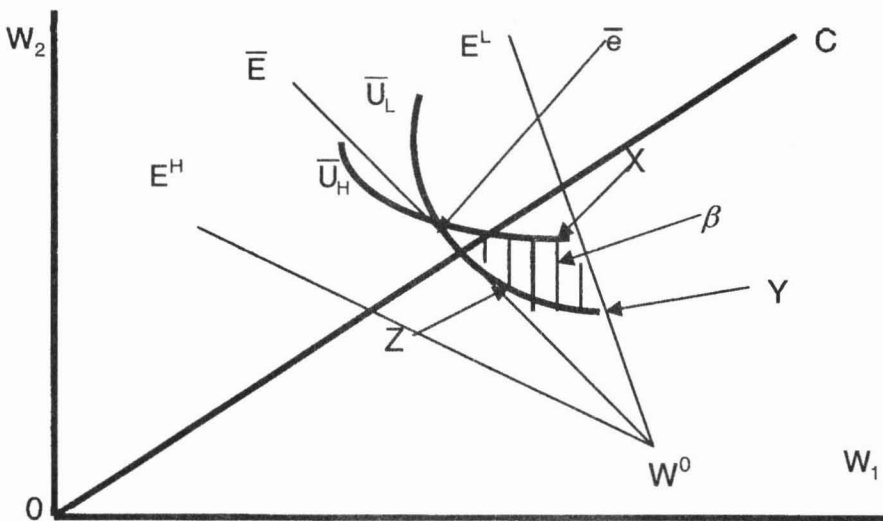


Figure 1

Asymmetric information suggests that insurer is unable to identify among the applicants and therefore, charge an average premium ( $\bar{\pi} = \alpha\pi_b + [1-\alpha]\pi_g$ ) as can be seen by line from  $W_0$  to  $\bar{E}$ . This premium is known as pooled fair premium, in which insurers premium income will equal average claims. Figure 1 above shows that how a contract can be constructed at point  $\bar{e}$  when this pooled contract will offer the same pooled premium. At this point, there is a cross subsidization from low to high risk type. But this cross subsidization will be broken down because of the profitability of cream skimming.

Based on Figure 1, the shaded-area represent the area in which a contract such as  $\beta$ , if offered will make non-negative profits. Insurer can 'skim-off' the low risk customers from the pooled contract leaving behind the high risk customers who find it unattractive relative to  $\bar{e}$ . Moreover, the low risk is induced to switch to the contract that is more attractive to them and because of that, the original contract at  $\bar{e}$  will no longer break even since it will only be attractive to the high risk type. In other words, the cross subsidization in a pooling equilibrium might be broken down because of the profitability of cream skimming.

Lund and Nielsen (2000) claim that cream skimming is much more prevalent in a single period contract between insurer and insured as shown theoretically by the seminal works of Rothschild and Stiglitz (1976) but this phenomenon can be different in a two period setting. They argue that in a two period setting, the pooling equilibrium might break down because the insurer will find it more profitable to entice least profitable clients and they call this situation as dregs skimming. However, this paper is not going any further to discuss the argument presented above. From the above introduction, it can be visualized that adverse selection problem can indeed be used by insurers to operate cream skimming as will be discussed in the next section of this paper.

### THE ADVERSE EFFECT OF CREAM SKIMMING

Insurance companies will justify cream skimming practices among them as a reason to survive in a competitive market in which increased competition will induce them to set premium rates that would discriminate more precisely between applicants. In other words, this is known in the literature as the equivalence principle of a competitive insurance market that implies an insurer has to break even on each insurance contract (Van de ven, 2000). Furthermore, they claim that healthy people might wish to have a premium rate that reflect their below average life expectancy.

From social point of view, problem of cream skimming can be severe. When there is competition in the provision of insurance, those who have been identified as having low risk will be offered insurance at lower premiums and premiums for those at high risk will then rise. When individuals are forced to pay higher premiums because of the high risk of illness or accident etc. than others, the public will view it as an inconsistent with common notions of equity and fairness especially in cases when risk differentials are because to factors such as genetics that is beyond the individual control (Newhouse, 1998). In Ireland, a comparison of the premiums of the Voluntary Health Insurance Board and British United Provident Association (BUPA) shows that the latter's premiums are 10% lower for subscribers under 19 years old, 4% lower for those aged over 54. By attracting younger and healthier individuals, BUPA Ireland is competing by cream skimming rather than offering better quality services (Mossialos, E., and Sarah., 2001).

In the case of health insurance market as widely discussed in the academic literature, more insurers will have a disincentive to respond to the need of high-risk customers if they can predict larger profits from operating cream skimming. This in turn will result in a relatively poor services given to the chronically ill and insurers might concentrate not to contract with care providers who have good reputation in treating chronic illness (Van de ven, et al, 2000).

