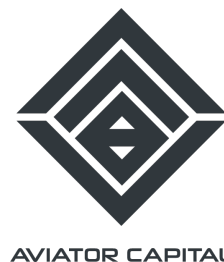


Aviator Update – March 2023

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Use this opportunity

Silicon Valley Bank. Heard of them? That's right – it's that U.S. bank that went bankrupt a few weeks back. I'm sure you hadn't heard of them prior to that – that's fine, neither had I.

How about Credit Suisse? Of course you've heard of them. Alas, after a long and rich history, they won't be a name you hear going forward. The failure of Credit Suisse is a bit of a shock, but to many finance people it's not exactly a surprise – Credit Suisse developed a reputation for being “accident-prone”. If in recent years you quizzed finance-pros on their tip for “most likely bank to blow up”, Credit Suisse would have been a very popular response.

I often cite Aviator's unofficial motto as “making sensible financial decisions based on a deep understanding of financial market operations and history”. I get really excited by events such as this. They aren't good. But they offer me – all of us – an opportunity to consolidate and build on our understanding of the financial world. I encourage you to make the most of it – seize this opportunity. I'll get you started.

Anatomy of a bank failure

I want to focus on Silicon Valley Bank. Although Credit Suisse is in a way more significant, Silicon Valley is, in my view, much more meaningful. That's because the failure of Silicon Valley was due to a number of key factors – factors that are relevant to all banks and will linger for some time.

What do banks do?

Easy enough question, right? The answer I think many people would offer up is “they take in deposits and make loans”.

Both these things are true although they are not nearly the most important function banks do. The number-one function banks have evolved to perform within the modern monetary system is to manage the global payments system. Understanding this function is really important.

I don't know about you but I rarely handle cash anymore. Most transactions are done electronically, right? What exactly happens when you jump on your internet banking and pay your water bill... or have your gym membership debited from your account... or transfer \$1,000 to your sister for your share of this weekend's trip away?

What happens when you waive your card at the PayWave terminal at the supermarket... then at the pub for a couple of beers... then again at the pub for a couple of beers... then at a restaurant for dinner... and a couple of beers?

The electronic version of money changing hands involves money being moved from your account over to someone else's account. If you happen to bank with the same bank, the bank merely moves money between different accounts. But if you bank with different banks, your bank will be required to send money to the other bank.

Dozens of transactions... hundreds... thousands... *millions of transactions daily*. The banking system is responsible for tallying them all up then transferring money to settle all the transactions. That's the global payments system and interbank market. Owned and operated by the private banking sector. Controlled by legislation enacted by governments and typically overseen by a central bank. It really is quite a marvel. Not perfect but its bloody good.

With regard to Silicon Valley Bank, you might have heard that they were losing heaps of deposits because many large clients – unprofitable tech companies – were “burning through cash”.

Now we understand how the payments system works, we can visualise exactly what this means. These clients were spending loads of money during the normal course of their business – paying salaries, rent, all the usual stuff. The receivers of these payments had accounts at different banks and thus Silicon Valley was being required to send money to other banks. Receipts of money by Silicon Valley accountholders were obviously much lower. Deposits were being “spent away” by their clients.

You might have also read about how Silicon Valley rode the wave of venture capital / startup tech and increased their deposits significantly over the past few years. We can use the same logic about the payments system to understand how and what this means.

They attracted some major new clients in the form of startup tech companies. This means they convinced them to be their bank – open an account/accounts and deposit their money. Many of these companies were being thrown silly amounts of money (“investments”) by venture capital and other investors. When an investor bought \$1 billion worth of shares in one of these companies, that \$1 billion flowed from the investor's bank into the company's account at Silicon Valley.

Banks and loans

Within the first draft of this I had written a section here about the mechanics of bank lending – how loans create deposits thus loans actually create new money. In the interests of time I'll spare you that today although that might be a topic you seek to review on your own.

Loans are the typical way banks fail. However, in the case of Silicon Valley, they actually found a different way to blow up. We therefore don't need to get too deep into their loan book and how loans are created.

Deposits - what to do with all this money?

Using Silicon Valley as an example, they experienced all these deposit inflows in recent years. What happens to all that money?

I'm sure most people would want to respond "nothing... it's other people's money the bank is minding for them... it just sits there".

