

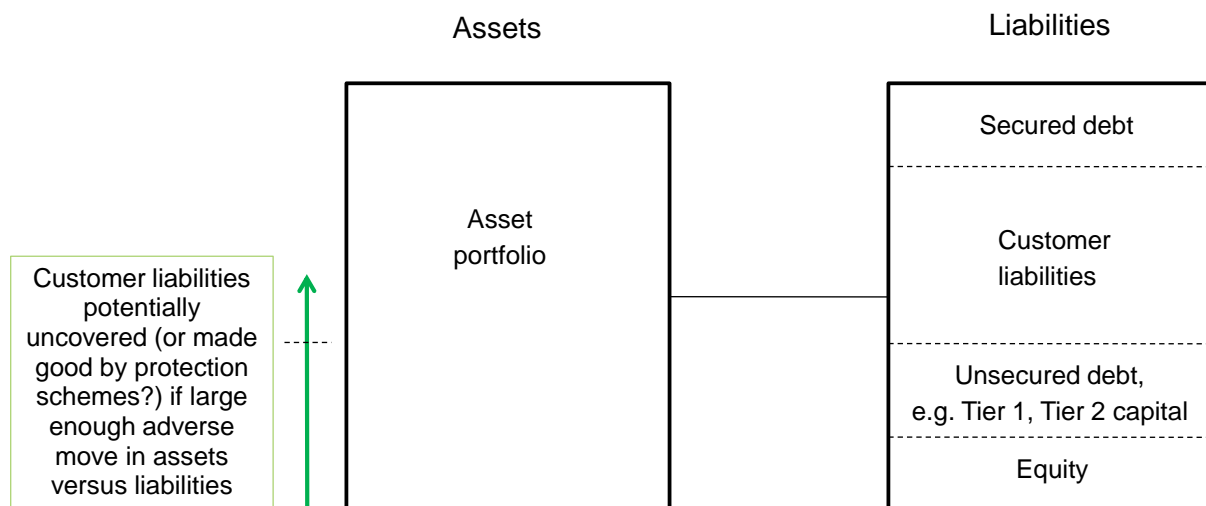
Capital adequacy: a conceptual framework

Derived from Appendix A of [Kemp \(2014\)](#)

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- A.1 To navigate through the many issues arising when we consider capital requirements it helps to have a clear conceptual framework capable of differentiating between the different aspects of and approaches to capital adequacy. Ideally it should be capable of incorporating the subtleties that exist in practice. For example, it should ideally explain the preference regulators and others might have for firms to use one sort of capital rather than another in addition to merely having a particular quantum of capital to hand.
- A.2 Such a conceptual framework is contained in [Kemp and Varnell \(2010\)](#), in turn based on one set out in [Kemp \(2009\)](#). Kemp argues that (absent future new business or capital raising) the full (or 'economic' or 'holistic') balance sheet of any financial firm or organisation can be conceptually organised as per Figure 1.

Figure 1: Schematic representation of any financial organisation's balance sheet



- A.3 In this representation, 'customer liabilities' correspond to liabilities to depositors (for a bank), policyholders (for an insurance company) or beneficiaries (for a pension fund). There may be some liabilities that rank above customer liabilities (e.g. mortgages secured on particular assets). Usually, however, most non-customer providers of the organisation's capital have a priority ranking below the firm's customers. In the event of default customers will be paid in preference to these capital providers.
- A.4 Stand-alone entities may only be able to replenish capital ranked below customer liabilities by raising new capital from elsewhere. The entity's ability to do so will depend heavily on the extent to which it is expected by outsiders to have access to profitable new business flows in the future.
- A.5 The same representation can also be used for a DB pension fund even though such an entity does not have the same profit-focused outlook that is typical of a commercial firm. Here, the

elements of the capital structure corresponding to the unsecured debt or equity shown above may refer to:

- (a) 'Surplus' capital built up previously and held within the pension fund (much like the P&L account for a commercial firm); plus
- (b) Implicit or explicit access that the fund may have to capital that is currently held on its sponsor's balance sheet.

Part (b) of this 'full' capital structure is usually termed the sponsor covenant and is akin to a contingent IOU that the fund may be entitled to call upon in times of trouble. If a DB pension fund has no sponsor (e.g. because the sponsor has defaulted) and therefore no sponsor covenant to fall back on (and if it has access to no other similar sort of benefit security mechanism) then its position is akin to a stand-alone entity as above. However, as it is not commercial, it is unlikely to be able to raise much capital ranking below its own beneficiaries in the event of getting into trouble.