Furthermore, if larger profits can be derived from cream skimming, there is a high possibility that cream skimming will be preferred more than improving the efficiency of the insurer or in other words, investment in cream skimming may have higher returns than investments in improving efficiency. Van de ven (2000) argues that this could happen in the short-run when insurers have limited amount of resources and there will be a trade-off between investment in improving their efficiency and cream skimming activities. Insurers who do not prefer to cream skim will in turn lose their market share to those inefficient insurers and he refers this as a welfare loss to the society.

Moreover, cream skimming can be thought of as a form of market failure (Rosen and Katz, 1991). They argue that the society views the resources spent by insurers in identifying those at low-risk are wasted. In order to operate cream skimming, insurers would have to acquire additional underwriting information and assessment.

### **MECHANISMS USED TO REDUCE THE ADVERSE EFFECT OF CREAM SKIMMING**

The following mechanisms are used specifically to reduce the adverse effect of cream skimming practices among health plans providers in a competitive health plan market in the Netherlands and in the US. As can be found in the literature,

private health insurance market has been the central point of discussion among several academicians since there is quite a significant cream skimming practice among the insurers that has undermined the role of private insurers themselves. Basically, some of the tools that can be applied by insurers to cream skim low risk are by using selective advertising, risk sharing between insurer and contracted providers, providing agents with incentives to encourage high-risk customer to switch to other insurers or by designing the supplementary health insurance themselves.

The avoidance of cream skimming has been discussed along the efficiency of risk adjustment and competitive regulation (Barros, 2000). In the Netherlands the government has imposed the rule of premium rate restrictions that should be applied to specify health insurance coverage. The aim is to prevent insurers from refusing to renew or to contract with high-risk type. In doing this, the sponsor such as the Government may have to complement it with a periodic open enrolment requirement (Vande ven, 2000). A periodic open enrolment suggests that during a period say annually, consumers will be allowed to change between insurers and these insurers will have to accept any applicant for a specified health insurance contract. In other words, during this period the insurers are obliged to offer the specified health insurance contract (Pauly, 1995).

Premium rate restrictions imply that insurers must charge the same premium for all individuals within certain risk classes such as family composition, geographical area or industry. This is referred to as 'community rating by class'. These forms of restriction are made to encourage cross-subsidies from low to high risk type and thus, adhering to the principle of solidarity (Van de ven, 2000)

As explained above, open enrolment is one of the way that can be used to prevent cream skimming but Van de ven (2000) argues that although insurer's incentive to select is reduced, it will not fully eliminate their incentive for selection. Open enrolment can in fact increase insurer's incentive for selection by using more discriminating forms of cream skimming. As explained in the early part of this essay, insurers may use adverse selection as a tool for cream skimming.

The government can also imposed a mandatory health insurance with complete uniform conditions as a way to reduce insurer's incentives to use adverse selection problem as a tool to cream skim but this type of regulation might reduce efficiency in the market itself. Van de ven (2000) argues that in this type of regulation, consumer's choice will be reduced and hence there will be welfare loss since it reduces insurers' incentives to serve customer preferences. Risk adjustment mechanism is widely discussed in the literature as an important mechanism to reduce cream skimming. Basically, it is a mechanism to spread among all plans the above average cost of the bad risks so that the incentives to engage in cream skimming will be reduced. This can be prospective or retrospective risk adjustment (Newhouse, 1998). The key concept of prospective

risk adjustment mechanism is to adjust for differential ex-ante or expected claims costs as opposed to actual experience. On the other hand, retrospective risk adjustment is aimed to adjust payments to health plans based on ex-post claims experience. These two mechanisms will be briefly discussed next.

Since regulation can be inefficient in reducing cream skimming, another proposed mechanism is by using risk adjusted premium subsidies. In a risk adjusted mechanism, the role of sponsor will be important to enable the health plan premiums to be risk adjusted. The important feature of a risk adjustment system is a risk adjusted premium subsidy from the sponsor to each client or to high-risk type only. In this method, the sponsor will organize a subsidy system that operates when the high-risk type receives a risk-adjusted premium subsidy from a solidarity fund.

This fund will have to be contributed by low risk type. This means that subsidies and solidarity contributions are fully adjusted by taking into consideration all the risk factors that insurers have and thus, all persons insured under the same insurance company will pay the same premium minus subsidy plus their solidarity contribution (Van de ven, 2000). There are several ways to manage the payment flows. For example in the Netherlands this subsidy payment will go directly to the insurer and the consumer will then pays the premium minus the subsidy to the insurer.