That's partially true. Banks are very restricted (by regulation) on what they do with all that money. It's not there to be "spent" by the bank on executive bonuses and private jets. They can't invest it in things like crypto or shares.

Silicon Valley experienced a bank run. We'll get to that in a bit more detail but for now let's realise that many people are shocked and concerned to learn that their bank might not actually have their money – they might not be able to hand over their deposit on demand. That's true, but it's not necessarily the problem many people think.

Let's have a look at a bank balance sheet. How about we use something closer to home – here's Bendigo and Adelaide Bank's balance sheet for the 2022 financial year:

Balance sheet
As at 30 June 2022

	Note	Group	
		June 2022	June 2021
		\$m	\$m
Assets			
Cash and cash equivalents	8	3,541.0	7,086.3
Due from other financial institutions	8	188.0	173.4
Financial assets at fair value through profit or loss (FVTPL)	11	30.5	1,678.7
Financial assets at amortised cost	12	861.7	351.5
Financial assets at fair value through other comprehensive income (FVOCI)	13	9,618.1	2,186.1
Derivatives	18	59.9	59.1
Net loans and other receivables	9	77,610.4	71,920.6
Investments accounted for using the equity method		14.5	9.7
Shares in controlled entities	29	-	-
Property, plant and equipment		179.6	205.9
Deferred tax assets	4	48.6	42.2
Investment property	23	920.3	901.7
Goodwill and other intangible assets	24	1,808.3	1,631.9
Other assets	25	362.8	330.1
Total Assets		95,243.7	86,577.2
Liabilities			
Due to other financial institutions	8	178.8	175.4
Deposits	14	74,583.9	66,217.1
Other borrowings	15	11,703.0	11,736.3
Derivatives	18	34.8	45.3
Amounts payable to controlled entities		-	-
Loans payable to securitisation trusts	17	-	-
Income tax payable	4	50.6	44.2
Provisions	27	122.2	120.5
Other payables	26	492.4	501.7
Loan capital	16	1,366.1	1,383.2
Total Liabilities		88,531.8	80,223.7
Net Assets		6,711.9	6,353.5
Equity			
Share capital	21	5,219.5	5,049.5
Reserves	22	105.9	138.0
Retained earnings	22	1,386.5	1,166.0
Total Equity		6,711.9	6,353.5

Of course, there's differences in banking regulations, reporting and some other factors between the U.S. and Australia, but the monetary system is basically the same.

I've highlighted a couple of items there. Compare "cash" to "deposits". Good god, cash is tiny compared to deposits – if deposit holders started asking to withdraw their money, the bank would very quickly "run out of money"! That's kinda true...

Broadly, what banks seek to do through business operations is to generate income from "assets" that exceeds the expenses associated with "liabilities". There's costs attached to liabilities and there's options available for maximising income from assets.

In the U.S., banks park meaningful amounts of “cash” (“deposits”) in government bonds – “treasuries”, as they are generally known over there. That’s because it’s one of the few things they are allowed to invest in. “Cash” doesn’t earn much – if anything. Bonds offer a return in the form of interest.

The Bond Market

The next chapter of our story takes us into the bond market.

If the government is running a deficit (spending more than it takes in as taxes) then its constantly issuing new bonds to “fund” the deficit. (Technically, it doesn’t need to do this – it can just “spend” without needing to fund it but the systems in place essentially requires the government to fund spending via either taxation or bond issuance.)

When it sells a new bond, it will need to offer an interest rate comparable to the current “market”. The “market” is largely based on “official interest rates” – the rate set by the central bank, being the Reserve Bank here in Australia and the Federal Reserve (“Fed”) in the U.S.

In bond-land (especially government bonds) it’s typical that “prices” quoted are not actually the price of the bond but the prevailing interest rate assigned by the market. Here’s 2 years’ worth of “price” data for the U.S. 10-year:



Again, the market interest rate is largely a function of the official interest rate set by the central bank – both the current rate but also (more importantly) expectations of what the official rate will be in the future.

To briefly digress, there's another important factor for bond pricing – “credit risk”. Bonds are loans. When an organisation issues a 10-year bond, they are promising to pay the interest rate assigned to the bond as well as repaying the loan at the end of that 10-year period. The loan will be repaid “at par”, which by convention is generally referred to as “\$100”.