A.6 All other things being equal, the greater the amount of capital the organisation has ranking below its own customer liabilities the better protected are its customers against the organisation running into difficulties. Only after this capital cushion is exhausted would customers start to find their liabilities not being fully honoured. A corollary is that 'solvency' is never absolute. As long as some customer liabilities exist there will always be outcomes we can envisage that are severe enough to exhaust this cushion and lead to customer liabilities not being honoured in full. For example, the organisation (or its sponsor, if the organisation is dependent on a sponsor covenant) might suffer a particularly massive fraud. It might be hit with a particularly large back tax or liability claim. It might suffer reputational damage which exhausts its future earning power. Or it might just make the wrong business decisions and end up making losses which exhaust its capital base.

A.7 Kemp's innovation is to specify the problem of how much capital an organisation should hold to be deemed 'solvent' in terms of the yield spread (versus risk-free) that would or should apply to customer liabilities were they to be traded freely in the market place. This yield spread might be equated with the fair CDS premium that a customer of the organisation would incur to eliminate exposure to the credit risk of that organisation. If defined as such the calculation might be viewed as fully 'market consistent'. More practically, it can be viewed as an approximation to this, or an assessment of what this premium might be given the actual capital adequacy framework and capital base within which the organisation operates. Such a conceptual framework highlights a large number of the subtleties that arise in theory and in practice with solvency computations, e.g.:

- (a) All other things being equal, more capital provides greater protection for policyholders, but lowers returns for the capital providers (unless it leads to greater access to profitability from new business).
- (b) The required target capital level depends on the extent to which assets match customer liabilities (since the greater the volatility in the difference the greater the likelihood of capital being exhausted).
- (c) The merits of capital that helps in a 'gone concern' as opposed to capital that merely helps in a 'going concern' situation become easier to appreciate, thus providing a clearer theoretical justification for different capital 'tiers'.

- (d) Treatment of liquidity risks becomes conceptually easier to visualise. If we invested in paper ranking *pari passu* with customers, how would the yield spread we would want be influenced by the liquidity characteristics of either assets or liabilities?
- (e) A yield spread, being ultimately derived from a sum of outcomes over all possible scenarios includes the entire spectrum of outcomes. It therefore includes ones in which the entity has defaulted. These would otherwise be ignored if the focus is merely on limiting ruin probability to a given level (for example a 1-in-200 1 Year VaR risk measure). This has relevance to the question of whether to use ES (or TVaR) rather than VaR as the main risk measure for capital adequacy purposes, see Section 3.
- (f) Given (e), the framework can also conceptually handle who bears any losses (and the sums involved) arising from entity default. It is these losses that arguably are the ones that have the most visible potential to flow through to governments and/or industry-wide protection schemes.
- (g) By referring to the spread that would otherwise apply on the open market, the approach can be formulated in a market consistent manner (even if in practice other 'off market', including 'real world', assumption sets might be used instead). It can therefore also be formulated in a manner that limits scope for potential regulatory arbitrage.
- (h) Issues relating to pro-cyclicality and macro-prudential supervision can be accommodated. To do so we include consideration of how we might want the target yield spread to vary through time (and between sectors) depending on economic circumstances.
- (i) The appropriate treatment of 'own credit risk' in solvency computations is clarified. In effect it no longer features in the calculation, since we are now solving for a given target level of own default risk rather than trying to work out how to take account of the actual level present.
- (j) The framework is sufficiently rich to allow for more subtle issues. For example, it can frame a discussion of what, if any, allowance should be incorporated in regulatory capital computations in respect of sovereign default risk (not just of other sovereigns but also of the government of the jurisdiction in which the entity is domiciled). The definition of 'risk-free' against which the spread is measured can, for example, be set before or after allowing for this risk, depending on whether it is thought that customers would expect their liabilities to carry this risk.

A.8 More fundamentally, we can think of this sort of analysis as an example of how commentators are increasingly seeking commonalities between different parts of the financial services industry. As we have noted earlier, this implicitly favours further harmonisation of capital structures and regulatory behaviours between different parts of the industry.

References

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