Risk sharing or retrospective risk adjustment mechanism could be another instrument to reduce cream skimming activity. This mechanism works in such a way that the sponsor would retrospectively reimburse the health plans for their acceptable costs (Ellis and Van de ven, 1999). Newhouse (1996) argues that this mechanism could reduce an incentive for selection but at the same time will reduce the incentives to improve efficiency. Risk sharing could be different from reinsurance in the sense that insurers will have to pay a risk-adjusted premium to the reinsurer and the loading fee used in the reinsurance premium will not at all help the health plans to reduce the predictable losses on high risk type. Traditional reinsurance might be suitable to smooth the adverse result of an insurer's portfolios but it might not work to reduce the health plans' incentives for cream skimming (Ellis and Van de ven, 1999)

In Malaysia, the government has acknowledged cream skimming practices among the insurers in the individual health insurance market and the Malaysian Medical Association (MAA) has proposed for the provision of an efficient compulsory social insurance. This can be a very efficient mechanism to collectively share the economic burden of private health care insurance in order to ensure accessibility, equity, affordability and appropriateness of health care insurance. However, public compulsory insurance can in turn be a welfare loss to the society as they have limited choice as mentioned in the early part of this paper.

## CONCLUSION

The mechanisms discussed so far are basically tailored to combat the adverse effects of cream skimming practices in the individual health plan insurance market and there are hardly any academic literatures that specifically discussed around the problem of cream skimming in other classes of insurance such as Motor or Property Insurance. In reality, there is no one perfect mechanism that can be used to combat cream skimming since there is a trade-off involved. For example by using ex-post risk adjustment mechanism, insurers' incentives to cream skim good risk will be reduced but this will in turn reduce the incentives for efficiency (Van de ven, 2000).

Newhouse (1996) acknowledged this trade-off by claiming that sponsor in a competitive health insurance market would always be confronted with a trade-off between efficiency and selection. Government regulation of health plan competition can also be considered as an important mechanism but the effectiveness of different regulations around the world to reduce cream skimming activity is still in doubt. There is insufficient data to compare the result between different countries. Lastly, the likelihood of a potential trade-off between risk sharing and risk adjustment mechanism must be acknowledged so that both mechanisms can work independently without any serious overlap that could undermine their efficiency in reducing cream skimming activity in the individual health insurance market.

## REFERENCES

- Barros, P. 2000. *Cream-Skimming Incentives for Efficiency and Risk-Adjustment*, Working Paper CEPRC (London), October 2000.
- Leida M. 2001. Health-Based Risk Adjustment. Is Inpatient and Outpatient Diagnostic Information Sufficient?, *Inquiry* 38(4), 2001, page 423 – 431.
- Linda J.B., and Len M. Nichols. 1998. Health Insurance Market Reforms, What They Can and Cannot Do: Available at <http://www.urban.org> [Assessed July 2003].
- Lund, Diderik and Nilssen, Tore. 2002. Cream-Skimming, Dregs Skimming and Pooling: On the Dynamics of Competitive Screening, Working Paper, University of Oslo: Available at [www.folk.uio.no/dilund/research/dregskim.pdf](http://www.folk.uio.no/dilund/research/dregskim.pdf) [Assessed July 2003].
- Mossialos, E., and Thomson Sarah. 2001. Voluntary Health Insurance in European Union', London School Economics: Available at [www.urban.org](http://www.urban.org) [Assessed July 2003].

- Newhouse, J.P. 1984. Cream Skimming, Asymmetric Information and a Competitive Insurance Market, *Journal of Health Economics* 3, page 97 – 100.
- Newhouse, J.P. 1998. Risk Adjustment: Where Are We Now?, *Inquiry* 35, 1998, page 122 – 131.
- Newhouse, J.P. 1996. 'Reimbursing Health Plans and Health Providers: Efficiency in Production Versus Selection', *Journal of Economic Literature* 34, page 1236 – 1263.
- Pauly, M.V. 1984. Is Cream Skimming a Problem for the Competitive Medical Market?', *Journal of Health Economics* 3, page 88 – 95.
- Rees, R., and Gravelle, H. 1992. *Uncertainty, Information and Insurance*, and *Microeconomics*, 2<sup>nd</sup>. Edition, Longman, page 606 – 615.
- Rothschild, M., and Stiglitz, J. 1976. Equilibrium in Competitive Insurance Markets: An Essay on the Economic of Imperfect Information, *Quarterly Journal of Economics* 90, page 629 – 649.
- Tracy, R.L., and David, E.M.S. 1998. Insurance, Adverse Selection and Cream-Skimming, *Journal of Economic Theory* 65, 1998, page 327 – 358.
- Van de Ven, W.P.M.M., and Ellis, R.P. 2000. Risk Adjustment in Competitive Health Plan Markets to be published in Newhouse, J.P., and Culyer, A.J., (eds), *Handbook of Health Economics*, North-Holland, Elsevier, Amsterdam.
- Van de Ven, W.P.M.M., et al. 2000. Access to Coverage for High-Risks in a Competitive Individual Health Insurance Market: Via Premium Rate Restrictions or Risk Adjusted Premium Subsidies, *Journal of Health Economics* 19, 2000, page 311 – 339.