Of course, there's always a chance that the organisation issuing the bond won't be able to repay the loan – that's “credit risk”. Credit Suisse and Silicon Valley bondholders are feeling some credit risk right now.

U.S. government bonds have no credit risk - there is no risk that the U.S. government won't be capable of “repaying” the loan. I know some people will object to that assertion. I also know that I won't be able to change those peoples' minds so I won't dwell on that topic today.

The price of a bond will essentially be based on its “yield to maturity” and how this compares to other bonds. Credit risk is of course important, but as we're talking about government bonds here we can ignore that.

It's time for some maths.

The “yield to maturity” can be calculated using the following formula:

$$YTM = \frac{C + \frac{FV - PV}{t}}{\frac{FV + PV}{2}}$$

Where:

C = Interest/coupon payment

FV = Face value of the security

PV = Present value/price of the security

t = How many years it takes the security to reach maturity

Have a play around with the formula. Build it in Excel. Change up the variables and see what happens.

What you will find is that when a bond is trading at “par” (FV and PV equal), the yield to maturity is the coupon rate. Said slightly differently, if you pay \$100 for a bond yielding 1.3% p.a., your yield to maturity is 1.3% p.a. - that's pretty logical.

What happens if interest rates change? Unless the bond is “floating rate” (and U.S. government bonds are generally fixed coupon), the interest you’re getting on your bond doesn’t change. But if market rates have risen you could now get a better interest rate on a new bond issued by the same lender.

Say that you could now get 3.6% return on the same bond from the same lender (refer to the chart above). What happens to the value of the bond you hold that pays a much lower coupon?

Well, if we play around with our formula, let’s set the yield to maturity at 3.6% (the current yield offered on a new bond) and then solve the formula to find “PV”.

As an additional step, say we bought our 10-year bond 2 years ago. Essentially, we now have an 8-year bond so we can reduce “t” to 8.

What you’ll find is the result you get for “PV” is lower than 100 – lower than “par”. A LOT lower than par. A number in the low \$70’s.

Brutal. That “risk-free” government bond you bought 2 years ago for \$100 is now worth \$70-something!

(Note to bond traders, CFA’s and general financial smarty-pants’s: Yes, this is simplistic. Yes, the formula is the “approximation formula”. Yes, there’s a lot more to bond pricing and trading... But I hope you can acknowledge that this is all accurate – albeit a bit crude.)

“Only a loss if you sell”

This silly saying is a bit of a joke in equity land. If you’ve paid pay too much for a share in an unprofitable company and its (predictably) crashed, telling yourself “it’s only a loss if I sell” is, well, “optimistic” to say the least. But the saying is apt in these circumstances.

To briefly recap, U.S. banks are large buyers/holders of treasuries as its one of the few things they can “invest” in to increase their return on the cash they hold. For much of the last decade, with central banks hell-bent on keeping interest rates close to zero, banks have been able to choose between earn zero by holding cash or reach for a small yield in treasuries. The consensus has been interest rates would stay extremely low... inflation was supposed to be “transitory” (it still is!). You can’t really blame banks for investing reserves in bonds – it’s a standard part of their business.

Depending on what they bought and when, there’s many banks sitting on some large losses within their portfolios. Some have been more “aggressive” with cash management than others. If you want to explore this some more, research the accounting nuances related to “available for sale” versus “held to maturity” – we don’t have time to go into that today although it is a very relevant part to this story.

But remember that, provided the lender doesn't default, when it comes to bonds, holders don't face any risk of capital loss. The bonds will pay out "at par" on maturity. All it means is that, relative to comparable current investment options, the return they are getting on the bonds is poor.

No interest

What sort of interest rate have you been receiving on cash at the bank in recent years? Zero? Yeah, pretty much...

As I've observed a few times in the last year, the interest rate you can get on cash has now come off the floor – there's some decent rates available but you generally have to take some action to get it. This is true both in Australia and also the U.S.

Although official rates (and bond yields) have risen dramatically, U.S. banks have been very slow to increase the rate paid on deposits. Executives have even boasted about this – "we're getting a lot more now in terms of interest revenue but have not had to raise the rates paid to deposit holders!".

Deposit holders are catching on. They've caught on that there are other options and with just a little effort they can greatly increase the return they earn on their cash.

Digressing for a moment, the Federal Reserve has a lot to answer for on this. As we have covered repeatedly over the past decade, the mechanics of their stupid "quantitative easing" program meant that the banking system has been flush with reserves. These cash reserves are equivalent to "cash" held via deposits. In other words, with the banking system so full of excess reserves, banks haven't had to compete for deposits as much as, well, "normal times". Just another "unintended consequence" rearing its head.

In the U.S. there's a product called a Money Market Fund. It's an investment fund that basically manages "cash" via investing in cash and cash equivalents such as short-term treasuries. We have similar things in Australia called Cash Management Trusts – these are often the "cash hub" for your superannuation fund. You're going to get a return similar to short-term treasury bond yields which are similar to official interest rates – in other words 3 or 4% in the U.S.

So here's the deal... U.S. treasury yields have risen significantly. Banks invest some of their cash (deposit holder's cash) in treasuries and are enjoying an uptick in interest income... but (generally-speaking) they have not increased interest paid on deposits at all. Deposit holders are realising that if they move their cash to a money market fund, they get a much higher return (and for no greater risk – in fact, less risk).

An important “solution” to some of the current woes would be for banks to raise rates paid on deposits to something resembling money market funds. Here’s an amusing graphical explanation of this:



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JAKE-CLARK.TUMBLR

Electronic bank run

It’s on! For many months now, deposits have been flowing out of banks and into money market funds. And again, as described earlier, some banks are also losing deposits as they are “spent away” from them.

And what banks (and regulators) seem to have just discovered, is that in the modern world, anyone with a smart-phone can open a new bank account (or money market account) and transfer savings in barely a few minutes.

So what exactly happened to Silicon Valley?

Connecting a few dots, the chain of events was essentially as follows:

- Silicon Valley had experienced fairly significant deposit outflow partly due to money being “spent away” from them and also deposit holders transferring money away for a better yield elsewhere
- They basically “ran out of money” and were forced to sell some treasury holdings at a loss.
- Accounting standards required to book the loss through their P&L and they announced a plan to raise some additional new capital to replenish the hit they took.
- People got scared that the bank was in financial trouble. Word spread and a run on deposits ensued.
- It was reported that Silicon Valley Bank copped around US\$43 billion in deposit withdrawals within a day!
- The bank faced such a large loss from selling bonds to raise funds in order to meet deposit demand that it basically wiped out its capital base.

It should be noted that Silicon Valley was known to have been “aggressive” in its management of money – many months ago a number of eagle-eyed investors spotted the dangerous mismatches the bank had amassed without any hedges to offer it protection.

Relax – they’re solvent

Banks blow up when they manage to lose their capital base. Traditionally, this is done via making bad loans. This reserves mis-management thing is quite a novel way to blow up...

Quite a few commentators are shrieking about the banking system in general being insolvent if all assets were “marked to market”. As many have said, the Federal Reserve would surely be deeply underwater.

The thing is it just doesn’t matter that much. We’re talking about U.S. government bonds here. As described earlier, provided they are held to maturity no loss will be suffered.

But that’s not to say that there’s nothing to worry about.

Deposit outflows will continue as deposit holders catch on that there’s a better return elsewhere.

There’s also a major “trust” issue now. Many people will want to find an alternative to bank deposits due to concerns that their deposit is at risk if the bank fails.

Expect banks to continue to suffer major deposit losses. This will likely strain some other banks close to breaking point. It will impact some more than others. There's becoming a widespread understanding that all banks are not equal – the big ones are “too big to fail”. A nasty unintended consequence of the actions and messaging from governments since the Global Financial Crisis.

The Federal Reserve has taken some important steps by introducing the “Bank Term Funding Program” – a new facility for banks that allows them to pledge treasuries – at par – in exchange for loans to ease any liquidity issues. It's getting some good use so far.

There's over 4,000 banks in the U.S. The smaller ones play a vital role in servicing small business. And we've all heard the statistic about how small business is responsible for most jobs.

What are smaller banks doing with all the distractions of deposit flight? Or more accurately, what are they not doing?

They aren't making loans. Recent surveys show that availability of credit to business has declined meaningfully. We've got the makings of a “credit-crunch”. At a time when there's plenty of other headwinds for the economy.

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